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Sumário

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39º Congresso de Pneumologia

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CO 001. TUBERCULOSIS SCREENING OF UKRAINIAN REFUGEES IN PORTUGAL

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Introduction: On February 24, 2022, Russia launched a military offensive in Ukraine that has already caused an undetermined number of deaths and more than 11 million refugees. At least 48 thousand refugees applied for temporary protection in Portugal by August 2022. Ukraine is one of the tuberculosis (TB) high-priority countries in the World Health Organization (WHO) European Region and one of the nine countries globally with a high burden of multidrug-resistant TB. In Portugal, there are no specific recommendations regarding TB screening among refugees, although according to Portugal's Directorate-General of Health, all citizens coming from the Ukraine should be asked about symptoms, exposure, comorbidities or risk factors for disease progression.
Objectives and methods: We conducted a cross-sectional study using an electronic survey. The aim was to understand what adjustments the different national Outpatient TB Centers (OTBC) made to comply with TB screening in Ukrainian refugees. The survey was sent five times via email to all OTBC coordinators to increase the response rate. Responses were collected during August 2022.
Results: Twenty-nine OTBC coordinators responded to the questionnaire, from a total 61 (response rate of 47.5%). Twenty-three OTBC (79.3%) mentioned that TB screening was performed in Ukrainian refugees, approximately fourteen days after arrival in Portugal. The screening process included a symptom questionnaire and chest radiography (52.2%). Additionally, 47.8% (n = 11) reported including latent TB infection (LTBI) screening with tuberculin skin test and/or Interferon Gamma Release Assay. In 65.2% (n = 15) of the OTBC carrying out TB screening of Ukrainian refugees, more than 20 were performed. OTBC coordinators flagged only one patient with a previous diagnosis of TB. There were 13 diagnoses of LTBI, mainly in the Northern RHA (76.9%). In this region, most of the centers (55.6%) only included a symptom questionnaire and chest radiography. Treatment for LTBI was carried out in 7 patients (53.8%). No new TB diagnosis were made. Nonetheless, the following problems were raised: refugees' mobility to another city, refusal to perform chest radiography, linguistic barrier, lack of human resources and response rate across all RHA.
Conclusions: TB screening is a current challenge and ensures that people with a previous diagnosis continue to be medically treated. However, it is not surprising that European Centre for Disease Prevention and control (ECDC) and WHO Europe recommended screening and testing only for certain refugee groups, such as people living with human immunodeficiency virus (HIV) or those who are contacts of TB patients. It is essential to balance benefits and harms, such as stigmatization, discrimination, resource use and mental health issues.

Keywords: *Mass screening. Portugal. Refugees. Tuberculosis. Ukraine.*

CO 002. 21ST CENTURY, YEAR 2022: THERE ARE STILL DEATHS FROM TUBERCULOSIS IN PORTUGAL

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Introduction: Tuberculosis (TB) remains one of the leading causes of death worldwide. Portugal is the country in Western Europe with the highest incidence rate. Despite the reduction in the number of reported cases in 2020/2021, there was an increase in the number of TB deaths. At Vila Franca de Xira Hospital, three cases of death from TB were registered in 2022, which are described below.
Case reports: Case-1: Male, 67 years old, born in Guinea-Bissau, evacuated to Portugal on April/2022 for study and treatment of consumptive status and lesion of the oropharynx. Tongue biopsy showed locally advanced oropharyngeal squamous cell carcinoma (cT4aN2M0). Cervico-thoracic-CT (30/04/2022) with several areas of consolidation outlining cavitations in the upper lobes and apical segment of the right lower lobe, with associated tree in bud pattern. Underwent several cycles of antibiotic therapy, without clinical improvement, and ended up being hospitalized before starting anti-tumor treatment, in a state of cachexia, fed by PEG. He was evaluated by pulmonology during hospitalization, who re-

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quested a mycobacteriological study of sputum and started quadruple antibacillary therapy. BAAR and PCR-MTC (M. tuberculosis complex) were positive. Died on the 30th day of hospitalization (3rd antibacillary). Subsequent cultural isolation of MTC sensitive to 1st line antibacillars. Case-2: Male, 72 years old, leukodermic, autonomous. History of hypertension and heart failure due to ischemic heart disease, former smoker (55 pack-years). He was referred to the emergency department (ED) with a 5-month history of non-productive cough, dyspnea, asthenia and anorexia. Observation revealed marked cachexia. Chest-CT showed a micronodular pattern with random distribution and mediastinal and abdominal adenopathies. He was hospitalized for clarification, under antibiotic therapy. He was evaluated by a pulmonologist who, due to suspicion of disseminated TB, performed bronchofibroscopy and instituted antibacillary therapy. Died on the 5th day of hospitalization (1st antibacillary). Posthumous results of negative BAAR, positive PCR-MTC and culture, with isolation of MTC sensitive to 1st line antibacillars. Case-3: Male, 55 years old, leukodermic, autonomous. Personal history of hepatitis C infection, alcoholism, former drug addict on methadone program. He came to the ED with dyspnea, asthenia and unquantified weight loss over months. Chest-CT showed extensive consolidations with air bronchogram, associated with thick-walled cavitations in the upper lobes and apical segments of the lower lobes, mediastinal adenopathy, with virtually no subcutaneous fat. He was hospitalized for cachexia and probable active pulmonary TB. Sputum samples were collected and antibacillary therapy was started. Died on the 2nd day of hospitalization (1st antibacillary). Positive BAAR-test result on the same day after death.
Discussion: In Portugal, despite the sustained reduction in the tuberculosis notification rate, there has been an increase in the delay of diagnosis. This delay is partly attributable to the patient, due to fear and difficulty in accessing health care generated by the COVID pandemic and low TB literacy, especially in vulnerable populations, but also to health professionals, with a persistent increase in the delay until diagnosis, resulting from a low clinical suspicion for TB. Late diagnosis is associated with more extensive disease, with worse prognosis, as exemplified in the cases described.

Keywords: *Tuberculosis. Cachexia. Death.*

CO 003. CHILDHOOD TUBERCULOSIS IN PORTUGAL – CURRENT PORTRAIT OF THE CENTER REGION

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Centro Hospitalar Baixo Vouga.

Introduction: Tuberculosis continues to be an infectious disease responsible for high morbidity and mortality worldwide, including in the pediatric population. The Bacillus Calmette-Guérin (BCG) vaccine is the only approved vaccine against *Mycobacterium tuberculosis* (Mtb) and it protects against severe forms of TB in children, with an efficacy of around 80%. In 2016, BCG vaccination ceased to be part of the National Vaccination Plan, becoming recommended for children belonging to risk groups aged 5 years or less.
Objectives: To study the evolution of the number of cases of Tuberculosis, and its main characteristics, in children up to 15 years of age, diagnosed from 2010 to 2021 in the Health Region of Central Portugal.
Methods: The authors analyzed epidemiological and clinical data of children aged up to 15 years with active or latent tuberculosis from 2010 to 2021. Data were extracted from SVIG-TB. Information on BCG vaccination status was also included.
Results: A total of 208 children were identified, 30 diagnosed with active tuberculosis and 178 with latent infection. Of the cases of active tuberculosis, 18 occurred from 2010 to 2015, 5 of them unvaccinated. From 2016 to 2021, 12 cases were observed, of which 7 were unvaccinated. Of the total number of cases, 56.7% (17) were male and the mean age was 7.27. Regarding the origin CDP, 10 were from Coimbra, 10 from Aveiro, 5 from Viseu, 3 from Castelo Branco and 2 from Leiria. It was observed that 24 cases had a negative HIV serology record. The most frequent location was pulmonary (18), followed by pleural (4), ganglionic (3), peritoneal (1), meningeal (1), bone (1), disseminated (1) and another location (1). The most frequent initial treatment scheme was isoniazid, rifampicin, ethambutol and pyrazinamide, in 17 cases. TOD was recorded in 17 cases. Complete treatment was verified in most cases (28), with 2 still being treated. Regarding latent infections, 52.8% (94/178) occurred up to the year 2015, of which only 3 children were not vaccinated. The remaining cases (47.2%) occurred between 2016 and 2021, and 15 of these children were not vaccinated. Of the 178 children, 54.5% (97) were male and the mean age was 8.43 ± 4.7 years. In 63.5% (113/178) of latent infections, the initial treatment was isoniazid, 11.2% (20/178) was isoniazid and rifampicin, and in (6/178) rifampicin alone. Only 1.1% (2/178) had a DOT prescription record. Complete treatment was verified in 88.2% (157/178) of cases, 4.5% (8/178) interruption/abandonment, 1.1% (2/178) transfer/emigration and the remaining 6.2% (11/178) are still being treated.
Conclusions: Despite the reduced numbers observed, the authors highlight the occurrence of severe forms of tuberculosis, with potential sequelae, in two unvaccinated children. The authors also emphasize that it is plausible that during the years 2020 and 2021 there was underdiagnosis and underreporting of tuberculosis related to the COVID-19 pandemic, as well as the potential protective effect of preventive measures such as the use of a mask and the reduction of social contacts.

Keywords: *Childhood tuberculosis. Vaccine. BCG.*

CO 005. STRATEGIES AND INTERVENTIONS TO PROMOTE TREATMENT ADHERENCE IN PEOPLE WITH ACTIVE TUBERCULOSIS: PRELIMINARY FINDINGS OF A SYSTEMATIC REVIEW

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Introduction: Despite significant worldwide efforts to eliminate tuberculosis (TB), it continues to be a major contributor to mortality, standing as the 13th leading cause of death and 2nd in terms of infectious diseases. People with TB face significant challenges during the treatment period, such as a long regimen with potential serious and adverse reactions; to which added hindrances, social and economic constraints can arise. In this sense, adherence should be understood as a result of a complex and interconnected system, where dimensions such as treatment administration options and social support should be taken into consideration and adequately assessed. Thus, with the present review we aim to assess the efficacy of different strategies, interventions and/or programs aimed at improving treatment adherence in people with active TB.
Methods: We conducted a systematic search of four electronic databases (MEDLINE/PubMed, WebOfScience, SCOPUS, and CENTRAL) according to PRISMA guidelines, during June 2023. Quality of the included studies was appraised with the Cochrane Risk of Bias tool, for randomised controlled trials; and for non-randomized studies with the Newcastle-Ottawa Scale. Primary outcomes were treat-

ment success (treatment completion and cure) and losses to follow-up, which were meta-analysed and confidence in results was assessed using GRADE.
Results: As of July 31st, 2023 a total of 24 studies with 20,226 participants (9,768 Control; 10,458 Intervention) were included. Preliminary findings suggest that for treatment success, directly observed treatment (DOT) combined with other mechanisms, namely social and psychological support, comprehensive health education, medication and/or appointment reminders; and community based DOT were found effective. Similarly for treatment completion, DOT combined with phone-based system reminders, social, community and psychological support were also found to be effective. For losses to follow-up, only community based DOT and treatment with follow-up in the health care centre, combined with educational strategy and monthly reminders were found to be effective. Interestingly, DOT appears to show variable effectiveness, highlighting that implementation, population and setting may play important roles.
Conclusions: Adherence remains a complex and challenging concept to define universally, leading to difficulties in identifying interventions aimed at promoting it and/or summarising research findings. Additionally, the lack of a standardised methodology to measure treatment adherence contributes to inconsistent outcomes, hindering the comparison of various interventions. So far, a notable gap in the majority of studies is the limited exploration of the experiences of people with TB regarding the interventions being evaluated. The absence of a comprehensive assessment of people with TB's perspectives, beliefs, and attitudes about these interventions is evident, hindering a more holistic understanding of their impact and effectiveness. Addressing these shortcomings will be crucial for advancing our knowledge and developing more patient-centric strategies to enhance adherence to TB treatment.

Keywords: *Adherence. TB. Tuberculosis. Treatment success.*

CO 006. TUBERCULOSIS EVERYWHERE? – BIOTECNHOLOGY DRUGS AND LATENT TUBERCULOSIS SCREENING

Maria da Cunha, Paula Rosa, Luís Coelho, Ana Ferreira Alves, Joana Carvalho, Soledade Estríbio, Francisca Guimarães, Joana Canadas, Raquel Armindo, Raquel Borrego, Dalia Cora

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Introduction: In recent years, biotechnological drugs have become treatment options for several diseases, across a number of Specialties. Because they are systemic immunossupressors, patients should be submitted to an infectious screening, particularly Latent Tuberculosis (LTB); physicians should evaluate epidemiology and exposure risk, interferon gamma release assay (IGRA) and tuberculin sensitivity test (TST), as well as thoracic imaging. In Portugal, they should be referred to the tuberculosis centers, Centros de Diagnóstico Pneumológico (CDP).
Objectives: Analysis of patients referred to CDP for LTB screening in the context of current/future biotechnology drug treatment. The main goal is to describe the indications, antitubercular drugs used and complications of LTB treatment.
Methods: Retrospective study using clinical records (SClinic®) of all patients submitted to LTB treatment in the context of biotechnology drug treatment in CDP Estuário do Tejo, in 2022 and first semester of 2023. The following parameters were evaluated: sex, age, smoking history, diagnosis, Specialty and Hospital referral, current and proposed biotechnology treatment, exposure or previous TB diagnosis, previous LTB treatment, risk exposure (occupation, nationality, prolonged stays in high incidence TB countries), clinical manifestation, HIV status, IGRA/TST result, imaging abnormalities, LTB treatment, complications and treatment changes.
Results: Of the 187 patients who underwent LTB screening (41.71% on the first semester of 2023 and 58.29% in 2022), 51.33% were women, median age 40.24 ± 16.54 years, the majority never-smokers (60.96%). Rheumatology (n = 82, 43.85%), Dermatology (n = 55, 29.41%) and Gastroenterology (n = 31, 16.58%) were the main referrals, 76.57% from public hospitals; the most common diagnosis were Psoriasis (32.09%), Rheumatoid Arthritis (17.65%) and Crohn's Disease (9.63%), mainly proposed for anti-TNF therapy (n = 77, 41.18%). Almost all patients were asymptomatic (99.47%). There were no suspicious active TB imaging abnormalities, however 21.93% individuals had evidence of TB sequelae. Immune testing was positive in 30.48% (20.32% positive IGRA; 27.27% positive TST, median diameter 14.91 ± 6.64 mm); all patients were HIV negative. Epidemiology inquiry revealed 4.82% with occupational risk exposure, 24.06% with prolonged stay in high incidence TB countries, 2 inmates, 3 patients with previous treatment for active TB and 12 (6.48%) for LTB. Based on these screening results, 85 patients started LTB treatment (45.45%), 89.41% com isoniazid (n = 76). Hepatotoxity was reported in 8 patients (9.41%), leading to treatment switch to rifampicin (87.5%, n = 7).
Conclusions: LTB screening is essential in patients proposed or currently under biotechnology drug treatment. In the past year, there has been a significant rise in CDP referrals, which highlights the increased usage of these drugs by physicians, as well as an important increment of patients followed in Portugal's CDP.

Keywords: *Biotechnology drugs. Tuberculosis. Latent tuberculosis. Screening.*

CO 007. RE-TREATMENT, RESISTANCE AND OUTCOMES IN TUBERCULOSIS: A HISTORICAL PERSPECTIVE

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Introduction: In 1992, multiple factors resulted in a worldwide increase in new TB and MDR-TB cases.
Methods: Analysis and historical comparison from a Portuguese cohort of re-treated inpatients in 1992.
Results: Twenty-nine patients with a 45-year mean age were admitted for re-treatment. Previous regimens included 1st-line drugs (81.5%) or kanamycin/FQ regimens (18.5%). Time from last treatment was variable (1-18 years). The most frequent resistances were H (72%), S (55%) and Z (41%). R resistance was rare (3%). Post-admission, 44.8% started HRZE/HRZS. Other regimens included Km (41.4%) and FQ (13.8%). 55% of patients achieved culture conversion. Comparison to current cohorts showed a significant difference between past and present treatments (p = 0.003).
Conclusions: Our study illustrates the MDR-TB treatment challenges in 1992. At the time, guidelines suggested the use of 3 effective drugs. Similar historical studies using a mean of 3.7 effective drugs achieved a culture conversion rate of 51.2%. Our cohort's high conversion rate, despite sub-optimal therapy, shows the impact of adherence in TB patients. New drugs like bedaquiline have changed the MDR-TB landscape, with regimens achieving > 80% culture conversion. An interesting finding was the low number of RR-TB cases in our cohort. Concurrent pharmacological studies showed considerable variation in the fitness of R-resistant strains compared to drug-susceptible or H-resistant strains. This aligns with our data, which shows low R resistance in patients with previous multiple treatments. New treatments are more effective in treating MDR-TB. Rifampicin-resistant strains were probably less fit at the time, resulting in fewer RR-TB cases.

Keywords: *MDR-TB (multidrug-resistant tuberculosis).*

CO 008. CHARACTERIZATION OF ADVERSE EFFECTS REPORTED BY PATIENTS UNDER ANTITUBERCULOSIS THERAPY

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Introduction: Tuberculosis remains a major public health problem and its treatment is mandatory. However, the treatment is long and complex consisting of a set of several drugs with potential adverse effects. The impact that the disease has on the patient's life is undeniable with adverse effects of therapy being a frequent negative contribution. **Objectives:** The aim of this work is to characterise most commonly reported adverse effects by patients on first-line treatment for active tuberculosis. Materials and **Methods:** For this study, voluntary self-completion questionnaires were prepared and distributed to patients under treatment for tuberculosis in 3 Pulmonary Diagnostic Centres in the Lisbon and Tagus Valley region during the month of May 2023. The questionnaires assessed demographic data and adverse effects of antituberculosis therapy reported by patients.
Results: Of the total of 67 questionnaires completed, 42 were by patients with active tuberculosis. Of these 42 patients, 57% (n = 24) were male. The majority (55%; n = 23) were Portuguese nationals, with the remaining being migrants coming from various countries, mainly PALOPs (Portuguese-speaking African countries). The adverse effects reported by patients were: nausea and vomiting in 29% (n = 12); abdominal pain in 19% (n = 8); diarrhoea in 12% (n = 5); paraesthesia in the limbs in 55% (n = 23); arthralgias in 45% (n = 19); hair loss in 24% (n = 10); 40% (n = 17) reported feelings of sadness. Of the patients assessed, only 12% (n = 5) denied any adverse effects. It should also be noted that 43% (n = 18) of patients reported 3 or more adverse effects associated with the therapy. Discussion and conclusions: The majority of evaluated patients reported adverse effects of antituberculosis therapy, often mentioning more than one adverse effect, suggesting a significant impact of antituberculosis therapy on their quality of life. Contrary to what has been described in the literature, the main adverse effect reported by the patients assessed was the sensation of paraesthesia in the limbs, followed by complaints of arthralgia. The high percentage of patients who reported feelings of sadness is also noteworthy, which makes it evident the importance of also questioning the patient's emotional state regarding the disease and its treatment, so that timely and effective help can be offered. A thorough assessment of adverse effects is of utmost importance in order to reduce the impact of therapy on patients' quality of life, which may lead to discontinuation.

Keywords: *Antituberculosis therapy. Adverse effects. Tuberculosis.*

CO 009. HYPERSENSITIVITY REACTIONS AND SUCCESSFUL DESENSITIZATION TO ANTITUBERCULOUS DRUGS

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Introduction: Tuberculosis remains an important public health issue in Portugal. Prompt treatment with the recommended regimen of isoniazid, rifampicin, pyrazinamide, and ethambutol (HRZE) is essential to improve prognosis and prevent the emergence of resistances. Hypersensitivity reactions to antituberculous drugs occurs in about 4% of patients with a variable clinical presentation, with delayed mild skin reactions being the most common. The drugs most implicated are rifampicin and pyrazinamide. Desensitization protocols have been associated with high success rates. We present two cases of patients with hypersensitivity reactions to antituberculous drugs who underwent successful desensitization.
Case reports: Case report 1: 52-year-old woman with a medical history of depressive syndrome, dyslipidemia and allergic rhinoconjunctivitis. She denied any history of smoking, alcohol consumption or known drug or food allergies. She was diagnosed with multidrug-sensitive pulmonary tuberculosis. Treatment with HRZE was initiated, but she presented with an immediate urticarial reaction 10 minutes after the first dose. The case was urgently referred to Allergy specialists and the patient was admitted to reintroduce the drugs according to the defined protocol. The oral provocation test was positive for pyrazinamide, with the patient showing a generalized pruritic erythematous rash 90 minutes after completion of the test. She had no accompanying symptoms and the rash resolved after administration of clemastine and hydrocortisone. The drug was reintroduced using a 3-day desensitization protocol, without further adverse reactions. Skin tests (prick and intradermal) and oral provocation tests were negative for the remaining antituberculous agents, which were reintroduced without complications. The patient is currently medicated with the full-dose HRZE regiment, with good tolerance. Case report 2: A 39-year-old woman with no known medical history, regular medication use, allergies, or harmful habits, was diagnosed with cavitary and bacillary multidrug-sensitive pulmonary tuberculosis. She initiated treatment with HRZE and after two weeks of treatment, she presented with an extensive skin reaction characterized by a disseminated pruritic erythematous papular rash, accompanied by edema of the face and lips, without stridor or choking sensation. All antituberculous drugs were suspended, and she was given antihistamines and oral corticosteroids with significant improvement. The case was discussed with Allergy specialists and it was decided to admit the patient in a negative pressure room for reintroduction of the drugs using an oral provocation test with 72hour intervals. The test was positive for pyrazinamide, with the patient showing a mild skin reaction. Pyrazinamide was reintroduced using a desensitization protocol without further complications. No other adverse reactions were observed, and the patient was discharged under full-dose HRZE treatment with tolerance.
Discussion: Discontinuation of HRZE treatment is a significant risk factor for the development of drug-resistant tuberculosis and second-line antituberculous drugs are associated with a higher rate of adverse effects, making drug desensitization essential in patients with hypersensitivity reactions to the first-line regimen. These cases highlight the variability of hypersensitivity reaction presentations and emphasize the importance of a prompt collaboration with Allergy specialists, which is crucial for the successful identification of the responsible drug and the continuation of the recommended treatment.

Keywords: *Pulmonary tuberculosis. Pyrazinamide. Drug hypersensitivity. Desensitization.*

CO 010. IGRA TEST – DO THE ENDS JUSTIFY THE MEANS?

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Introduction: The Interferon Gamma Release Assay (IGRA) has proven to be an adjunct method of diagnosing Tuberculosis latent infection (TBL) mainly in countries where BCG vaccination is widespread. It assesses the adaptive immune response to mycobacterial antigens. It assumes an immunocompetent response by the individual and does not distinguish between active, latent or past TB. Studies on the advantage of this test as an aid in the diagnosis of active tuberculosis have been less than encouraging and the guidelines do not recommend it in the diagnostic march. Nevertheless, in spe-

cific situations, this test is used when the suspicion is pertinent and the directed tests are negative.
Methods: Retrospective study of IGRA tests performed in a level II hospital during the year 2022, and their usefulness. Requests were considered appropriate when requested according to current guidelines. Descriptive statistical analysis using Microsoft Excel®.
Results: In this period 267 IGRA tests were performed, mostly in male individuals (n = 151 - 56.56%). The majority of requests were made to Portuguese patients (n = 230 - 86.14%), the remaining being from the following countries: Brazil (n = 22 - 8.2%), Mozambique (n = 4 - 1.4%), India (n = 4 - 1.4%), Ukraine (n = 3 - 1.1%), Guinea and Angola (n = 2 - 0.7%). The youngest patient was 12 months old and the oldest 90 years old. The reasons for requesting this test were: suspicion of active tuberculosis - 129 requests; candidates for/under immunosuppressive therapy - 90; HIV infection - 43; occupational health - 3; contact tracing - 2. The specialty/service with the highest number of tests requested was internal medicine (n = 97 - 36.6%), followed by the following specialties/services: Infectiology (n = 34 - 12.7%), Pediatrics (n = 29 - 10.8%), Gastroenterology (n = 23 - 8.6%), Pulmonology (n = 17 - 6.3%), Emergency Department (n = 16 - 5.9%), Dermatology (n = 15 - 5.6%), Ophthalmology (n = 10 - 3. 7%), Nephrology and Neurology (n = 6 - 2.2%), Pediatric Emergency Service (n = 6 - 2.2%), Occupational Health (n = 6 2.2%), Cardiology and Multipurpose Intermediate Care Unit (n = 2 - 0.7%), General Surgery (n = 1 - 0.3%). Regarding the assessment of the usefulness of IGRA requests in the 4 specialties/services with the highest number of requests: only 29 (29.9%) of the tests requested by Internal Medicine were considered adequate, compared to all requests from Infectious Diseases (performed as part of the HIV consultation), 10 (34.5%) requests from Pediatrics (contact screening and children proposed for immunosuppression) and 22 (95.7%) requests from Gastroenterology (patients with inflammatory bowel disease proposed for biotechnologies). Overall, the requests considered inappropriate were made to diagnose active tuberculosis, mostly in suspected lung disease.
Conclusions: The majority of requests made were considered appropriate. However, the number of inappropriately requested tests is still very significant. This reality requires targeted training in the various services of the hospital. It also requires regular updating on the indications for the IGRA test, since the scientific evidence on its usefulness in TB diagnosis is not very consistent.

Keywords: *IGRA. Requests. Usefulness.*

CO 011. LATENT TUBERCULOSIS – WHAT IS THE TRUE PERCEPTION OF PATIENTS?

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Introduction: Latent infection with *Mycobacterium tuberculosis* does not cause symptoms, nor does it carry a risk of contagion to the rest of the population. However, 5 to 10% of infected patients may develop active tuberculosis, which reinforces the importance and benefits of preventive treatment.
Objectives: The aim of this study was to understand the knowledge of patients with latent tuberculosis regarding this diagnosis and the risk of contagion they pose to the rest of the population, as well as the psychological impact of the diagnosis.
Methods: Optional self-completion questionnaires were distributed to patients who underwent therapy for tuberculosis at the Dr. Ribeiro Sanches, Venda Nova and Estuário do Tejo Pneumological Diagnostic Centers, during the month of May 2023. Demographic data and knowledge about the disease for which they were undergoing treatment were evaluated. Descriptive analysis of patients who were under therapy for latent tuberculosis.
Results: Of the 67 completed questionnaires, 25 corresponded to patients with latent tuberculosis. Of these, the majority, 64% (n = 16) were female and had a mean age of 48 (minimum 22, maximum 71 years). The majority were of Portuguese nationality - 76% (n = 19), with the remainder originating from countries such as Brazil (n = 4), Pakistan (n = 1) and Cape Verde (n = 1). Regarding the questions asked in the questionnaire, to the first question "Do you know why you are being followed in this consultation?" all patients answered "yes". Of the 25 patients, to the question "What is the name of the disease?", 56% (n = 14) answered "latent tuberculosis", the remaining 32% (n = 8) stated "tuberculosis"; 12% (n = 3), named pathologies such as "Ankylosing spondylitis", "Crohn's disease" and "Psoriasis". Regarding the question about the contagiousness of latent tuberculosis, it was found that 84% (n = 21) answered "No" and 16% (n = 4) of the 25 patients, answered "Yes". Regarding the psychological state of this group, to the question "Do you feel sad?" 4 of the patients answered "yes". Of these, 2 related their sadness to their conviction of the potential contagiousness of the disease.
Conclusions: There were significant gaps in patients' knowledge about their diagnosis, reason for follow-up in the CDP and risk of latent TB contagiousness. Notably, about 1/4 of patients could not specify the disease for which they are being medicated and 16% consider themselves a risk of infection for others. In these patients, misinformation may contribute to anxiety and risk of depression. These results highlight the need for education of our patients and the general population about the differences between tuberculosis disease and tuberculosis infection and the relevance of their treatment.

Keywords: *Latent tuberculosis. Literacy. Misinformation.*

CO 012. PLEUROSCOPY: ANALYSIS OF THE CASUISTRY OF A PULMONOLOGY SERVICE

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Introduction: Endoscopic techniques play an essential role in the diagnostic evaluation of patients with respiratory pathology. Medical thoracoscopy/pleuroscopy is a valuable technique in the study of exudative pleural effusion of undetermined cause after performing less invasive techniques, and may also have a therapeutic purpose. Compared to VATS, it is less invasive, has a lower cost and fewer complications, and has comparable diagnostic yield.
Objectives: Analyze the diagnostic yield, safety and the characteristics of the population subjected to pleuroscopy.
Methods: Retrospective observational study. All pleuroscopies performed in a pulmonology service between August 2010 and June 2023 were selected. Statistical analysis was performed using the SPSS software.
Results: During the aforementioned period, 82 pleuroscopies were performed. Most patients (57.3%) were male, with a mean age of 68.8 ± 12.4 years. Regarding smoking habits, most patients (53.3%) were non-smokers. Pleuroscopy was performed with diagnostic intent in most cases (95.1%). The most frequent indication was the study of pleural effusion of undetermined etiology (67.1%), followed by suspected malignant pleural effusion in patients with a history of cancer (11%) and collection of material for molecular study (8.5%) Most patients who underwent pleuroscopy had pleural effusion with characteristics of exudate (97.5%), with previous negative cytology for malignant cells (84%). Blind pleural biopsy had previously been performed in 53.7% of patients. The median volume of pleural fluid drained during the procedure was 1,200 cm^3. Changes were observed in the pleura in 74% of the cases. The diagnostic yield was 90.2%. In 53.3% the diagnosis was malignancy: the most frequent was lung adenocarcinoma (24.7%), followed by pleural mesothelioma (11.7%). In one patient (1.2%) there was pleural empyema after the procedure. The mortality rate was zero.

Conclusions: Pleuroscopy is a safe technique, with high diagnostic accuracy (90.2% in our sample). It is useful in obtaining a definitive diagnosis in pleural effusions whose previous investigations were inconclusive, as we verified in this sample, avoiding the need to perform more invasive procedures, associated with higher costs and complications.

Keywords: *Medical thoracoscopy. Pleuroscopy.*

CO 013. MALIGNANT PLEURAL MESOTHELIOMA – EXPERIENCE OF A HOSPITAL CENTER

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Introduction: Malignant pleural mesothelioma (MPM) is a rare neoplasm with poor prognosis and a median overall survival (OS) of 4-18 months. It represents less than 2% of all neoplasms.
Objectives: Descriptive analysis of the experience of a central hospital in the management of MPM.
Methods: Retrospective analysis of the clinical files of MPM cases diagnosed and/or followed at our hospital center between January 2000 and July 2023.
Results: We identified 39 cases of MPM, 66.7% (n = 26) in males. The mean age at diagnosis was 73.1 ± 9.7 years. Most patients (69.2%) had no history of smoking and of the 30 patients with information on asbestos exposure, 76.7% had a positive past history of exposure. The median time from symptom onset to diagnosis was 2 months (maximum 25 months), and the most frequent forms of presentation included dyspnea (71.1%) and constitutional symptoms (65.8%), followed by thoracic pain (60.5%) and cough (47.4%). The most frequent radiological finding was pleural effusion, present in 92.1% of cases, 63.2% had pleural thickening and 42.1% pulmonary nodules. Diagnosis was obtained mostly by pleuroscopy and transthoracic biopsy (each one accounting for 29.7%), followed by blind pleural biopsy (24.3%). Out of the 34 patients with information on the histological type of MPM, 29 (85.3%) had epithelioid MPM, four (11.8%) had sarcomatoid and one had (2.9%) biphasic. Twenty-four patients (61.5%) were at stage IV (TNM) and eight (20.5%) at stage III when diagnosed. Fifteen patients (39.5%) underwent prophylactic radiotherapy of pleural tracts. First-line treatment included chemotherapy in 21 patients (53.8%), multimodal therapy with extrapleural pneumectomy in one case (2.6%) and immunotherapy with Nivolumab + Ipilimumab in another case (2.6%). Sixteen patients (41.0%) received best supportive care. Five patients received second-line and one third-line immunotherapy. Of the seven patients who received this treatment, four experienced toxicity symptoms: gastrointestinal (n = 2), cutaneous (n = 1) or both (n = 1), with no need for permanent treatment discontinuation. Median OS was 6.0 months. There was a statistically significant difference (p = 0.026) in median OS in patients diagnosed at early stages (I-II) (29.0 months) and advanced stages (III-IV) (4.0 months). The absolute survival rate in a 2-year span was 16.1%, dropping to 9.7% in a 5-year period.
Conclusions: Our sample consisted mostly of non-smoking men, with non-specific symptoms and advanced stage at diagnosis. The association of MPM and asbestos exposure is well known, although not always reported by patients, and the disease may develop several decades after cessation of exposure. Prognosis is poor and tightly related to stage at diagnosis (median OS 29.0 for stages I-II vs. 4.0 months for stages III-IV), therefore early diagnosis is essential. Recently, after decades of investigation, the introduction of immunotherapy in the treatment of MPM has provided a therapeutic alternative that can significantly improve survival rates.

Keywords: *Malignant pleural mesothelioma. Pleura. Asbestos. Neoplasm staging.*

CO 014. TREATMENT OF PNEUMOTHORAX WITH PLEURAL VENT® DEVICE – SINGLE CENTER EXPERIENCE

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Introduction: Outpatient treatment of simple pneumothorax with devices is included in the recent BTS guidelines to allow rapid relief of symptoms and enable treatment without the need for hospitalization. The Pleural Vent® is a small-sized, one-way valve drainage device with a built-in reservoir, which is placed with a minimally invasive technique. It is used to treat simple, spontaneous and iatrogenic pneumothorax and does not require subsequent hospitalization of the patient. It is mainly intended for symptomatic cases without high-risk features and should consider the patient's preference over other therapeutic approaches.
Methods: The present work aims to present the initial experience of a center with Pleural Vent® in the treatment of spontaneous and iatrogenic pneumothorax, without high-risk features, through the retrospective analysis of a series of cases from the beginning of placement in November 2022 to July 2023. Demographic characteristics, smoking history, pneumothorax classification, pulmonary pathology diagnoses, occurrence of hospitalization, time under Pleural Vent® placement and outcome (resolution vs therapeutic failure) were assessed.
Results: A total of 7 patients undergoing Pleural Vent® placement were identified. The majority were male (71.4%, n = 5) with a mean age of 55 years (minimum of 28 and maximum of 78 years), and 4 were smokers. There were 3 cases of iatrogenic pneumothorax after transthoracic aspiration biopsy, 3 cases of primary spontaneous pneumothorax and 1 case of secondary pneumothorax (patient refused to stay in hospital and a chest drainage was used as a bridge for elective thoracoscopy). Outpatient management was performed in 5 cases (3 primary spontaneous pneumothorax and 2 iatrogenic pneumothorax) with success in 4 of the cases and possibility of device removal on average on the 3rd day (minimum 1 maximum 5 days). In the other case, of primary spontaneous pneumothorax, treatment failure was assumed due to lack of complete lung reexpansion on the 4th day of Pleural Vent®, so hospitalization and placement of conventional chest drainage was chosen. In the context of hospitalization, in a case of iatrogenic pneumothorax after transthoracic aspiration biopsy during hospitalization, Pleural Vent® was placed and successfully removed on the 4th day. In none of the cases were there any major complications with the device, particularly in the case of secondary pneumothorax.
Conclusions: The literature and scientific societies increasingly highlight the possibility of outpatient management of pneumothorax as a way of reducing costs and length of stay and improving patients' quality of life. This case series, although small, portrays the experience of using Pleural Vent® so as its feasibility and safety.

Keywords: *Pleural vent®. Pneumothorax.*

CO 015. SERIAL ENDOSCOPIC EVALUATION OF THE EVOLUTION OF ENDOBRONCHIAL TUBERCULOSIS

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Introduction: Endobronchial tuberculosis (EBTB) is a form of pulmonary tuberculosis that affects the tracheobronchial tree and can

be present in up to 30% of patients with active pulmonary tuberculosis. EBTB is classified into 7 subtypes based on bronchoscopic findings: caseous, edematous-hyperemic, fibrostenotic, tumoral, granular, ulcerative, and nonspecific bronchitis. Objective: To describe the evolution of endobronchial tuberculosis from diagnosis to the conclusion of anti-tuberculosis treatment through serial bronchoscopy and identify predictors of evolution based on our data.
Methods: Between January and June 2023, we included patients with confirmed EBTB by biopsy who underwent bronchoscopy at diagnosis, 2 months, and 6 months after starting anti-tuberculosis treatment.
Results: Fifty patients were included, with 34 being female (68.0%), aged between 21 and 82 years (mean age 42.84 ± 15.49). Eleven cases of caseous EBTB changed to fibrostenotic type (40.0%), while the other 15 cases healed without sequelae. Four out of 7 cases of edematous-hyperemic EBTB changed to fibrostenotic type (57.1%), and the remaining cases resolved after 6 months of treatment. Four out of 6 cases of granular EBTB, 2 cases of nonspecific bronchitis, and 1 case of ulcerative EBTB resolved without complications. However, the other 2 cases of granular EBTB changed to fibrostenotic type (33.3%). Two cases of fibrostenotic EBTB showed no improvement despite treatment. All 6 cases of tumoral EBTB progressed to fibrostenotic type (100%). In 23 patients, bronchoscopic changes were located in the right bronchial tree (46.0%), in 20 (40.0%) in the left, and in 7 (14.0%) were bilateral. The upper lobar bronchus was the most frequently affected, involved in 34 cases (68.0%), either alone or in combination with other bronchi. The type of lesion visualized on bronchoscopy at 2 months of treatment was the only statistically significant predictor of lesion outcome, whether fibrostenotic or healed ($p < 0.001$, $r = 0.932$). All patients had positive Mycobacterium tuberculosis culture in bronchial lavage.
Conclusions: The therapeutic outcome of each EBTB subtype can be predicted through follow-up bronchoscopy starting at 2 months of treatment. Tumoral EBTB often progresses to bronchial stenosis, so there may be a benefit in shortening the time until endoscopic reassessment, especially to evaluate the need for additional treatment techniques (endoscopic dilatation, argon plasma application, cryotherapy).

***Keywords**: Endobronchial tuberculosis. Classification. Endoscopic techniques.*

CO 017. PREDICTING SURVIVAL IN MALIGNANT PLEURAL EFFUSIONS: THE ROLE OF PROMISE SCORE

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Introduction: Malignant pleural effusion (MPE) represents a common manifestation of advanced disease and a with significant morbidity and mortality impact, affecting up to 15% of cancer patients. The overall median survival from diagnosis is 3-12 months, underscoring the importance of tailoring level of care provided by identifying patients who would benefit from more invasive pleural interventions. The PROMISE score allows for the estimation of 3-month mortality rates in MPE patients, proving to be superior to other validated scoring systems. This study aims to evaluate the performance of the PROMISE score in predicting survival among MPE patients treated in a secondary hospital setting.
Methods: A retrospective study was conducted on patients diagnosed with MPE between January 1, 2017, and December 31, 2021. The parameters required to calculate the PROMISE score (haemoglobin, leukocytes, C-reactive protein, primary tumor, ECOG performance status, and previous history of chemotherapy/radiation therapy) and patients' demographics were recorded. The PROMISE score was calculated, classifying patients into respective mortality risk groups: Group A (< 25%); Group B (2549%); Group C (50-74%); and Group D (75%). Survival was determined via Kaplan-Meier curves and compared using the log rank test. The Cox proportional hazards model was used for multiple analysis.
Results: Ninety-one patients were included, categorized by PROMISE score: Group A (n = 31), Group B (n = 29), Group C (n = 27), and Group D (= 4). The median age at MPE diagnosis was 71.2 (41.1-91.2) years, with 51% patients of female gender and 54% displaying ECOG < 2. Lung cancer was the most frequent primary tumor (55%), followed by breast cancer (11%) and gastric cancer (10%), with 64% of patients presenting MPE at initial diagnosis. The median overall survival was 2.5 (95%CI 1.8-5.1) months, showing a significant difference when comparing distinct PROMISE score groups ($p < 0.001$): 9.4 (95%CI 2.6-21) months in Group A; 2.7 (95%CI 1.8-5.1) months in Group B; 0.92 (95%CI 0.4-3.5) months in Group C; 0.46 (95%CI 0.07-0) months in Group D. Only 20% of patients remained alive at the 12-month mark after MPE diagnosis. In multiple analysis, the PROMISE score was as an independent predictor of survival in all risk groups [Group A vs. B: HR 1.92 (95%CI 1.03-3.56; $p = 0.039$); Group A vs. C: HR 2.96 (95%CI 1.63-5.37; $p < 0.001$); Group A vs. D: HR 6.67 (95%CI 2.08-21.39; $p = 0.001$)]. The presence of MPE at diagnosis did not impact survival [HR 0.95 (95%CI 0.57-1.59; $p = 0.86$)]. The 3-month mortality rates for Groups A, B, C, and D were 36%, 55%, 70%, and 75%, respectively.
Conclusions: The PROMISE score proved to be an effective tool in predicting survival among MPE patients, consistently correlating with observed 3-month mortality rates in our population. Its application as a clinical decision-support tool holds potential for a more personalized approach to MPE treatment, identifying patients who would benefit solely from supportive measures and those who potentially benefit from more invasive interventions, ultimately enhancing their quality of life.

***Keywords**: Malignant pleural effusion. Promise score. Mortality.*

CO 018. EFFICACY AND SAFETY OF TRANSESOPHAGEAL ULTRASOUND-GUIDED ASPIRATION WITH AN ECHOBRONCHOSCOPE PERFORMED BY PULMONOLOGISTS

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Introduction: Transesophageal endobronchial ultrasound-guided fine-needle aspiration (EUS-B-FNA) is a well-established procedure that allows pulmonologists to independently perform complete mediastinal lymph node staging in the context of lung cancer. In addition, the transesophageal approach also allows the diagnosis of thoracic diseases (malignant or benign) that may not be anatomically accessible via the endobronchial route. With the increased use of this procedure by pulmonologists, concerns about its efficacy and safety are of paramount importance.
Objectives: To determine the diagnostic yield and safety of EUS-B-FNA performed by pulmonologists.
Methods: A retrospective analysis was performed from January 2020 to December 2022 of all patients who underwent EUS-BFNA at a tertiary oncology referral hospital. Demographic data, indication for the procedure, final diagnosis and complications were assessed.
Results: 334 patients were included in the analysis. Mean age was 64.4 ± 12.1 years; 235 (70.4%) were male. Most procedures were for suspected malignant disease (220, 65.9%), either for diagnostic purposes (190, 56.9%) or for staging (30, 9.0%). Additionally, 111 (33.2%) procedures were performed for suspected benign disease (mostly granulomatous pathology). Lymphoproliferative diseases were the main suspicion in 2 (0.6%). Combination with EBUS-TBNA occurred in 37 (11.1%) cases. Samples were adequate in 311 (93.1%) procedures. The diagnosis was obtained directly in 208 (62.3%) patients, most frequently lung adenocarcinoma (77, 23.1%) and sar-

coidosis (45, 13.5%). Negative or indeterminate results were observed in 126 (37.7%) patients. Of these, 21 (6.3%) underwent mediastinoscopy (13, 3.9%), video-assisted thoracic surgery (5, 1.5%) or percutaneous biopsy (3, 0.9%), which allowed diagnosis in 13 (3.9%) additional cases. The remaining negative cases were followed up and 77 (23.1%) were considered true negatives after completing 12 months of clinical and imaging stability. The overall diagnostic yield of EUS-B-FNA was 95.7%. EUS-B-FNA-related complications were observed in 6 (1.8%) patients (mediastinitis 2, 0.6%; lung abscess 1, 0.3%; pericarditis 1, 0.3%; esophageal wall hematoma 1, 0.3%; fever 1, 0.3%). A total of 17 (5.1%) patients died within 30 days of the procedure (median time to death 16.9 days). The attributed causes of death were disease progression in 14 (4.2%). No deaths were considered procedure related.
Conclusions: To the best of our knowledge, this is the largest cohort evaluating the operational characteristics of EUS-B-FNA. Our results portray this procedure as highly effective and safe, although complications occurred at a higher incidence than reported in the EBUS-TBNA literature.

Keywords: *EUS-B-FNA. Echoendoscopy. Yield. Safety.*

CO 019. THE ADVANTAGES OF THE COMPLEMENTARY USE OF ENDOBRONCHIAL ULTRASOUND (EBUS) TECHNIQUES: THE EXPERIENCE OF AN ONCOLOGY CENTRE

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Introduction: The complementary use of radial (R-EBUS) and linear (L-EBUS) EBUS probes can improve the cost-effectiveness of procedures and allow simultaneous diagnosis and mediastinal staging of lung cancer.
Objectives: To characterise the procedures performed in an oncology centre in which radial R-EBUS and L-EBUS probes were used in a complementary manner.
Methods: We analysed the clinical records of patients undergoing R-EBUS and L-EBUS at IPO-Lisboa between January 2017 and June 2022. We assessed the indications and demographic, imaging and endoscopic variables, as well as the cytohistological results of R-EBUS-guided transbronchial biopsies (EBUS-TBB), L-EBUS-guided needle aspiration (EBUS-TBNA) and the final diagnosis of the patients.
Results: A total of 993 procedures were performed using the L-EBUS probe and 575 procedures using the R-EBUS probe during this period. The two probes were used in a complementary manner in 44 exams. Patients were mostly male (n = 33) and had a median age of 69 years (IQR 60-77.5 years). The purpose of the procedure was simultaneous diagnosis and staging in 52.3% of cases (n = 23), diagnosis in 38.6% (n = 17) and collection of biological specimen in the remainder (n = 4). The lesions had a median size of 28 mm (IQR 19.5 - 29 mm, n = 41) and were mostly central (located in the median 1/3, n = 18). Around seventy per cent of the procedures (n = 31) were initiated using the L-EBUS probe, 5 of which showed no suspicious lymph nodes. The remainder were negative (n = 23), suspicious (n = 1) and positive (n = 2) for neoplastic cells on rapid on-site examination (ROSE), the latter with R-EBUS being performed due to insufficient material on EBUS-TBNA or suspicion of synchronous neoplasms. Among the examinations initiated with R-EBUS (n = 13), the distal lesion was identified in 12 cases. ROSE of EBUS-TBB was positive or suspicious in 5 cases. The procedure yielded a malignant specimen in 47.7% of patients (n = 21). Among the remainder, 4 had a final benign diagnosis and 15 an oncological diagnosis obtained through surgery (n = 5), transthoracic biopsy (n = 3), repeat R-EBUS (n = 3) or clinical corroboration (n = 4). Three patients were lost to follow-up and 1 is awaiting surgery. A total of 16 patients (36.4%) benefited from complementary probing by obtaining diagnosis on EBUS-TBB after negative EBUSTBNA (n = 6), on EBUS-TBNA after negative/inconclusive EBUS-TBB (n = 5), mediastinal staging after positive EBUS-TBB (n = 4) and diagnosis and staging of synchronous lesions (n = 1).
Conclusions: The complementary use of EBUS probes allows to obtain determinant information in a relevant percentage of patients with suspected lung cancer.

Keywords: *Bronchology. Endobronchial ultrasound. Lung cancer.*

CO 020. AGREEMENT BETWEEN CLINICAL AND PATHOLOGIC STAGING OF NSCLC: THE N COMPONENT

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Introduction: A correct nodal staging of non-small cell lung cancer (NSCLC) is critical in making treatment decisions, namely in the decision of the possibility of surgical treatment. Clinical N stage (cN) should be based on chest CT, PET-CT and in some cases on invasive methods as EBUS/EUS TBNA and/or mediastinoscopy. However, pathologic N stage (pN) of the surgical specimen may differ from cN, with implications for the patient.
Objectives: Investigate the agreement between the cN and pN in NSCLC.
Methods: Retrospective study, including all patients diagnosed with NSCLC, followed in our Thoracic Tumours Unit, who underwent surgical treatment, between 2012 and 2021. Demographic data, histology, clinical staging techniques, cN stage, pN stage, extent of resection and time between staging and surgery were collected from patient's clinical files. Agreement between clinical and pathologic stage was calculated by Cohen's k.
Results: We included 157 patients (table 1). Clinical and pathologic staging was different in 17 (11.1%) patients: 14 (9.2%) were upstaged and 3 (1.9%) downstaged, = 0.431.
Conclusions: There was moderate agreement between the N clinical and pathological staging. EBUS is an important tool to stage mediastinum but it should be complemented with other techniques, such as EUS or mediastinoscopy, mainly for nodes not accessed by EBUS. Our results also point out that some nodes may have cancer even if they are PET-CT negative and no formal indication for EBUS, questioning if invasive staging should be done in these cases.

Keywords: *Lung cancer. Staging.*

CO 025. CHEMOIMMUNOTHERAPY IN RESECTABLE NON-SMALL CELL LUNG CANCER – EXPERIENCE AT IPOLFG

IPOLFG.

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Introduction: Immunotherapy (IOT) is one of the main weapons in the fight against metastatic non-small cell lung cancer (NSCLC) by altering the tumor microenvironment and blocking methods of tumor immune evasion. More recently, its use at earlier stages has also been proposed, in the context of neoadjuvant in surgical candidates, with very favorable results in the CheckMate 816, which led to the approval of IOT with nivolumab in the neoadjuvant setting by the European Medicines Agency.
Objectives: To analyze patients followed at IPOLFG since 2022, diagnosed with NSCLC and undergoing chemotherapy with immunotherapy in the context of neoadjuvant therapy.

Methods: Observational study including patients diagnosed with NSCLC and resectable disease, followed between January 2022 and July 2023, undergoing chemotherapy and immunotherapy in the context of neoadjuvant therapy. Patients were staged according to the ESMO guidelines and discussed in MDC. Chemotherapy was cisplatin 75 mg/m^2 and pemetrexed 500 mg/m^2, in the case of adenocarcinoma histology, and carboplatin AUC 5 and paclitaxel 200 mg/m^2, in epidermoid histology) together with nivolumab 360 mg every 21 days. In the absence of disease progression criteria and if there was surgical resectability criteria, patients were submitted to surgical intervention up to 6 weeks after the last cycle. A demographic, clinical, analytical analysis (with quantification of PD-L1 and mutational study by NGS), anatomopathological analysis (including the evaluation of the pathological response, through the % of residual viable tumor of the surgical specimen of the primary tumor and lymph nodes) and imaging comparison (using RECIST v1.1 criteria) was carried out.
Results: Three patients with NSCLC were included, all locally advanced with a stage IIIA (cT4N0M0), with a mean age of 55 years, all with PS 1. Histologically, two cases corresponded to squamous cell carcinoma and one to adenocarcinoma. Two of the cases had PD-L1 > 50% and one had PD-L1 < 1%. In the reassessment after the 3 cycles of systemic therapy, there was a partial response in two cases and disease progression in 1 case, due to metastases in the central nervous system. In the 2 cases in which surgical intervention was performed, there was a complete pathological response in one case and a major pathological response in the other. Both are currently under surveillance – with time from initiation of treatment to the last assessment of 4 months and 14 months, respectively. In the case of disease progression, the patient died 11 months after starting first-line therapy. Of the adverse effects observed with chemo-immunotherapy, G2 fatigue, G2 nausea and 1 case of scalp folliculitis G1, with resolution after antibiotic therapy, were noted.
Conclusions: Immunotherapy together with chemotherapy, in the context of neoadjuvant therapy, is a strategy associated with better survival rates and complete pathological responses. The use of this therapeutic option in these first patients at IPOLFG has obtained promising results.

***Keywords**: Non-small cell carcinoma. Checkmate 816. Nivolumab. Neoadjuvance. Pathological response.*

CO 026. FINDING WHAT YOU'RE NOT LOOKING FOR: LYNCH SYNDROME IDENTIFIED IN LUNG ADENOCARCINOMA

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Introduction: Mutations in the DNA repair system or Mismatch Repair (MMR) include variants of MLH1, MSH2, MSH6 and PMS2 and are associated with Lynch Syndrome (LS), a genetic disease that predisposes to the appearance of multiple neoplasms. The diagnosis of LS is therefore essential for the treatment and risk reduction of cancer in carriers of these mutations. The association between LS and non-small cell lung cancer (NSCLC) is poorly studied and rarely described. We present a case of diagnosis of LS after identification of a pulmonary adenocarcinoma.
Case report: Female 70 years old, PS 0, non-smoker, with a history of arterial hypertension. In June 2021, in the preoperative evaluation for surgical correction of urinary incontinence, the chest X-ray shows a mass in the left upper lobe. Chest CT reveals a spiculated mass and bilaterally scattered nodules. The transthoracic needle biopsy established the diagnosis of lung adenocarcinoma with EGFR mutation in exon 21. Staging exams identified 3 cranioencephalic lesions suggesting secondary deposits. Stage IVB (T4N3M1c) was established. Osimertinib was started, with complete pulmonary response and reduction of central nervous system (CNS) lesions. In January 2023, the patient presented CNS progression and was submitted to radiosurgery. Due to disease progression under first-line Tyrosine Kinase Inhibitor (TKI), she entered a clinical study to identify resistance mutations by liquid biopsy and it identified a TP53 p.R273L mutation (allele frequency 0.22%) in a complete genetic study, as well as a gene variant of PMS2 (allele frequency 44%), classified as pathogenic. The patient was referred to a Genetic consultation, where the diagnosis of Lynch Syndrome was established, and subsequently referred to Gastroenterology and Gynecology consultations. Evaluation of family members at risk was advised.
Discussion: LS is a genetic disease that increases the predisposition of cancer, especially colorectal (CRC) and endometrial cancer, but also stomach, small intestine, ovary and urothelium. Literature on the association between SL and NSCLC is scarce and requires further investigation. So far, SL doesn't seem to have a greater probability of developing NSCLC, however, the concomitant presence of PMS2 (altered in 2.18% of NSCLC) with other mutations, in this case mutation in the tumour suppressor gene 53 (TP53), can potentially trigger the oncogenesis process. There is biological heterogeneity between the different MMR genes and recent studies point to a lower risk of cancer in PMS2 mutation carriers compared to MLH1, MSH2 and MSH6. The lifetime risk of CRC is approximately 9-20% and endometrial cancer 12-26%. Current recommendations include: total colonoscopy from the age of 35, with annual/biannual periodicity; annual endovaginal ultrasound and CA125 measurement; *Helicobacter pylori* screening and eradication. Performing extended NGS (next-generation sequencing) allows detection of mutations that help establish a diagnosis of hereditary syndromes in patients with cancer, which has implications on the screening of other cancers in the patient and their family.

***Keywords**: Lynch syndrome. Adenocarcinoma. ECGF.*

CO 027. PREDICTIVE FACTORS OF PEMBROLIZUMAB RESPONSE IN PATIENTS WITH NON-SMALL CELL LUNG CANCER: A MULTICENTRIC RETROSPECTIVE STUDY

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Introduction: Lung cancer remains the leading cause of cancer death worldwide. However, treatment with immune checkpoint inhibitors (ICI) significantly improved the prognosis of these patients. This therapy focuses on the expression of PDL1 in tumor cells, which is a predictive value of therapeutic response. However, despite being the accepted biomarker for selecting patients for treatment with ICI, not all have a positive response to treatment. Thus, the identification of new predictive biomarkers is essential in clinical practice.
Objectives: Characterize the non-small cell lung cancer (NSCLC) patients that are on first-line therapy with pembrolizumab and to identify predictive factors of treatment response.
Methods: Retrospective observational study of all patients with NSCLC on first-line therapy with pembrolizumab, followed at Centro Hospitalar de Leiria and Centro Hospitalar Universitário de Coimbra between 01/01/2017 and 21/12/2021. Patients' demographic characteristics, analytical values such as LDH, PD-L1 value, type and stage of neoplasia and response to pembrolizumab were analyzed, performing a univariate analysis of these variables and a Kaplan-Meier survival analysis to assess progression-free survival (PFS) and overall survival (OS) of patients. Statistical analysis was performed using IBM SPSS Statistics 27.
Results: The study included 104 patients, 80.8% male, with a mean age of 65 years. Patients with LDH < 400U/L and with a number of

metastatic sites < 3 were found to respond better to pembrolizumab (p-value of 0.006 and 0.025, respectively), with all responders having a LDH value < 400 U/L. There was no correlation with any other of the analyzed variables, including the PD-L1 value. When PFS and OS were analyzed, it was found that: in the total sample, patients with PD-L1 between 60-89% have a higher OS; patients with LDH < 400U/L have a higher PFS; responders who had toxicity had a higher OS; in non-responders, a lower age has a higher OS and a number of metastases < 3 correlates to a higher PFS (no difference in OS).
Conclusions: Considering the prevalence and mortality of lung cancer, it is urgent to identify better predictive biomarkers of response (clinical, analytical, molecular imaging alone or in combination) that allow for truly personalized medicine. In our study, patients with lower LDH and fewer metastases seem to respond better to immunotherapy therapy and have a higher PFS.

Keywords: *NSCLC. Pembrolizumab. PDL-1.*

CO 028. PLEURAL MESOTHELIOMA: 5-YEAR RETROSPECTIVE ANALYSIS IN A CENTRAL HOSPITAL

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Introduction: Malignant mesothelioma originates in the mesothelial cells that line the serous surfaces, with the pleura being the most affected site, corresponding to 70-80% of cases. Pleural mesothelioma is the most common primary malignant tumor of the pleura. Its main etiology is exposure to asbestos. Clinically, it mostly presents with pleural effusion (90% of cases). It is a locally aggressive tumor, invading the chest wall and lung parenchyma, with distant metastasis in advanced stages. Their median survival is 9-12 months.
Objectives and methods: The objective of this work is to characterize patients diagnosed with pleural mesothelioma and its evolution. This is a retrospective analysis of patients diagnosed in the last five years (2018-2022) and followed up in an Oncological Pulmonology consultation at Hospital de Egas Moniz. Data were obtained from clinical files.
Results: Over the last five years, fourteen patients were diagnosed with pleural mesothelioma, mostly male (85.7%, n = 12), with a mean age of 77 years (66-86 years). Regarding smoking habits, most patients were non-smokers (64.3%, n = 9), followed by former smokers (21.4%, n = 3) and active smokers (14.3%, n = 2). It was found that 42.9% (n = 6) of the patients had been exposed to asbestos throughout their lives. The main comorbidities were arterial hypertension (71.4%, n = 10), diabetes (50%, n = 7) and dyslipidemia (50%, n = 7). In terms of location, most tumors were located in the left pleura (64.3%, n = 9). Regarding the histological subtype, 42.9% (n = 6) were epidermoid and 14.3% (n = 2) were sarcomatoid, the remainder (42.9%, n = 6) did not show differentiation. Regarding initial staging, 42.9% (n = 6) were in stage I, 28.6% (n = 4) in stage III and 28.6% (n = 4) in stage IV. Only 14.3% (n = 2) of the patients presented metastasis, one of them to the adrenal gland and the other to the bone, liver and contralateral lung. With regard to treatment, of patients in stage I, 66.7% (n = 4) underwent only supportive therapy, as they did not have conditions for treatment, the remaining 33.3% (n = 2) underwent chemotherapy (CT); patients in stage III, 50% (n = 2) underwent CT, 25% (n = 1) CT and radiotherapy, being proposed for immunotherapy (IO) and 25% (n = 1) supportive therapy; patients in stage IV, 75% (n = 3) underwent CT and 25% (n = 1) supportive therapy. In terms of prognosis, of patients in stage I, only 16.7% (n = 1) are under surveillance after CT, the remaining 83.3% (n = 5) died with a median survival of 9.1 months ; of patients in stage III, only 16.7% (n = 1) are under surveillance awaiting the OI, the remaining 75% (n = 3) died with a median survival of 4.8 months; of the patients in stage IV, all progressed and died, with a median survival of 7.8 months.
Conclusions: Through this analysis, we can conclude that pleural mesothelioma has a poor prognosis, regardless of its initial stage, corroborating the existing literature. This pathology benefits from a multidisciplinary approach, both in terms of diagnosis and therapy, and in the palliation of symptoms. The incidence of this entity, especially at advanced ages, leads to an increase in morbidity and mortality due to the performance status of patients and their comorbidities.

Keywords: *Lung cancer. Pleural mesothelioma.*

CO 029. PATIENTS WITH UNRESECTABLE STAGE III NON-SMALL CELL LUNG CARCINOMA CANDIDATES FOR CONSOLIDATION WITH DURVALUMAB: REAL-WORLD EXPERIENCE FROM A TERTIARY HOSPITAL

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Introduction: Durvalumab has changed the treatment of non-small cell lung carcinoma (NSCLC) patients with locally advanced unresectable disease. In Portugal, it is approved as consolidation therapy after QT/RT in patients with unresectable stage III NSCLC with positive PD-L1, with improvement in PFS and OS compared to the previous standard of care.
Methods: Retrospective observational study including adults diagnosed with unresectable stage III NSCLC with positive PD-L1 expression from June 2019 to December 2022. Data were collected by consulting clinical files and analyzed using SPSS.
Results: During the period under review, 41 patients with unresectable stage III NSCLC with positive PD-L1 expression were identified. Thirteen (31.7%) were not candidates for Durvalumab due to progression after or during QT/RT (n = 6), decline in performance status (n = 3), radiation pneumonitis (n = 2) and awaiting evaluation after QT/RT (n = 2). This subgroup of patients was not analyzed. The remaining 28 patients (68.3%) were treated with durvalumab. They had a median age of 63.8 (43-85) years and the majority were male (75%). Fifty-seven percent were ex-smokers, 39% smokers and 4% never smokers. There was no histologic predominance (46% non-squamous, 43% squamous and 10% other histologies). Fifty percent were stage IIIB at diagnosis, 25% IIIA and 25% IIIC. The majority underwent concomitant QT/RT (n = 20, 71.5%). After the end of QT/RT, 67.8% achieved partial response and 32.2% stable disease. The main adverse effects of QT/RT were pneumonitis (n = 5 grade 12) and esophagitis (n = 9 grade 1-2 and n = 1 grade 3). The median time between the end of QT/RT and the start of Durvalumab was 35 (11-69) days. During the first 3 months of Durvalumab therapy 1 patient developed thyroiditis and another pneumonitis. After 3 months, 5 had thyroiditis, 5 pneumonitis, 1 arthralgias and myalgias and 1 hypophysitis. Nine patients discontinued therapy: 5 due to progression, 3 due to adverse effects and 1 due to death during treatment. Median follow-up was 20.33 (136.6) months. Median PFS at 24 months was 19.573 months (95%CI 13.571-25.485) and median OS at 24 months was 29.148 months (95%CI 25.848 to 32.448).
Conclusions: The study population presented similar characteristics to the PACIFIC-R: a predominance of patients over 75 years old, ex-smokers and stage IIIB and IIIC at diagnosis, as well as a higher number of patients who underwent concomitant QT/RT. Despite the small sample size and short follow-up time, median PFS at 24 months was similar to PACIFIC-R (21.7 months) and higher than PACIFIC (17.8 months), with most adverse effects being grade 1 or 2. These data revalidate the superiority of durvalumab consolidation com-

pared with QT/RT alone in these patients, while maintaining an acceptable safety profile.

Keywords: *Durvalumab. Non-small cell lung carcinoma. Stage III. Consolidation.*

CO 030. MOLECULAR PROFILING OF PATIENTS WITH PULMONARY ADENOCARCINOMA UNDERGOING SURGICAL RESECTION

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Introduction: In early-stages (I-IIIA) of lung adenocarcinoma, surgery remains the treatment of choice. However, up to 50% of patients with complete tumor resection eventually recur within the first 5 years after surgery. In 2021, ESMO recommended Osimertinib as adjuvant therapy for patients with stage IB-IIIA lung adenocarcinoma within the first 3 years after complete resection. Nevertheless, the molecular profile of early-stage adenocarcinoma patients is not well-known, as reflex next generation sequencing (NGS) is not a common practice. Our goal was to perform a clinical, pathological and molecular characterization of patients with lung adenocarcinoma who underwent complete surgical resection.
Methods: We identified patients with lung adenocarcinoma who underwent surgery between June 2018 and December 2020. Clinical, pathological and molecular data were collected. Fisher's exact test and Chi-square test were used to compare categorical variables.
Results: A total of patients were evaluated, 53 of whom were male (61.6%). 30 were nonsmokers (34.9%). Median age at diagnosis was 66 years (60-73) and median follow up time was 3.7 years (2.7-4.2). 58 patients were at stage IA (67.4%). Molecular profiling with NGS was performed in 62 patients (72.1%), revealing EGFR mutations in 14 (16.3%) [6 exon 19 (7.0%); 1 exon 20 (1,2%); 7 exon 21 (8.1%)] and KRAS mutations in 15 patients (17.5%). Among patients with identified EGFR mutations, 3 experienced recurrence, with a median disease-free survival of 3.4 years. 78.6% of patients with EGFR mutation were non-smokers ($p < 0.001$), 78.6% were female (p 0.004) and 46.7% had tubular histologic subtype (p 0.021).
Conclusions: Understanding the molecular profile of patients with lung adenocarcinoma allows us to define prognostic factors and identify candidates for adjuvant targeted therapies. While the prevalence of EGFR mutations in advanced-stage lung adenocarcinoma has been extensively studied, the same does not apply to early-stage adenocarcinoma. Considering that targeted therapies based on tyrosine kinase inhibitors may be an option as adjuvant therapy for patients undergoing complete surgical resection, a better molecular characterization of these patients becomes essential.

Keywords: *Lung cancer. Adenocarcinoma.*

CO 031. EFFECTS OF SELF-MANAGEMENT INTERVENTIONS IN PEOPLE WITH INTERSTITIAL LUNG DISEASE – SYSTEMATIC REVIEW

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Introduction: Self-management interventions (SMIs) aim to empower people to effectively manage their health and have shown to be effective in people with chronic respiratory diseases, such as chronic obstructive pulmonary disease and asthma. Knowledge about its effectiveness in people with interstitial lung disease (ILD) is, however, limited.
Objectives: To summarize the effects of SMIs on functionality (i.e., functional capacity and performance), psychological and social outcomes, symptoms, exacerbations, and survival in people with ILD.
Methods: After registering the protocol (PROSPERO ID: CRD42022329199), a search was carried out in May 2022 for randomized controlled studies in six databases with monthly updates until May 2023. Studies implementing SMIs, defined according to Effing *et al.* [Eur Respir J. 2016;48(1):46-54], in adults with any type of ILD, were included. Two independent reviewers assessed the risk of bias (Cochrane RoB2). Between-group differences were used to summarize the results.
Results: Four studies that examined 217 participants (81% men, 71 years old, 91% idiopathic pulmonary fibrosis) were included. There was great heterogeneity in the duration, content, and structure of SMIs and little detail in the reporting of control interventions. No between-groups differences were observed for any of the outcomes analyzed. No study assessed the effects of SMIs on functional capacity, exacerbations, and survival. The risk of bias in the results ranged from high to some concerns.
Conclusions: Current studies show that SMIs have no effect on people with ILD when compared with usual care. This conclusion is limited by the high methodological heterogeneity of the studies. A consensus definition of SMIs is needed to implement more comparable interventions and strengthen results.

Keywords: *Chronic respiratory disease. Empowerment. Healthcare. Health-related quality of life. Pulmonary fibrosis.*

CO 032. DESQUAMATIVE INTERSTITIAL PNEUMONIA – A RETROSPECTIVE COHORT STUDY IN A PORTUGUESE CENTRE

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Introduction: Desquamative interstitial pneumonia (DIP) is a rare form of idiopathic interstitial pneumonia, characterized by extensive alveolar infiltration of pigmented macrophages, which primarily affects smokers. Information about this entity is scarce and the study of these patients is essential for a better understanding of their clinical evolution.
Objectives: To characterize clinical data, exposures, radiology, pathology features, treatment strategies and outcomes of a Portuguese cohort of patients with histopathologically-confirmed DIP.
Methods: Retrospective study including patients with DIP followed up in the Pulmonology Department of CHUSJ.
Results: 51 patients were included, with a mean age at diagnosis of 56.9 9.7 years, most of them, 58.8% (n = 30), male. We found a high incidence of ever smoking in patients with DIP, 98.0% (n = 50), and the majority, 78.4% (n = 40), were active smokers. Average pack-years of smoking were 40. Most patients presented with exertional dyspnea and cough. Upon physical examination, crackles were heard in 58.8% (n = 30). Chest CT showed bilateral ground-glass opacities in all the 51 cases. Pulmonary function tests at diagnosis presented a decreased diffusion capacity in 86.3% (n = 44) of cases (mean 58.2 15.3% of the predicted value) and an obstructive pattern in 29.4% (n = 15). Bronchoalveolar lavage demonstrated a high number of pigmented macrophages and 68.6% (n = 35) had eosinophilia (mean 1.7 5.4%). Transbronchial cryobiopsies established the diagnosis of DIP in 72.5% (n = 37). The others were confirmed with a surgical lung biopsy. Regarding treatment, 21.6% (n = 11) stopped smoking and 43.1% (n = 22) started corticosteroid therapy, most

frequently prednisolone. The average duration of this treatment was 12.2 7.4 months. The other patients were under immunosuppressive therapy or surveillance. Of the 44 patients from whom it was possible to obtain follow up data, 18.2% (n = 8) had an unfavorable evolution.
Conclusions: This cohort of patients confirms its unavoidable association with smoking. Although most patients have a favorable evolution, there is a subgroup with disease progression who are important to identify, given the need for therapeutic intervention and monitoring.

Keywords: *Desquamative interstitial pneumonia. Smoking. Transbronchial cryobiopsy. Corticosteroid therapy.*

CO 033. CHESTER STEP TEST: ITS RESPONSIVENESS AND CLINICALLY IMPORTANT IMPROVEMENTS FOLLOWING PULMONARY REHABILITATION IN INTERSTITIAL LUNG DISEASE

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Introduction: Impaired functional capacity in interstitial lung disease (ILD) accelerates the disease progression and mortality risk. Pulmonary rehabilitation (PR) has shown benefits in improving this meaningful outcome in ILD. These benefits have been mostly measured using the 6-minute walk test (6MWT) which requires the availability of a 30m corridor. Other measures to assess functional capacity in space constraint settings are needed and the Chester step test (CST) has been proposed as a possible alternative. It has shown to be valid and reliable in people with ILD, however, its responsiveness and clinical interpretability are still unknown. Therefore, this study aimed to establish its responsiveness and minimal clinically important difference (MCID) in people with ILD after PR.
Methods: A secondary analysis of data from 2 studies (NCT03701945 and NCT04224233) was conducted. People with ILD completed a 12 week community-based PR programme with 2 weekly sessions of exercise training and 1 session every other week of education and psychosocial support. The following measures were collected pre and post PR: the CST; the 1-minute sit-to-stand test (1minSTS) and the Functional Assessment of Chronic Illness Therapy-Fatigue Subscale (FACIT-FS). The 1-minSTS% predicted was also computed. The responsiveness was explored between the change in the CST and the changes in the 1-minSTS, 1minSTS% predicted and FACIT-FS. Significant correlations of 0.3 were considered adequate. Anchor- and distribution-based methods were used to compute the MCID. The anchors explored were the changes in the CST with changes in the 1-minSTS (raw and % predicted values) and in the FACIT-FS. The MCID of the CST was calculated using three anchor-based methods: mean changes, receiver operating characteristic (ROC) curve and linear regressions. The standard error of measurement (SEM), 1.96SEM, 0.5*standard deviation, minimal detectable change with 95% confidence (MDC95) and Cohen's effect size were used as distribution-based methods. The pooled MCID was computed using the arithmetic weighted mean (2/3 anchor- and 1/3 distribution-based methods).
Results: Fifty-five patients (67 ± 11 years; 64% female; FVC = 79.8 ± 17.7% predicted and DLCO = 51.2 ± 18.7% predicted) were included. A significant improvement in the CST after PR (mean difference = 23.3 ± 33.3 steps) was observed. Significant correlations were found between changes in the CST and in the 1-minSTS ($r = 0.305$; $p = 0.025$), the 1-minSTS%predicted ($r = 0.317$; $p = 0.020$) and the FACIT-FS ($r = 0.431$; $p < 0.001$). The pooled MCID was 23 steps.
Conclusions: This study shows that CST is a responsive measure and an improvement greater than 23 steps in the CST seems to be clinically meaningful in people with ILD after a 12-weeks community-based PR programme. The estimated MCID of the CST will aid health professionals to understand the effects of PR on functional capacity and guide to tailor PR to one of the most challenging daily activities (stair climbing) for people with ILD.

Keywords: *ILD. Chester step test. Responsiveness. Minimal clinically important difference. Pulmonary rehabilitation.*

CO 037. IDENTIFICATION OF EXPOSURE IN HYPERSENSITIVITY PNEUMONITIS: A COMPARISON BETWEEN PATIENT-REPORTED EXPOSURE AND HOME EVALUATION

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Introduction: The identification and elimination of the disease-causing antigen is essential in the diagnosis and management of Hypersensitivity Pneumonitis (HP). Identifying the antigen is associated with better outcomes. However, it is not always possible to do so. This study aims to compare the information obtained from patients regarding their exposure with the identification of antigens in patient's houses by a researcher.
Methods: Patients diagnosed with HP within the last 3 years were included in the study. A comprehensive home environmental assessment was conducted by a researcher trained in public health. The assessment involved a methodological checklist for the indoor and outdoor environment, building characteristics, and furniture. Air samples were also collected using a microbiological air impactor with agar plates and malt extract. After incubation, colonies were quantified and microscopically identified.
Results: A total of 35 patients with HP were included, 19 (54.3%) of whom were male, with a median age of 71 (min 32 – max 83) years. The majority of cases (n = 27, 77.1%) have fibrotic HP. Patients reported exposure to birds in 74.3% (n = 26), to fungi in 45.7% (n = 16), and to other antigens in 40% (n = 14) of cases. The researcher identified home exposure to birds in 48.6% (n = 17) of cases, fungi in 45.7% (n = 16), and other antigens in 5.7% (n = 2) of cases. Regarding avian exposure, there was agreement between patient report and researcher findings in 79.5% (n = 27) of cases. In 23.5% (n = 8) of cases, exposure to birds was reported by the patient but not found by the researcher. In no case did the researcher find exposure that was not reported by the patient. As for exposure to fungi, the concordance between patients and the researcher was 45.7% (n = 16). In 37.1% (n = 13) of cases, home exposure was found by the researcher despite not being reported by the patient. In 6 cases, the patient reported exposure to fungi that was not found by the researcher during visual inspection.
Conclusions: There was a higher agreement between observations regarding avian exposure than fungal exposure. In many cases, patients underestimated their exposure to fungi. In several cases, patients reported exposure that was not confirmed by the researcher, which could be due to compliance with antigen avoidance recommendations. Environmental assessment by a researcher can enhance the identification of antigens causing HP, enabling their elimination, which is an essential measure in the treatment of the disease.

Keywords: *Hypersensitivity pneumonitis. Inhaled antigen. Avian exposure. Fungi.*

CO 038. DIAGNOSIS OF HYPERSENSITIVITY PNEUMONITIS – TIME FOR A PARADIGM SHIFT?

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Introduction: The current diagnostic workup of suspected Hypersensitivity Pneumonitis (HP) is based on the application of the ATS/JRS/ALAT Clinical Practice Guideline, standardized for multidisciplinary discussion (MDD) based on clinical, radiological, and histological findings. Some authors suggest that by restricting the significance of pre-invasive diagnostic procedures, the ATS guideline can underestimate the likelihood of HP, particularly in a population with higher prevalence. The CHEST Guideline and Expert Panel Report on Diagnosis and Evaluation of HP, not currently applied routinely on MDD, is another consensus paper on this matter that seems to broaden the pre-biopsy predictive value of non-invasive/less invasive procedures.
Objectives: To apply both the ATS and CHEST guidelines to a population of patients with confirmed fibrotic HP (fHP) and determine whether different consensus would result in a significantly different MDD decision.
Methods: Retrospective study including patients submitted to transbronchial lung cryobiopsy (TBLC) with a final MDD diagnosis of fHP between 2014 and 2022 in a tertiary center. Both guidelines were applied to all patients, classifying them according to the level of confidence in a fHP diagnosis. McNemar's chi-square test was used to compare the proportions of confidence level changes during the MDD process.
Results: 112 patients were included, 51.8% were male, with a mean age at the time of TBLC of 65.5 ± 8.5 years. Most patients (51.8%) were either active or former smokers. Almost all were symptomatic (91.1%), most frequently complaining of dyspnea (77.7%), chronic cough (64.3%) and anorexia (17.9%). Although most patients had no functional impairment on spirometry and plethysmography, most (93.6%) presented reduced diffusion capacity, moderate-to-severe in more than half (63.4%). A clinically relevant history of environmental exposure was present in 92% (n = 103) of patients, most frequently avian exposure (69.6%) and humidity/mold (33.9%). Forty patients (35.7%) presented lymphocytosis (20%) on bronchoalveolar lavage (BAL). According to the ATS guideline, pre-TBLC confidence level in fHP diagnosis was as follows: not excluded in 52 patients (46.4%), low-confidence in 54 patients (48.2%), moderate-confidence in 5 patients (4.5%) and high-confidence in 1 patient (0.9%). When following the CHEST guideline, pre-TBLC confidence level in fHP was the following: HP unlikely in 4 patients (3.6%), provisional low-confidence in 59 patients (52.7%), provisional high-confidence in 35 patients (31.3%) and definite HP in 14 patients (12.5%). There was a statistically significant change in proportion towards higher-confidence levels when using the CHEST guideline ($p < 0.0001$). Changes were significant at three different levels: the proportion of patients in the ATS "not excluded" subgroup significantly upscaled to CHEST's "provisional low-confidence" subgroup (76.2% increase; $p < 0.001$) and the proportion in the ATS "low confidence" subgroup significantly upscaled to CHEST's "provisional high-confidence" (67.4% increase; $p < 0.001$) and "definite HP" (50% increase; $p < 0.001$) subgroups. No patients were downscaled in confidence level when applying CHEST guidelines.
Conclusions: This study suggests a significant increase in definite fHP diagnosis when applying the CHEST guideline versus the currently used ATS guideline. In our sample, 49 TBLC would have been waived due to a combination of less strict radiological criteria and a more prominent role of BAL.

Keywords: *Hypersensitivity pneumonitis. Transbronchial lung cryobiopsy. Chest. ATS. Diagnosis.*

CO 039. RETROSPECTIVE ANALYSIS OF PATIENTS WITH OBESITY-HYPOVENTILATION SYNDROME UNDER HOME VENTILATION

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Introduction: Obesity hypoventilation syndrome (OHS) is a prevalent condition, often underdiagnosed, with high morbidity and mortality if left untreated. Its diagnosis implies the presence of obesity (BMI 30 kg/m^2) and daytime arterial hypercapnia (paCO2 45 mmHg), in the absence of other causes that explain hypoventilation. It is therefore a diagnosis of exclusion. Growing evidence supports the use of HCO3- 27 mEq/L for its screening. Treatment consists in the application of a positive pressure in the airway, in the form of CPAP (continuous positive airway pressure) or non-invasive ventilation (NIV).
Objectives: The aim of this study was to analyze the population diagnosed with OHS, followed in the home non-invasive ventilation (NIV) consultation, as well as to verify if there is a correlation between the diagnostic criteria (BMI and paCO2) of this disease.
Methods: A retrospective analysis of the patients followed in the NIV consultation was made, between January 2014 and June 2023, in a tertiary hospital, with the diagnosis of OHS. The paired sample t-Test and the Spearman correlation statistical test were used.
Results: Of the 920 patients followed during this period, 137 had SOH. Most were female (75.2%), with a median age of 76 [67.0-83.5] years. Most patients (89.8%) were under NIV, and 30.7% of these had previously been under CPAP. A small percentage (10.2%) started NIV but later discontinued it (13 due to intolerance/refusal and 1 due to failing to meet criteria). The patients who began NIV, 64.2% had no hospitalizations due to respiratory pathology. There were 31 (22.6%) deaths, with a median time under NIV of 24 [9-43] months, 29% due to respiratory infection and 16.1% due to cardiovascular disease. We observed a statistically significant reduction ($p < 0.001$) in the value of paCO2 and HCO3- before the start of NIV and the last blood gas recording in consultation. It was found that there was no correlation between the patient's BMI and the paCO2 value ($r = -0.081$), as well as the HCO3 value obtained ($r = -0.031$). On the other hand, a positive and moderate correlation was documented between the value of HCO3- and paCO2, with a statistically significant difference ($r = 0.397$; $p < 0.001$).
Conclusions: OHS is a frequent indication for NIV, associated with multiple comorbidities. After treatment, a statistically significant decrease in paCO2 and HCO3- was obtained. Although BMI and paCO2 are necessary for diagnosis, no correlation was found between these two variables. On the other hand, with a statistically significant difference, a moderate correlation between HCO3- and paCO2 could be established, corroborating their role in documenting hypoventilation and, consequently, their usefulness in screening for OHS.

Keywords: *Obesity-hypoventilation syndrome. Home non-invasive ventilation. Diagnosis.*

CO 040. AMYOTROPHIC LATERAL SCLEROSIS SURVIVAL ANALYSIS BASED ON INITIAL ACHIEVEMENT

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Introduction: Amyotrophic Lateral Sclerosis (ALS) is a degenerative and progressive neurological disease involving upper and lower motor neurons. By compromising the respiratory muscles, it causes

episodes of alveolar hypoventilation and, consequently, hypercapnic respiratory failure, justifying the need to evaluate these patients in the home non-invasive ventilation (NIV) consultation. Mostly, the initial presentation is medullary/non-bulbar, but it can also present in the bulbar form.
Objectives: The aim of this study was to characterize and analyze survival between ALS with initial bulbar and non-bulbar presentation, from the beginning of follow-up at the NIV consultation.
Methods: A retrospective analysis was carried out of the patients followed in the NIV consultation, between January 2014 and June 2023, in a tertiary hospital, with the diagnosis of ALS. The patients whose initial presentation of the disease had bulbar symptoms were subdivided. The T test for independent samples was used.
Results: Of the 920 patients followed up during this period, 62 patients had ALS, with equal gender distribution (50%), and with a median age at the start of follow-up at the consultation of 68.0 [63.0; 74.3] years. During follow-up at the consultation, 48 patients started NIV (71.9%), 1 refused, and the rest were being followed up or died without ever having started NIV. In patients who started NIV, the median age at onset was 67.5 [63.0; 74.0] years, with the majority (83.3%) starting in the context of a NIV consultation, with a median pH of 7.42 [7.39;7.43] and pCO2 of 46.0 [41.3; 53.6] mmHg. The objective was, on average, with a statistically significant difference, that patients with non-bulbar ALS have higher values of FVC, MIP and MEP compared to those with bulbar ALS. Of those who started NIV, it was also found that the EPAP, at the last visit, of patients with non-bulbar ALS was superior to those with Bulbar ALS, as well as the time under NIV. About patient survival, at 3 years, after starting follow-up at the NIV consultation, there was a statistically significant difference ($p = 0.004$). Patients with bulbar ALS had a median survival of 10.5 [5.0; 17.0] months, while patients with non-bulbar ALS had a median of 20.0 [9.0; 25.0] months. During follow-up, 42 (67.7%) deaths were recorded.
Conclusions: Most ALS patients started NIV. Patients with the initial diagnosis of bulbar ALS had worse results in spirometry, less time under NIV, lower EPAP values, and higher mortality, with a median survival of 10.5 [5.0; 17.0] months, relative to patients with non-bulbar ALS, reflecting their worse prognosis.

Keywords: *Amyotrophic lateral sclerosis. Bulbar. Non-invasive home ventilation. Survival.*

CO 041. QUALITY OF LIFE IN PATIENTS UNDER NON-INVASIVE HOME VENTILATION IN THE LAST 6 MONTHS OF LIFE

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Introduction: Over the years, Non-Invasive Home Ventilation (NIHV) has progressively gained importance in the management of patients with advanced respiratory disease associated with chronic respiratory failure. Its use aims to achieve symptomatic control, reduce morbidity and mortality, and improve the quality of life (QoL). QoL can be assessed using validated questionnaires such as "The Severe Respiratory Insufficiency Questionnaire" (SRI). The results of each subscale can vary between 0 and 100, with 100 representing the best QoL.
Objectives: To evaluate the QoL in patients under NIHV in the last 6 months of life.
Methods: A retrospective analysis was conducted on patients under NIHV who had responded to the SRI. The individuals who had responded to the SRI within 6 months before their death (group 1) and patients who were alive 6 months after completing the questionnaire (group 2) were selected in a 1:2 ratio, based on the underlying lung disease. Sample comparisons were performed using Independent samples t-test, Mann-Whitney test, and Chi-square test. Results with $p < 0.05$ were considered statistically significant.
Results: Sixty-six patients were included. Most of the patients were male (65.7%) and 68% have been diagnosed with COPD. The mean age was 75.9 ± 7.8 years, and the median time under NIHV was 44.5 [18.0-91.5] months, with group 2 exhibiting a more extended duration of treatment. Regarding the latest follow-up, the median daily adherence revealed very similar values between the two groups, with a recorded value of 8.3 [6.3-9.7] hours. In the last gasimetric evaluation, the mean pCO2 was higher in the group of patients who died within 6 months after completing the SRI, although not statistically significant. The total SRI score was approximately 15 points higher in the group of patients who were alive 6 months after completing the SRI, however, this difference was not statistically significant. In the subscales "SRI_Respiratory symptoms" and "SRI_Social function", the surviving patients demonstrated statistically higher values. The "SRI_Physical function" was the subscale with the lowest score in both groups.
Conclusions: The group of surviving patients demonstrated higher scores in the subscales "SRI_Respiratory symptoms" and "SRI_Social function" (both statistically significant) as well as in the total scale. Although in the latter the difference in nearly 15 points was not statistically significant, it may imply a substantial clinical effect. Larger sample studies are needed.

Keywords: *"The severe respiratory insufficiency questionnaire". Quality of life. Non-invasive ventilation.*

CO 042. NON-INVASIVE HOME VENTILATION IN BRONCHIECTASIS

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Introduction: Bronchiectasis (BC) are commonly associated with various pulmonary pathologies, and the affected population is, generally, heterogeneous. In patients with chronic respiratory failure, the use of Non-Invasive Home Ventilation (NIHV) has become increasingly important in their treatment.
Objectives: Characterization of the patients with BQ under NIHV.
Methods: A retrospective analysis was conducted on patients followed in a NIHV clinic, from January 2014 to June 2023, with diagnosis of BC confirmed through High-Resolution Computed Tomography (HRCT). The data was compared using paired-sample t-test and Chi-square test. Results with $p < 0.05$ were considered statistically significant.
Results: Among the 921 individuals followed during this period, 106 (11.5%) were diagnosed with BC. Regarding the complications in the last follow-up, 37.1% had Pseudomonas isolation in sputum analysis and 49.5% experienced at least 1 exacerbation in the last 12 months. In total, 49.5% required hospitalization within a one-year period. There was a statistically significant decrease in the number of patients with hospitalizations in the year following the initiation of NIHV compared to the preceding year. Nine patients discontinued NIHV during follow-up due to non-compliance with therapy. There was no statistically significant decrease in the average pCO2 value, comparing the pre-NIHV period with the follow-up, despite good adherence to NIHV. However, the percentage of patients with hypercapnia ($pCO2 > 45$ mmHg) significantly decreased between the two evaluations (95.2 vs. 71.0%; $p < 0.001$).
Conclusions: In the sample, the coexistence of BC with another underlying pulmonary pathology was considerably more frequent when compared to the isolated diagnosis of BC. Consistent with prior studies, COPD was the most common associated pathology. After initiating NIHV, there was no decrease in the average pCO2 value, however the proportion of patients with hypercapnia had a

statistically significant reduction of more than 20%. The introduction of NIHV had a positive impact on reducing the number of respiratory-related hospitalizations in the first year of treatment.

***Keywords**: Bronchiectasis. Gasometric assessment. Non-invasive ventilation.*

CO 043. NON-INVASIVE HOME VENTILATION IN BRONCHIECTASIS: WHAT ARE THE SEVERITY CRITERIA PREDICTORS OF MORTALITY?

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Introduction: Bronchiectasis (BC) often coexists with various pulmonary pathologies, and the affected population is generally heterogeneous in terms of etiology, microbiology, and lung function. In patients with chronic respiratory failure, the use of NonInvasive Home Ventilation (NIHV) has shown controversial results.
Objectives: Assess the severity criteria in patients with BC at the NIHV initiation and its association with 5-year mortality.
Methods: A retrospective analysis was conducted on patients diagnosed with BC through high-resolution computed tomography (HRCT), under NIHV for at least 6 months and followed at a tertiary hospital between January 2014 and June 2023. From this group, patients with a follow-up period of 5 years or who died within 5 years after starting NIHV were selected. At the outset of NIHV therapy, six criteria from two validated severity scales (FACED score and BSI score) were applied: age > 70 years, FEV1% 50%, Pseudomonas colonization, involvement of > 2 lobes on radiology, hospitalization in the last 2 years, and BMI < 18.5 kg/m^2. Five-year mortality was assessed considering the different criteria, using the Chi-square test. Results with $p < 0.05$ were considered statistically significant.
Results: Applying the specified inclusion criteria, we established a cohort of 68 patients. Among these, 38 patients had a follow-up period of 5 years and 30 died within 5 years after initiating NIHV. Of the total sample, 50% were female, and the median age at the initiation of NIHV was 69.5 [61.1-75.5] years. Patients aged > 70 years at the outset of NIHV had a higher 5-year mortality rate compared to patients aged 70 years, with statistical significance. Furthermore, a greater 5-year mortality was observed in the group of patients with *Pseudomonas* isolation in sputum, also showing a statistically significant difference. The other severity criteria also led to increased 5-year mortality, although without statistical significance.
Conclusions: In the sample, age > 70 years and *Pseudomonas* colonization at the time of NIHV initiation were associated with higher 5-year mortality in patients with BC under NIHV for at least 6 months.

***Keywords**: Bronchiectasis. Severity criteria. Non-invasive home ventilation.*

CO 044. HOME HIGH-FLOW NASAL OXYGEN IN THE CONTEXT OF END-STAGE RESPIRATORY DISEASE – MORE THAN JUST A PALLIATIVE THERAPY?

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Introduction: High-Flow Nasal Oxygen Therapy (HFNOT) has gradually become a cornerstone in the context of severe acute hypoxemic respiratory failure. The well-recognized benefits in improving oxygen deficit while normalizing breathing rate by reducing inspiratory effort, as well as effects on airway humidification have led to an increase in its usage in exacerbations. Due to these physiological effects, it has been hypothesized that there might be a benefit in introducing this therapy for chronic respiratory failure patients presenting end-stage respiratory disease.
Objectives: We aimed to characterize the population of patients proposed to home HFNOT in the context of end-stage respiratory disease, as well as to assess its potential benefit beyond palliation of symptoms.
Methods: Retrospective study including all patients followed in the pulmonology department of a tertiary center who started home HFNOT until June 2023. t-Student and Mann-Whitney tests were applied for continuous variables and the chi-square test was used to compare categorical variables. ROC curves were used to determine the cut-off point of continuously distributed measurements.
Results: A total of 36 patients were included, of which 61.1% were male, with a mean age of 65.5 ± 11.6 years at the time of HFNOT initiation. The majority (61.1%) had interstitial lung disease while others presented mostly a clinical background of obstructive lung disease (30.6%). More than two thirds had either past or ongoing smoking history (69.4%). Hypercapnia was more frequent in obstructive patients ($p = 0.044$), while global respiratory failure was more frequently seen in patients with interstitial lung disease ($p = 0.039$). Although all had chronic respiratory failure, nineteen patients (52.8%) presented sustained acid-base disturbances (38.9% respiratory alkalosis and 13.9% respiratory acidosis). Median time from respiratory-related follow-up to home HFNOT start was 35 months (2;141). Overall median titrated fraction of inspired oxygen was 45% (30;70), significantly lower in obstructive patients versus interstitial lung disease patients [35% (30;65) versus 50% (30;70); $p = 0.05$]. Median titrated air flow was 45 L/min (15;60) with no significant differences between groups. Obstructive patients had a significantly higher number of pre-HFNOT emergency care admissions [4 (1;17) vs 2 (0;16); $p = 0.036$] and hospital stays [3 (2;12) vs 1 (0;5); $p = 0.012$] when compared to interstitial lung disease patients. All patients with obstructive lung disease had less post-home HFNOT hospital admissions versus pre-treatment start, in comparison with only 54.5% of interstitial lung disease patients ($p = 0.013$). While post-home HFNOT emergency care visits were also less than pre-treatment start for both groups, no statistically significant differences were found. Success in reducing PaCO2 6 mmHg on post-HFNOT blood gas analysis was predictive of better treatment outcome, defined as an overall reduction in hospital admissions (AUC 0.720; $p = 0.038$). Median time under home HFNOT was 4 months (0;34). Although mortality was high (77.8%), treatment was well-tolerated by most patients; 4 patients (11.1%) interrupted HFNOT, three due to lung transplantation and only one due to intolerance.
Conclusions: Home HFNOT proved to be an overall safe and well-tolerated treatment strategy for patients with end-stage respiratory disease. Obstructive lung disease patients benefited the most from the treatment, possibly due to hypercapnia correction.

***Keywords**: HFNOT. Oxygen. COPD. Respiratory failure.*

CO 045. SERVOVENTILATION IN CENTRAL SLEEP APNEA SYNDROME – EXPERIENCE OF A TERTIARY CENTER

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Introduction: Central Sleep Apnea Syndrome (CSA) accounts for 5-10% of sleep-disordered breathing, classified into different types according to the International Classification of Sleep Disorders (ICSD-3). Adaptive servo-ventilation (ASV) is a recent ventilation mode used as a second-line treatment in SAC.

Methods: Descriptive and retrospective analysis of patients undergoing ASV, followed at the Sleep and Non-Invasive Ventilation Unit (SNIVU) of a tertiary hospital, between October/22 - June/23. The sleep disorders were classified according to the ICSD-3 and the patients were grouped according to the type of CSA. Demographic characterization, central apnea index (CAI) at diagnosis, left ventricular ejection fraction, oxygen therapy and comorbidities were analysed. When appropriate, the apneahypopnea index (AHI) and the difference in time elapsed between the start of ASV and another ventilation mode were described.
Results: From a population of 594 patients with sleep-disordered breathing, 116 were identified undergoing ASV, with 82 (13.8%) included in the study, and the others were excluded due to lack of clinical information. The patients were mostly male (89%, n = 73) and were, on average, 75.1 ± 10.5 years old at the date of the last medical appointment and IAC 26 ± 13/hour. Patients were divided into 3 groups: A - treatment-emergent central sleep apnea due to positive pressure (PAP) (40.2%, n = 33); B - central apnea with Cheyne-Stokes breathing (29.3%, n = 33). 24); C - central sleep apnea due to a medical disorder without Cheyenne-Stokes breathing (30.5%, n = 25). Patients in group A had a mean age of 71 years and CAI 24/hour and a diagnosis of obstructive sleep apnea syndrome (OSA) with a mean AHI of 34 ± 16/h. They started ASV, on average, 7.8 months after PAP. Their main comorbidities were arterial hypertension (47%, n = 16) and obesity (32%, n = 11). Patients in group B were, on average, 78 years old and had an CAI of 30/hour. All had cardiovascular disease (as in 79% heart failure and 42% hypertension) and 21% had cerebrovascular disease (4 with a history of ischemic stroke). On average, they had been under PAP for one month before starting ASV. In group C, the patients were, on average, 76 years old and CAI 25/hour, all presenting cardiac disorders (such as 83% heart failure and 32% cardiac arrhythmia). Concomitantly, they presented pulmonary pathology (61%), neurological pathology (9%) and obesity (43%). It should be noted that 64% had a previous diagnosis of OSA (average AHI 26.5), having started ASV 96.5 months after PAP. Two patients in group C underwent long-term oxygen therapy. The left ventricular ejection fraction was compromised (30-45%) in 3% of the patients in group A, 52% in group B and 13% in group C, being preserved in the rest.
Conclusions: The prevalence of CSA in this study was higher than in the literature and the main type was the treatment emergent central sleep apnea. There was a high prevalence of cardiovascular pathology (mainly heart failure) and history of OSA. Patients with central apnea with Cheyne-Stokes breathing were older and had a greater number of central events.

Keywords: *Adaptive servo-ventilation. Central sleep apnea syndrome. Obstructive sleep apnea syndrome. Cheyne-stokes breathing.*

CO 046. BIOLOGICAL CLOCK DYSFUNCTION IN OBSTRUCTIVE SLEEP APNEA: TOWARDS NOVEL DIAGNOSTIC AND THERAPEUTIC INTERVENTIONS

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Introduction: Obstructive Sleep Apnea (OSA) has been recognized as a major health concern worldwide given its increasing prevalence, difficulties in diagnosis and treatment, and impact on society. Untreated, OSA has been associated with a host of comorbidities, including hypertension, cardiovascular and metabolic disorders. Recent studies suggest that OSA dysregulates the biological clock, which might contribute to the large spectrum of OSA comorbidities. Yet, the interplay between OSA, the clock, and OSA treatment is not fully understood. We proposed to evaluate the impact of OSA and OSA treatment on clock dysfunction, and its potential applications in OSA diagnosis and treatment.
Methods: We conducted a cohort study involving 34 patients with OSA (age: 55 ± 2 years; Respiratory disturbance index: 46 ± 4), before and after treatment short (4 months) and long-term (2 years) treatment with Continuous Positive Airway Pressure (CPAP), and 7 controls of the same sex (male) and age group (age: 50 ± 3 years; Respiratory disturbance index: 4 ± 1). The levels and temporal profile of clock physiological markers (plasma melatonin and cortisol; body temperature) and the expression of core-clock genes in peripheral blood mononuclear cells were monitored at four time points along 24 h. Machine-learning methods were applied for data analysis.
Results: Patients with OSA showed alterations in the levels and circadian profiles of melatonin and in the expression of several clock genes (e.g., melatonin levels at 8h: 134 ± 12 pg/mL; PER1 expression at 22h30: 0.3 ± 0.2), relative to control subjects (melatonin levels at 8h: 76 ± 15 pg/mL, $p < 0.01$; PER1 expression at 22h30: 1.0 ± 0.2, $p < 0.05$). Long-term CPAP treatment re-established the levels and profiles of melatonin and the expression of some of the evaluated clock genes (melatonin levels at 8h: 80 ± 17 pg/mL; PER1 expression at 22h30: 1.1 ± 0.5). Machine-learning clustering approaches, based on clock-associated markers, distinguished controls from untreated patients (F1 score = 0.95) and showed that long-term CPAP-treated patients better resemble controls than untreated/short-term treated (4 months) patients.
Conclusions: OSA disturbs the biological clock. Long-term CPAP has a positive effect, yet it does not fully re-establish the clock. Our results reinforce the need for new/complementary strategies for OSA treatment. Machine-learning approaches, based on clock-associated markers, show potential applications in OSA diagnosis, patient stratification and treatment response monitoring.

Keywords: *Obstructive sleep apnea. Biological clock. Biomarkers. Machine-learning. Diagnosis. Treatment.*

CO 047. ADVANCING OBSTRUCTIVE SLEEP APNEA DIAGNOSIS IN ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF PERIPHERAL BIOMARKERS

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Introduction: Obstructive Sleep Apnea (OSA) has been recognized as a major health concern worldwide, given its increasing prevalence, difficulties in diagnosis and treatment, and impact on health, economy and society. Clinical guidelines highlight the need of biomarkers to guide OSA clinical decision-making, but so far, without success. In this systematic review and meta-analysis we proposed to gather candidates identified in the literature as potential biomarkers for adult OSA diagnosis.
Methods: The current study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (3) and was registered in the International Prospective Register of Systematic Reviews database (PROSPERO, ID CRD42020132556). Search strategies for eight different databases were developed. Studies exploring potential biomarkers of OSA, in peripheral samples of adults, with and without OSA (assessed by overnight Polysomnography in a sleep unit), with no comorbidities, published after 21st

March 2014 were considered as inclusion criteria. Eligible studies were evaluated through the 14-item Quality Assessment Tool for Diagnostic Accuracy Studies (QUADAS, (4)) and final studies were selected for meta-analysis.
Results: Among 1,512 screened studies, 120 met the inclusion criteria. Risk of bias was explored and only 16 studies with high methodological study designs were included. Those studies presented a high heterogeneity (I2 above 75%) in the variables assessed. Collectively, OSA group showed an increased percentage of males (11.91%; p = 0.007), older ages (4.22 years; p < 0.001) and higher BMI (3.41 kg/m^2; p < 0.001) in comparison with the control group. OSA patients also showed statistically significant differences in all detailed clinical variables (p < 0.001), with lower differences in daytime sleepiness (3.50; p = 0.010) and SpO2/SaO2 mean (-4.21; p = 0.002). Severity subgroups were further analyzed. Most studies pinpointed candidates with potential for OSA prognosis. Endocan and YKL-40 levels in serum, IL-6 and Vimentin levels in plasma, and ADAM29, SLC18A3, and FLRT2 gene expression in PBMCs revealed potential applications in OSA diagnosis that must be further explored. **Conclusions:** This study showed that OSA biomarkers research is still at an early stage. The identified potential biomarkers and upcoming alternatives must be explored in less biased and more transparent studies, with high methodological study designs, involving larger and non-community based cohorts (multi-centric), to validate biomarkers with application in the clinical management of such a complex multifactorial disorder as OSA.

Keywords: *Sleep apnea. Biomarkers. Diagnosis.*

CO 048. EVALUATION OF POLYSOMNOGRAPHIC CHARACTERISTICS IN CHRONIC LIVER DISEASE

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Introduction: Recent studies have suggested a potential association between chronic liver disease (CLD) and modifications in sleep characteristics, including reduced total sleep time (TST), decreased sleep efficiency, increased sleep onset latency and REM sleep, nocturnal awakenings, respiratory events and excessive daytime sleepiness. The aim of this study was to assess the polysomnographic characteristics of patients with CLD reporting sleep-related complaints and compare them with a control group without CLD.
Methods: Retrospective analysis of polysomnography conducted in a sleep laboratory during 2021 and 2022 at a secondary hospital. The sample was divided into two groups: group 1, patients with CLD, and group 2 (control), patients without CLD. Demographic characteristics, presence and characterization of CLD and etiology, as well as sleep characteristics including efficiency, latency, sleep stages, and respiratory disturbance index, were analyzed. Normally distributed continuous variables are presented as mean ± standard deviation. Data was analyzed using SPSS version 23.0 (IBM Statistics®).
Results: A total of 234 polysomnograms were performed, including 29 patients in group 1 (12.4%) and 205 in group 2 (87.6%). Within group 1, the most frequent etiology of CLD was non-alcoholic fatty liver disease (n = 24, 82.8%), followed by alcoholic fatty liver disease (n = 2, 6.9%, one of whom was transplanted), and genetic liver diseases (n = 2, 6.9%). There was one case of HCV+ viral hepatitis (n = 1, 3.4%) in group 1. In group 1, decreased sleep efficiency (mean of 78.2 ± 16.9%), and increased stage N1 sleep (15.9 ± 12.9%) were observed. Twenty-seven patients (93.1%) in group 1 exhibited study findings compatible with sleep apnea, with 11 classified as mild, seven as moderate, and nine as severe. Levene's test demonstrated no significant differences between the two groups in terms of age, sex, and body mass index (BMI).
Conclusions: The results reveal that in the evaluated sample, like findings in the literature show, patients with CLD exhibit reduced sleep efficiency and increased respiratory events compared to reference values. However, the results do not significantly differ from the control group. Study limitations include selection bias, as all patients were referred from sleep clinics, reporting suggestive sleep-related symptoms. Patients with CLD demonstrate alterations in sleep microstructure and presence of obstructive sleep apnea. Prospective studies are necessary in the CLD population to better understand the implications of this condition on sleep characteristics and associated pathologies.

Keywords: *Sleep disorders. Chronic liver disease.*

CO 049. COMBINED EFFECTS OF OCCUPATIONAL EXPOSURE AND TOBACCO IN COPD

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a chronic progressive disease and an important cause of morbidity and mortality in the world. Exposure to toxic particles and gases in both tobacco smoking and occupational exposure is a well recognized major risk factor for COPD but its contribution to the clinical pattern of the disease remains underappreciated.
Objectives: To assess the cumulative effect of occupational exposure in smokers/ex-smokers COPD patients.
Methods: A retrospective observational study was carried out involving smokers or ex-smokers with a diagnosis of COPD followed in a respiratory failure consultation at a Portuguese district Hospital. The presence of occupational exposure was evaluated (documented exposure to vapors, gases, dust or fumes) and subsequent comparative analysis of clinical and functional data was carried out between the following groups: A – COPD smokers or ex-smokers; B - COPD smokers or ex-smokers with concomitant occupational exposure. Patients with other concomitant respiratory pathologies, other etiologies of COPD, without respiratory functional evaluation or incomplete data were excluded. Analyzes were performed in SPSS-Statistics v.27.0 with p values < 0.05 considered statistically significant.
Results: A total of 79 patients were included, 49 in group A (GA) and 30 in group B (GB). The mean age was 68.7 ± 8.7 years (66.5 in GA vs 72.2 in GB; p = 0.04), with male dominance in both groups (57% in GA vs 93% in GB, p = 0.001). Most patients were exsmokers (59.1% in GA vs 56.7% in GB, p = 0.83), with no differences in smoking history between groups (median 60 pack-year in GA vs 50 pack-year in GB, p = 0.59). There were no differences in BMI values (median 25 kg/m^2 in AG vs 26 kg/m^2 in GB, p = 0.65) and in the frequency of cardiovascular comorbidities between the two groups. In the assessment of lung function, the mean FEV1 (% predicted value) was significantly lower in group B compared to group A (39.8 ± 17.2% vs 44.5 ± 20.4%, p = 0.05), with no difference in the remaining parameters evaluated (lung volumes, distance covered in 6mWT, BODE index or mMRC). 41.8% (42.9% in AG vs 40% in GB, p = 0.80) and 26.6% (26.5% in AG vs 26.7% in GB, p = 0.98) of patients were under long-term oxygen therapy and home non-invasive ventilation, respectively. There were no significant differences between the groups regarding the occurrence of exacerbations in the last year. (p = 0.17).
Conclusions: In addition to the higher prevalence and incidence of COPD found in people with both work-related and tobacco exposure, we could identify distinct clinical characteristics associated with this phenotype. In this series of COPD patients, the combined exposure subjects were older male patients who had more severe

airflow obstruction compared to the single exposure group, demonstrating that there is a potential negative synergistic effect associated with the combination of tobacco and occupational exposure in COPD patients. It is therefore essential in clinical practice to recognize the impact that this interaction may have on the clinical evolution and prognosis of these patients.

Keywords: *COPD. Tobacco smoking. Occupational exposure.*

CO 050. NIVO SCORE AS A PREDICTOR OF MORTALITY IN AECOPD PATIENTS: REAL-LIFE COHORT

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Introduction: Acute exacerbations of COPD (AECOPD) complicated by acute-on-chronic respiratory failure with acidemia are frequent. Non-invasive ventilation (NIV), when correctly used, reduces the need for mechanical ventilation and mortality. Predictive scales of mortality associated with AECOPD have been developed, such as the Non Invasive Ventilation Outcomes score (NIVO), designed to be applied to patients with complicated exacerbation of acidemia or need for assisted ventilation. This study aimed to evaluate the applicability of this instrument in our population.
Methods: Retrospective cohort study, from January/2017 to December/2021. Patients included were hospitalized for AECOPD with respiratory acidemia or need for NIV, all with spirometric confirmation of COPD. The NIVO score was applied to each patient, comparing the observed mortality with that was predicted by the scale. The primary outcome was in-hospital mortality and the secondary outcome was 90-day mortality. Sociodemographic data (age, gender, smoking status, BMI) and clinical data (comorbidities, GOLD stage, home NIV, LTOT - long-term oxygen therapy, number of exacerbations in the previous 12 months) were also analyzed. The discriminatory ability of the score was evaluated using the obtained ROC curve.
Results: 86 patients were included, 76.7% (n = 66) male, median age 67 years [AIQ 59-74]. The mean BMI was 24 kg/m^2 ± 5.6 and the median BODE index was 5 [AIQ 3-7]. 44.2% (n = 38) of the patients were active smokers and 52.3% (n = 45) were former smokers, with a median smoking history of 56.2 pack-years (AIQ 40-82.5). Most patients had severe (GOLD 3, 44.1% [n = 38]) and very severe obstruction (GOLD 4, 27.9% [n = 24]). Prior to admission, 31.4% (n = 27) were under home NIV, 37.2% (n = 32) under LTOT and 20% (n = 17) were under LTOT and NIV. The most frequent comorbidities were pulmonary hypertension (26%, n = 22), heart failure (21%, n = 18) and diabetes mellitus (17%, n = 15). The in-hospital mortality rate was 9.3% (n = 8). The main cause of in-hospital mortality was respiratory failure (62.5%, n = 6), and of these all had NIV as a therapeutic ceiling. Mortality was higher in patients with a greater number of moderate-severe exacerbations in the last year compared to patients who survived the hospitalization (median 2 vs 1, p = 0.023). When the NIVO score was applied, there were no differences between low-risk individuals (observed mortality 2.8% vs expected mortality score 5%, p = 0.439), intermediate risk individuals (observed mortality 22.2% vs expected mortality score 16.8%, p = 0.697) and high risk (observed mortality 100% vs expected mortality score 41.2%, p = 0.075). The application of the 90-day mortality score followed the same trend. The discriminatory power of the NIVO score for in-hospital mortality was 0.88 (88% sensitivity, 34% specificity), while 90-day mortality was 0.82 (80% sensitivity, 34% specificity).
Conclusions: As described in the literature, the NIVO score showed good discriminatory power as a predictor of in-hospital and 90-day mortality in the analyzed sample. It represents a useful tool in clinical practice, namely in the timely assessment of patients at higher risk of mortality and consequent better management of established therapies.

Keywords: *NIVO score. In-hospital mortality. COPD.*

CO 051. EVALUATION OF FEV1Q AS A PREDICTOR OF MORTALITY IN AMYOTROPHIC LATERAL SCLEROSIS – EXPERIENCE OF A DISTRICT HOSPITAL

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Introduction: The 2021 ATS/ERS guidelines introduced FEV1Q (forced expiratory volume in 1 second divided by the sex-specific first percentile values of the absolute FEV1 values found in adults with lung disease, that is 0.4 L for women and 0.5 L for men) to predict survival. The closer FEV1Q is to 1, the greater the risk of death. Currently, few studies address the real-life application of FEV1Q, namely in amyotrophic lateral sclerosis (ALS), in which FVC (forced vital capacity) is used in the assessment of survival.
Methods: Retrospective analysis of patients with ALS followed in a Pulmonology appointment at a district hospital between January/2017 and July/2023. Demographic characterization, presence of bulbar involvement at diagnosis, non-invasive ventilation (NIV), mechanical in-exsufflator and percutaneous endoscopic gastrostomy (PEG) were described. When appropriate, the time elapsed between diagnosis and death, initiation of NIV after diagnosis and until death was also described. The FEV1 and FVC values were taken from the pulmonary function tests carried out by the patients and were analyzed for their decline over time, and the FEV1Q was calculated. The predictive capacity of FEV1, FEV1Q and FVC was analyzed through survival analysis with the Cox Proportional Hazards method. Results with $p < 0.05$ were considered statistically significant.
Results: There were 47 patients identified with ALS, of which 45 were included, most of them were female (60%, n = 27), with a mean age at diagnosis of 69.2 ± 11 years. 36% (n = 16) of patients had bulbar involvement at diagnosis. It was found that 95% (n = 43) of the patients met the criteria for NIV, with 93% (n = 40) of these starting NIV (a median of 137 days after diagnosis). In addition, 91% (n = 41) started a mechanical in-exsufflator and 36% (n = 16) placed a PEG. The mortality rate was 57% (n = 26), with patients dying a median of 398 days (IQR 216.5-1218) after diagnosis and 99 days (IQR 58-366) after the last pulmonary function tests. It should be noted that of these patients, 56% (n = 12) had bulbar involvement and that 8% (n = 2) refused to undergo NIV (with the remaining undergoing NIV, on a median, 192 days before dying). Regarding pulmonary function tests, a decline in FEV1, FEV1Q and FVC was observed. FEV1 and FEV1Q were predictors of mortality with statistical significance ($p < 0.05$). The Akaike information criterion showed that FEV1Q was a better predictor of mortality than FEV1. The FEV1Q decreases by 0.7 per month, and death occurred, on average, when the FEV1Q was 2.68. FVC was not a predictor of mortality, either alone or as part of a multivariable model together with FEV1Q.
Conclusions: In a period of about 6 years, there was an important mortality of patients with ALS, with a higher prevalence of those with bulbar involvement at diagnosis. FEV1Q proved to be the best predictor of mortality among the analyzed variables, approaching on average 2. It is needed to replicate this analysis in a larger population before these results can be applied in the clinic practice.

Keywords: *FEV1Q. FEV1. FVC. Amyotrophic lateral sclerosis.*

CO 052. MACHINE LEARNING CLASSIFICATION OF PULMONARY HYPERINFLATION BASED ON BASELINE SPIROMETRIC PARAMETERS

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Introduction: Spirometry is the most accessible and widely used Respiratory Function Test (RFT). However, it does not allow for the evaluation of static lung volumes, such as residual volume (RV) or total lung capacity (TLC), which are essential to support the diagnosis of hyperinflation or pulmonary restriction. This study aimed to fill this gap by using the Catboost machine learning (ML) model to classify the presence of hyperinflation (abnormally elevated RV/TLC ratios).
Methods: This is a retrospective study with 8,138 baseline RFTs conducted at the Hospital da Luz Lisboa. The spirometric and whole-body plethysmography (WBP) parameters were subjected to the Catboost model using an 80-20 training-testing data split to classify the spirometries associated with increased RV/TLC values. For external model validation, an independent sample of 227 RFTs performed at the Hospitals of Luz Lisboa, Oeiras and Setúbal was collected. In the sample used for training and testing the model, the prevalence of RFTs with increased RV/TLC values was 24%, and this alteration was present in any spirometric pattern (normal, obstructive, restrictive, and mixed).
Results: The model showed good performance in the test sample, with an accuracy of 0.83, an area under the receiver operating characteristic curve (AUC) of 0.85, and an F1 score of 0.82. In the validation sample, the model maintained its performance with an accuracy of 0.85, an AUC of 0.86, and an F1 score of 0.84. This study demonstrated promising results with robust performance, both in the test sample and in external validation. However, there is a need to improve the negative predictive value to avoid false negatives and ensure accurate diagnoses for patients with hyperinflation.
Conclusions: The inclusion of more relevant parameters, reducing the entropy of the target variable in the training sample, and increasing the external validation sample can enhance the model's applicability in clinical contexts where the evaluation of non-mobilizable lung volumes is not possible.

Keywords: *Spirometry. Static lung volumes. Machine learning.*

CO 053. LUNG CANCER: FROM CLINIC TO THERAPEUTIC DECISION IN THE VERY YOUNG (< 45 YEARS) VS. THE VERY ELDERLY (> 85 YEARS)

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Introduction: Lung cancer mainly affects the elderly, and in most cases it is not possible to offer treatment with curative intent. Molecular markers show age-related differences. This fact, associated with the frailty found in the elderly population, inevitably limits the therapeutic options available. With this work, the authors intend to highlight the main differences in clinical presentation and therapy instituted in young people vs. elderly people with lung cancer.
Objectives: The clinical files of patients followed up in a Pulmonology Oncology consultation at CHUC diagnosed between 01/1/2018 and 12/31/2022 with primitive lung cancer with 45 and 85 years were consulted, the first being classified as group 1 and the seconds as group 2.
Results: We obtained a total of 97 patients, 48 young and 49 elderly. In group 1 (young people) the mean age was 41.7 ± 3.4 years; male in 60.4%; performance status of 1 in 60.4%; 31.3% were non-smokers and the majority (77.1%) in stage IV. In group 2 (elderly) the average age was 87.4 ± 2.4 years; male in 61.2%; performance status of 1 in 38.8%; 42.9% were non-smokers and the majority (75.5%) in stage IV. The most frequent histological subtype was adenocarcinoma, with a prevalence of 87.5% in group 1 and 67.3% in group 2. In the latter, the squamous subtype represents 24.5%, compared to group 2 in which it was registered only 1 case. With a positive molecular study, the ALK translocation was the most frequent in the young group (62.5%), while in the elderly group the EGFR mutation predominated (56%). As for PDL-1 expression, it was negative in 41.7% and 51.1% in groups 1 and 2, respectively. Regarding the therapeutic decision, chemotherapy (CT) was the therapeutic decision for 1st line in 33.3% in group 1 and 12.2% in group 2, in which the best supportive therapy (BST) was the 1st option in 44.9% of patients. Tyrosine kinase inhibitors (TKI) were used in 1st line by 25% in group 1 and 22.5% in group 2. 6.3% and 8.2% of groups 1 and 2 underwent first-line immunotherapy, respectively. In the young group, 5 patients underwent concomitant chemotherapy and radiotherapy (RT), compared to the elderly group, in which 4 patients underwent isolated RT.
Conclusions: In this work, in the young group we found a higher percentage of women and better performance status. In the elderly group, squamous histology and, in the molecular evaluation, mutation in the EGFR gene were more frequent. Regarding PDL-1 expression, the percentage difference between groups was not significant. With regard to first-line therapy, BST was the first option for most elderly people. This study highlights the need for a personalized assessment and decision, where age is definitely not negligible.

Keywords: *Lung cancer. Treatment. Young. Elderly.*

CO 054. CHARACTERIZATION OF ALK GENE FUSION PARTNERS IN LUNG ADENOCARCINOMA: A CROSS-SECTIONAL STUDY

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Introduction: The ALK gene codes for a protein called anaplastic lymphoma kinase. About 4-5% of people who have non-small cell lung cancer (NSCLC) have an alteration on chromosome 2 that leads to the fusion of the ALK gene with another gene (fusion partner), which possess potential oncogenic functions due to constitutive activation of ALK kinase. The most common ALK fusion partner is a gene called echinoderm microtubule-associated protein-like 4 (EML4) and results in the production of an EML4-ALK fusion protein. During the past decade, over 11 different variants of EML4 ALK have been identified in a variety of tumors, including NSCLC, digestive tract and breast cancer. The most common variant among EML4 ALK fusions is variant 1 (33%), followed by variant 3 (29%) and variant 2 (10%). It is a rare mutation most commonly seen in people who have never smoked or are light smokers, especially women of Asian descendants. Although more than 90 distinct fusion partner genes have been reported, treatment of ALK-rearranged cancers is decided without regard to which partner is present. There is little data addressing how the fusion partner affects the biology of the fusion or responsiveness to ALK tyrosine kinase inhibitors (TKIs). However, in some patients, the fusion partner it's not identified and that represents a particular situation not clarified in published literature regarding the prognosis and treatment response.
Methods: We conducted a cross-sectional analysis of a retrospective cohort with lung adenocarcinoma and ALK mutations detected by next generation sequencing (NGS) from 2017 to 2021, followed at Pneumology Department at Centro Hospitalar e Universitário de São

João. Our aim was to characterize the population, describe epidemiologic characteristics, staging at diagnosis and overall survival.
Results: Were included 47 patients, of which 25 (53.2%) were male and 22 (46.8%) were female with a mean age-at-diagnosis in years of 61.6 ± 11.7. Most patients (n = 28, 59.6%) were non-smokers, had no previous medical history of respiratory diseases (n = 39, 83%) and had no relevant environmental exposure (n = 28, 59.6%). Regarding cancer diagnosis, 14 (29.8%) patients were diagnosed with local disease, 9 (19.1%) patients were diagnosed with locally advanced disease and 24 (51.1%) with metastatic disease, with the most common sites of metastasis being bone, pleura, brain and liver. Of the 47 patients, in 15 (31.9%) the ALK fusion partner was not identified. Of the remaining, variant V6 was present in 14 (37.8%) patients, variant V3 in 13 (35.1%) patients, variant V5 in 3 (8.1%) patients, and both variant V8 and V2 were detected in 1 (2.7%) patient each. The mean overall survival in months (OS) was 43.9 ± 36.99 and the median progression free survival (PFS) in months was 26.9 ± 37.32.
Conclusions: This study analyzed lung adenocarcinoma patients with ALK mutations and identified EML4 as the most common fusion partner. Some cases had unidentified partners, posing challenges in prognosis and treatment response. The research emphasizes the need for further investigation to understand the impact of different fusion partners on outcomes.

Keywords: *Lung adenocarcinoma. ALK-fusion.*

CO 055. 2 YEARS OF IMMUNOTHERAPY IN MONOTHERAPY IN NON-SMALL CELL LUNG CANCER: WHAT COMES NEXT?

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Introduction: Lung cancer is the leading cause of cancer-related death. For this reason, in recent decades, there has been investment in new therapies, especially directed at specific molecular targets. There was thus a paradigm shift in the approach, especially of non-small cell lung cancer (NSCLC), with clinical trials demonstrating prolonged benefits of immunotherapy (IO) in monotherapy in patients who completed 35 cycles/2 years of treatment.
Methods: A retrospective analysis was carried out of the clinical process of the patients followed in an Oncological Pulmonology consultation at Coimbra University Hospital Center between January 1, 2016 and August 31, 2023, with the diagnosis of NSCLC and who completed two years of immunotherapy in 1st or 2nd therapeutic line. Demographic and clinical data, information regarding initiation of therapy, response to it, occurrence of toxicity, time until progression and death, in cases where this has occurred, were collected.
Results: We obtained a total of 25 patients, 22 male, with an average age of 63.0 ± 11.9 years; performance status (PS) of 1 in 80%; 20% non-smokers; the majority (96%) in stage IV. The most frequent histological subgroup was adenocarcinoma (84%). In 64% of the patients the expression of PDL-1 (programmed-death ligand 1) was greater than 50%. Pulmonary and bone metastases were the most frequent (48%). Chemotherapy (CT) was the first-line therapy in 64% of cases, with progression occurring in 25%. In the group that started 1st line therapy with immunotherapy (IO), 77.8% had a partial response (PR), 1 patient had a complete response (CR) and there was no case of disease progression. OI was second-line therapy in 87.5% of the patients who initially underwent CT, with pembrolizumab being the most used drug (85.7%). It should be noted that 2 of the patients who had progressed under 1st-line chemotherapy obtained PR with 2nd-line OI. Adverse effects occurred in 28% of patients, with colitis and pneumonitis being the most frequent (28.57%). To date, 28% of patients have died. Mean progression free survival (PFS) and overall survival (OS) were 39.6 ± 11.6 and 40.2 ± 14.1 months, respectively.
Conclusions: IO, more specifically 1st-line pembrolizumab in lung adenocarcinoma with PDL-1 expression, showed favorable results, with no progression seen in any of the analyzed cases, contrary to what was seen in the group that underwent 1st-line chemotherapy. line. It was also found that, even in patients who progressed under chemotherapy, IO enabled second-line PR. The PFS and OS allowed demonstrating that, despite the occurrence of adverse effects not being negligible, this therapy is beneficial in most cases.

Keywords: *Immunotherapy. Non-small cell lung cancer.*

CO 056. CLINICAL CHARACTERISTICS OF PATIENTS WITH NON-SMALL CELL LUNG CARCINOMA (NSCLC) WITH RET MUTATIONS

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Introduction: Genetic alterations in the RET gene are present in approximately 1% of patients with Non-Small Cell Lung Carcinoma (NSCLC), and due to the limited number of patients, knowledge about this group is limited. The objective of our study was to describe the clinical characteristics of this subgroup of patients, their mode of presentation, and clinical outcomes.
Methods: We conducted a retrospective analysis of patients with RET rearrangements identified by Next-Generation Sequencing (NGS) and diagnosed at a university hospital center between January 2017 and April 2023.
Results: We obtained data from 22 patients, with a slight predominance of females (n = 12, 54.5%), and a median age of 67 years (3,588). The Performance Status was 0 or 1 in 90.9% of the patients. Ten patients (45.5%) had a history of current or past tobacco exposure, with an estimated tobacco load of 35 pack-years. Regarding personal or family history of oncological pathology, 18.2% of the patients had personal history, and 22.7% had family history. Regarding tumor characteristics, the majority of patients had adenocarcinoma as the histological subtype, with one case showing combined histology of large cell neuroendocrine carcinoma with adenocarcinoma. In 13 patients (59.1%), PD-L1 expression was intermediate, and in 6 patients, it was high (> 50%). At the time of diagnosis, the majority of patients were at stage IV (n = 13, 59.1%), 4 patients (18.2%) were at stage I or II, and 5 patients (22.7%) were at stage III. The most frequent sites of metastasis were the lungs (n = 12, 54.5%) and bones (n = 6, 27.3%). Only 2 patients (9.1%) had central nervous system metastasis at the time of diagnosis. Regarding first-line therapy, surgery was chosen for 5 patients (22.7%), chemo-radiation therapy (QTRT) for 2 patients (9.1%), and supportive therapy for 5 patients (22.7%). Metastatic stage patients received first-line treatment with chemotherapy (n = 3, 13.6%), immunotherapy (n = 2, 9.1%), and tyrosine kinase inhibitors (TKI) in 5 patients (22.7%). Additionally, 2 other patients started TKI therapy in the second-line after disease progression. The most frequently used TKI was Selpercatinib in 5 patients, while the rest were treated with Pralsetinib. Overall, 7 patients (31.8%) experienced disease progression, most commonly in the thoracic region (n = 3), with a median progression-free survival of 11 months (4-41). By the end of the analyzed period, 13 patients (59.1%) had died, with a median overall survival of 8.0 months (0-33). The median follow-up time for all evaluated patients was 9.0 months (0-74). In the subgroup of patients who received TKI treatment (n = 7), the median follow-up time was 11.0 months (6-69), with death occurring in 3 patients, and the median overall survival was 9.0 months (8-11).
Conclusions: The analysis contributes to a better characterization of patients with NSCLC and RET mutation. However, due to the small sample size, it was not possible to obtain statistically significant

conclusions. More studies with larger samples are needed to better characterize subgroups of patients with NSCLC and rare molecular alterations.

***Keywords**: Non-small cell lung carcinoma. Ret mutation.*

CO 057. SMALL CELL LUNG CARCINOMA IN NONSMOKERS

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Introduction: Smoking is responsible for 80-90% of lung cancers worldwide. Among lung cancers occurring in non-smokers, the overwhelming majority corresponds to non-small cell lung carcinomas, with only 2% of small cell lung carcinomas (SCLC) occurring in non-smoking patients. Little is known about the pattern of occurrence and evolution of SCLC in non-smokers, as well as the involved risk factors. This study aimed to characterize patients diagnosed with SCLC who were non-smokers. **Methods:** We retrospectively reviewed non-smoking patients diagnosed with SCLC between January 2013 and July 2023. Data regarding demographic, clinical, and pathological characteristics was collected.
Results: We identified 12 non-smoking patients diagnosed with SCLC, of whom 10 were female (83.3%). The median age at diagnosis was 74 years (60-79), and the median follow-up time was 6.3 months (2.3-7.9). Concerning risk factors, 3 patients had passive tobacco exposure (25%), 3 worked in the textile industry (25%), and 5 had a history of respiratory disease (41.7%). Two patients had a family history of known neoplastic disease (16.7%). Regarding the diagnosis of SCLC, 1 patient was diagnosed in stage IA, 1 in stage IIIA, 1 in stage IIIC, 1 in stage IVA, and 8 patients were diagnosed in stage IVB. Liver and pleura were the most frequent sites for metastasis. Among patients in stage IV, 5 received first-line treatment with chemotherapy (41.7%), 2 with chemotherapy combined with immunotherapy, and 2 patients were provided with the best supportive care. Disease recurrence was observed in 6 patients (50.0%), and 7 patients died (58.3%), with a median overall survival of 6.3 months (2.3-7.9).
Conclusions: Small Cell Lung Carcinoma (SCLC) is a high-grade neuroendocrine carcinoma, being the most aggressive form of lung cancer with a 5-year survival rate of less than 10%. It is not an exclusive disease of smokers, making it essential to understand the pattern of occurrence and evolution in non-smoking patients.

***Keywords**: Lung cancer. Small cell lung carcinoma. Nonsmokers.*

CO 058. MULTIPLE PRIMARY LUNG TUMORS: A SINGLE-CENTER EXPERIENCE

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Introduction: The distinction between multiple primary lung tumors and intrapulmonary metastasis has implications in the treatment and prognosis of these patients. Molecular study through next-generation sequencing (NGS) tests is an important tool in the differential diagnosis. This study aimed to analyse demographic data and clinical characteristics of patients with multiple primary lung adenocarcinomas and compare their radiological and histopathological features.
Methods: A retrospective study that included all patients followed at a tertiary hospital center diagnosed with adenocarcinoma and presenting with synchronous or metachronous multiple lung lesions, subjected to biopsy and NGS analysis since 2017. The diagnosis of primary lung tumors was established in a multidisciplinary meeting based on molecular study (lesions with different NGS results). Demographic data, radiological and histopathological characteristics of the lesions, disease staging, treatment, and outcome were analysed.
Results: A total of 28 patients with a diagnosis of multiple primary lung adenocarcinomas were included and 56 lesions were analysed. Among these, 64.3% (n = 18) were male, with a median age of 64 (min 42 – max 83) years, 75% (n = 21) had a history of current or former tobacco use, and 21.4% (n = 6) had a history of other neoplasms. Lesions were synchronous in 78.6% (n = 22) of cases and metachronous in 21.4% (n = 6). Regarding their distribution, lesions were contralateral in 50% (n = 14), present in different lobes of the same lung in 32.1% (n = 9), and in the same lobe in 17.9% (n = 5) of cases. The radiological pattern of lesions was the same in 50% (n = 14) of cases. The predominant histopathological pattern differed between the two lesions in most cases (n = 19, 67.9%). The most frequent mutation was in the KRAS gene, followed by EGFR. Stage IA was the most common, observed in 71% of cases. Half of these would be classified as stage IV if one of the lesions were considered a metastasis. Both lesions underwent curative treatment in 23 cases. Disease progression/recurrence was observed in 7 patients, resulting in death in 4 cases. Among these, 4 had undergone initial curative treatment (2 surgery and 2 stereotactic radiotherapy). In total, there were 8 deaths (the aforementioned 4 and 3 unrelated to oncological disease). The median overall survival was 29 months.
Conclusions: Patients with multiple primary lung lesions are often subjected to radical treatment. Radiological and histopathological characteristics are usually insufficient to distinguish between these two entities, highlighting the importance of biopsy, molecular study, and multidisciplinary decision-making.

***Keywords**: Multiple primary lung tumors. Intra-pulmonary metastasis. Molecular study.*

CO 059. PULMONARY SARCOMATOID CARCINOMAS: FROM CLINICAL DATA TO THERAPEUTIC DECISION

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Introduction: Pulmonary sarcomatoid carcinomas are defined as poorly differentiated non-small cell carcinomas containing a sarcoma or sarcoma-like component (spindle and/or giant cells). They are rare tumours, accounting for less than 1% of all lung tumours, and usually present aggressively with a poor prognosis.
Objectives and methods: The aim of this study was to characterise the population of patients with pulmonary sarcomatoid carcinomas followed up in a tertiary hospital over the last 10 years. For this purpose, a data collection was performed through the hospital digital platform, which was subsequently analysed and interpreted.
Results: Since January 2013, 27 pulmonary sarcomatoid carcinomas were diagnosed in mostly male patients (n = 24; 88.9%), aged between 39 and 83 years (median 61 years). Of these patients, 44.4% (n = 12) were smokers at the time of diagnosis and most had a performance status ECOG = 1. Regarding histological classification, it was possible to observe that the majority (n = 19, 70.4%) were classified as pleomorphic carcinoma of the lung and of the patients with known PD-L1 quantification (only 59.3%), the majority (n = 9; 56.3%) showed an expression in > 50% of the cells. As for the molecular markers study (known only in 44.4% of patients), it was mostly neg-

ative, with only one patient ALK positive and another KRAS-G12C positive. After completing clinical staging, 23 patients (85.2%) had advanced disease (stage IIIB, IVA or IVB) and 4 patients were in a surgical stage (1 patient IB; 2 patients IIA and 1 patient IIIA). All cases were presented at a multidisciplinary team meeting and in 3 of them (11.1%) best supportive care was chosen ad initium. Of the 4 patients undergoing surgical treatment, 2 underwent adjuvant chemotherapy. The remaining 20 patients underwent first-line systemic therapy (1 patient under tyrosine kinase inhibitor (with Alectinib); 2 patients under immunotherapy (with Pembrolizumab) and 18 patients under chemotherapy (with platinum doublet with Paclitaxel or Pemetrexed)). Considering the whole population, a 3-month mortality after diagnosis of 29.6% was found. Overall survival at 6 months after diagnosis in this population was 63%, decreasing to 33.3% at 12 months and only 18.5% at 24 months (of the 5 patients with survival 24 months, all were treated with immunotherapy).
Conclusions: Although rare, pulmonary sarcomatoid carcinomas should be recognised by the pulmonologist, first and foremost due to their adverse prognosis and high rate of progression, which motivate a diligent response and guidance. In the future, there is still a need to better characterise this type of tumour from an anatomopathological and, above all, molecular point of view, with an intent to develop new therapies that could improve the current treatment paradigm for these neoplasms.

Keywords: *Lung cancer. Sarcomatoid carcinoma. Pleomorphic carcinoma.*

CO 060. STK11 AND KEAP1 GENE MUTATIONS AND RESPONSE TO IMMUNOTHERAPY IN NON-SMALL CELL LUNG CANCER

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Introduction: Immunotherapy has shown a significant improvement in overall survival and progression-free survival (PFS) in patients with metastatic non-small cell lung cancer (NSCLC). However, not all patients respond well to these treatments. Therefore, other predictive biomarkers for immunotherapy response have been explored, including mutations in the STK11 and KEAP1 genes. In essentially retrospective studies, it has been found that patients with co-mutations in KRAS, STK11, and/or KEAP1 have a worse response to immunotherapy.
Objectives: To assess the prevalence of mutations in the STK11 and KEAP1 genes in patients with metastatic NSCLC treated with immunotherapy, according to treatment response.
Methods: A retrospective descriptive analysis of a cohort of patients with metastatic NSCLC who initiated monotherapy immunotherapy between 12/2015 and 12/2018 at a tertiary hospital, divided into long responders (PFS 1 year) or short responders (PFS 3 months). Reflex evaluation of PDL1 expression and NGS panel, along with a retrospective evaluation of the presence of mutations in the STK11 and KEAP1 genes, were performed on all tumors. The prevalence of these mutations was analyzed in the two groups of patients.
Results: Among the 61 patients who met the inclusion criteria, only 38 (62.3%) had sufficient tumor DNA for some STK11/KEAP1 evaluation. Among these, 5 patients had an incomplete STK11 analysis, 12 had an incomplete KEAP1 analysis, and 3 had sufficient samples for STK11 evaluation only. The majority of patients were male (76.3%) with a median age of 60 [51; 67] years and ECOG 1 (60.5%). Adenocarcinoma was the predominant histological type (86.8%), with 55.6% showing PDL1 50% expression. 28.9% started immunotherapy as a first-line treatment, 39.5% as a second-line treatment, 18.4% as a third-line treatment, 10.5% as a fourth-line treatment, and 2.6% as a fifth-line treatment. It was found that 50% of patients were short responders and 50% were long responders. Among them, 24.2% (n = 8) had KRAS mutation, and all of these were short responders. STK11 gene mutation was found in 43.8% of long responders and 47.1% of short responders, while KEAP1 gene mutation was found in 25% of long responders and 18.2% of short responders. In the subgroup of patients with KRAS mutation, 62.5% had co-mutation with STK11, and none of the patients showed co-mutation with KEAP1. Only 3 patients had co-mutations of KEAP1 and STK11, of which 2 were long responders and 1 was a short responder.
Conclusions: The evaluation of STK11/KEAP1 mutations in material conserved for more than 5 years is unfeasible in over 1/3 of the patients, which raises the need to consider their inclusion in the standard NGS panel carefully. More than half of the long survivors had mutations in STK11 and/or KEAP1 without KRAS co-mutation, questioning whether the presence of these mutations only holds negative prognostic value in KRAS mutated patients. Due to the small size and sometimes incomplete evaluation of the STK11 and KEAP1 genes in this retrospective study, prospective studies are needed to draw more robust conclusions.

Keywords: *Immunotherapy. STK11. KEAP1. Metastatic non-small cells lung cancer.*

CO 061. THYMIC EPITHELIAL TUMORS – RETROSPECTIVE ANALYSIS

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Objectives: Thymic epithelial tumors (TET) are a heterogeneous and rare group of pathologies, including thymic carcinomas and thymomas, the latter of which may be associated with autoimmune pathologies. Their treatment and prognosis are controversial given the rarity of the disease and the evidence is based on small, mainly retrospective, series of patients. The authors aim to characterize the TET evaluated and treated at the Multidisciplinary Unit of Thoracic Tumors (UMTT) of the Hospital of Vila Nova de Gaia/Espinho.
Methods: Retrospective analysis of the morphological and clinical characteristics of TET evaluated at the UMTT from 2010 to 2023.
Results: 31 patients with TET followed at UMTT were identified, with a mean age of 64.2 ± 14.5 years and 51.6% (n = 16) male. Twenty-five (80.6%) were thymomas (four with associated Myasthenia Gravis) and 6 (19.4%) thymic carcinomas. Of the patients with thymomas, 20 (80.0%) underwent surgical resection, of which 6 (24.0%) underwent adjuvant radiotherapy. Resection was described as complete in 19 (95.0%) cases. One case of thymoma submitted to complete surgical resection (5.0%) recurred. According to the WHO histologic classification of thymomas, the majority were type AB (8 - 32.0%) or B2 (5 20.0%). Regarding the Masaoka-Koga staging of thymomas submitted to surgical resection, 9 (45.0%) patients were in stage I, 7 (35.0%) in IIA and 4 (20.0%) in IIB. The remaining 5 (20.0%) thymomas remained under surveillance and supportive therapy. Regarding TNM staging of the 6 patients with thymic carcinoma, one (16.7%) patient presented in stage IIIB and 5 (83.3%) in stage IV. Regarding their treatment, 3 (50.0%) underwent chemotherapy alone, 2 (33.3%) had chemo- and radiotherapy and one (16.7%) had surgery and adjuvant radiotherapy. The median follow-up time was 33 months (min 2; max 232) for thymomas and 35 months (min 2; max 103) for thymic carcinomas. During follow-up, recurrence was observed in 2 (6.4%) thymic carcinomas and one (3.2%) thymoma, and progression was observed in 3 (9.7%) thymic carcinomas and one (3.2%) thymoma. Seven (22.6%) of the patients in follow-up died (3 patients with thymoma and 4 with thymic carcinoma), and in 4 (12.9%) of them the cause of death was in the context of thymic carcinoma.

Conclusions: TET are a rare and heterogeneous group of diseases and therapeutic decisions should be taken systematically in a multidisciplinary setting. Complete surgical resection remains the gold standard of treatment for this setting of patients, playing a major role in their survival.

Keywords: *Thymoma. Thymic epithelial tumor. Masaoka-Koga.*

CO 062. TELEMONITORING IN SEVERE ASTHMA

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Introduction: Severe asthma is characterised by high instability and unpredictability in its evolution, and is often associated with exacerbations requiring medical care. Telemonitoring is a practice of remote patient monitoring, in which communication technologies and medical devices are used to collect patient health data remotely. These data are transmitted to healthcare workers, allowing continuous monitoring and analysis of the information, for clinical decision-making. An innovative telemonitoring programme for patients with severe asthma was implemented in a hospital in northern Portugal. This programme includes a telemonitoring platform, smartphones, remote monitoring devices (oximeter, tensiometer and thermometer), a personalised questionnaire and a team of healthcare workers composed of doctors and nurses. The aim of this study is to assess the effectiveness of the telemonitoring programme implemented.
Methods: Cross-sectional study with convenience sampling: all individuals included in the Asthma Telemonitoring Programme. Criteria for integration in the programme: previous diagnosis of severe asthma (GINA 2023 definition) and ability to use a smartphone with internet access as well as remote monitoring devices. Variables under study: epidemiological (gender and age) and clinical (diagnosis, pharmacological treatment, exacerbations and biometric parameters) during the study period: 02/11/2023 to 15/05/2023. Statistical analysis: SPSS 26.0. Ethical considerations: Data were collected from clinical files without identifying data, with anonymity.
Results: The sample consisted of 10 subjects, 30% (n = 3) male and 70% (n = 7) female with a mean age of 49.3 (± 8.41) years. 50% (n = 5) were on ICS/LABA/LAMA triple inhaler therapy, 30% (n = 3) budesonide/formoterol + tiotropium bromide and 20% (n = 2) fluticasone/vilanterol + tiotropium bromide. As a resource in SOS: salbutamol MDI in 50% (n = 5), formoterol/budesonide in 20% (n = 2) and terbutaline in 30% (n = 3). 362 device alerts appeared on the platform, of which 89.04% (n = 325) for O2 sat < 95%, 8.29% (n = 30) for HR > 100 bpm and 1.93% (n = 7) for temperature > 38ºC. There were 63 nursing teleconsultations, of which 28.57% (n = 18) were for clinical causes and the rest for lack of biometric records. These tele-consultations generated 38.89% (n = 7) of medical consultations in person within 24 hours, which allowed for early therapeutic intervention. No individual had the need to resort to the Emergency Service for respiratory causes nor was any hospitalization necessary for respiratory causes.
Conclusions: At the clinical level, the program of Telemonitoring of Severe Asthma proved to be effective in the early detection of exacerbations and in reducing the number of exacerbations requiring emergency care and hospitalization. It has improved disease management and control, through closer monitoring and reinforcement of self-care, providing patients with an enormous sense of safety and confidence. At an institutional level, it is a model of care that reduces health costs for asthma patients. This study shows the positive effects of telemonitoring in patients with severe asthma and proves to be innovative in the management of this type of patient.

Keywords: *Programme. Telemonitoring. Severe asthma.*

CO 063. THE EFFECTS OF BENRALIZUMAB ON STATIC LUNG VOLUMES AND AIRWAY RESISTANCE IN SEVERE EOSINOPHILIC ASTHMA: A REAL-WORLD STUDY IN PORTUGAL

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Introduction: Add-on biological therapies using monoclonal antibodies such as benralizumab (anti-IL-5R) are currently recommended by international guidelines to reduce exacerbations in severe eosinophilic asthma (SEA). Yet, few studies have assessed lung function related outcomes after the use of these therapies in SEA (i.e., patients with elevated blood/sputum eosinophil counts and airway inflammation). Our aim was to evaluate the effectiveness of benralizumab (approved by the European Medicine Agency since 2018) on lung volumes, air flow and airway resistance in SEA patients, 6 months after treatment initiation.
Methods: This is a real-world, observational, descriptive and multicentric study (Hospital Professor Fernando Fonseca and Hospital Santa Maria, Portugal), including a cohort of adult patients diagnosed with SEA, identified between January-June 2023. Data collected from medical records included demographics and disease characteristics. Spirometry and plethysmography were performed at baseline (T0) and after 6 months of treatment (T6) with benralizumab (30 mg dosing regimen) to assess: TLC (total lung capacity), RV (residual volume), FEV1 (forced expiratory volume in 1 second), FVC (forced vital capacity), mFEF25/75 (mean forced expiratory flow between 25% and 75% of FVC), ITGV (intrathoracic gas volume), Raw (airway respiratory resistance). Descriptive statistics with categorical variables were described as frequencies and continuous variables as mean and standard deviation (SD). Paired t-test and Cohen's d effect-size measure were calculated to compare the means of two measurements taken from the same individual and the standardized mean difference between groups (pre/post analysis) (d = 0.2 small, d = 0.5 medium, d = 0.8 large effect-sizes). Analyzes were performed in STATA/SE 15.1 (p-values below 5% considered statistically significant).
Results: Overall, 30 SEA patients were evaluated, mostly women (n = 18, 60.0%), with atopy (n = 22, 73.3%), mean age 58.4 years (SD 11.7), assisted by pulmonology (n = 19, 63.3%) or immunoallergology (n = 11, 36.7%) services. Mean eosinophilia at baseline was 1103.57 cells/l (SD 604.88; minimum-maximum 460-2400); after the use of benralizumab the count dropped to 0. Overall, lung function markedly improved during the study. After 6 months of treatment, significant increase ($p < 0.0001$) in FVC (15.3%), FEV1 (22.6%) and mFEF-25/75 (17.7%) were observed from baseline (Cohen's d between 0.77 to 1.10). ITGV, RV, RV/TLC and Raw significantly decreased ($p < 0.0001$) during the study period (-17.3%, -29.7%, -8.9%, 100.6%, respectively) (Cohen's d between -0.79 to -1.06). No differences in TLC measure between pre/post analysis were obtained ($p = 0.173$). No differences between sex were observed. Patients with more significant eosinophilia (> 900 cells/l; n = 15) presented better responses in FEV1 ($p = 0.001$) and mFEF-25/75 ($p = 0.007$).
Conclusions: The eosinophil depletion with add-on benralizumab led to significant improvements in SEA patients' respiratory function - namely static lung volumes, airflow and airway resistance, in real-life settings after 6 months. The significant deflating effect of benralizumab, exerted on the hyperinflated lungs of SEA patients, leads to a consequent amelioration of expiratory flow (increase FEV1 and mFEF-25/75) and air trapping (decreased RV/TLC). Taken together, our results suggest that the benralizumab

improves bronchial obstruction, lung hyperinflation and airway resistance. Further studies in a larger patient population are required to confirm these findings.

Keywords: *Eosinophilic severe asthma. T2 inflammation. Benralizumab. ANTI-IL5. Respiratory function.*

CO 064. BENRALIZUMAB EFFECTIVENESS IN PATIENTS WITH SEVERE EOSINOPHILIC ASTHMA, WITH AND WITHOUT CONCOMITANT CHRONIC RHINOSINUSITIS WITH NASAL POLYPS: THE BETREAT STUDY

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Introduction: Severe eosinophilic asthma (SEA) in the presence of comorbid chronic rhinosinusitis with nasal polyps (CRSwNP) is usually more difficult to treat and control, with a more extensive eosinophilic inflammation. Benralizumab has shown to reduce exacerbations, oral corticosteroid (OCS) use and to improve asthma control for patients with SEA. However, real-world data on treatment response in patients previously with comorbid CRSwNP is lacking. This analysis from the BETREAT study aimed to describe the clinical outcomes with benralizumab in terms of asthma exacerbation, oral corticosteroid (OCS) use asthma control in patients with SEA with or without CRSwNP.
Methods: BETREAT is a multi-center, observational, retrospective study. In this analysis, patients with SEA were divided in two groups according to the presence or absence of CRSwNP. Baseline (12 months before index date) clinical and laboratory characteristics were collected prior to benralizumab treatment initiation (index date). Change in annualized exacerbation rate (AER), maintenance OCS (mOCS) use and asthma control (ACT and CARAT) were collected for both groups at 24-months follow-up.
Results: A total of 71 patients were included in the analysis, 22 (31.0%) with CRSwNP. At baseline, patients with CRSwNP had a higher median blood eosinophil count (900 vs 510 cells/µL, higher annual exacerbation rate and mOCS use. Mean baseline AER was 3.62 and 2.90 in patients with and without CRSwNP, reducing to 0.44 and 0.52, respectively, at 24-months (relative reduction [RR]: 87.8% and 82.1%). Most patients in both groups remained free of exacerbations until the 24-months follow-up, 59.1% of those with CRSwNP and 53.1% of patients without CRSwNP. The proportion of patients with mOCS use decreased from 63.6% at index to 40.0% at 24-months in patients with CRSwNP and from 44.9% to 24.5%, respectively, in patients without CRSwNP. Among patients using mOCS at baseline mean (SD) daily dose was 21.9 mg/day for patients with CRSwNP and 16.7 mg/day for patients without CRSwNP; for those patients still using mOCS at 24months, mOCS daily dose was 20.4 mg/day and 12.9 mg/day for patients with and without CRSwNP, respectively. Between the closest date to index and 24-months, the proportion of patients achieving symptom control according to ACT varied from 33.3% to 76.2% in patients with CRSwNP and from 9.1% to 60.6% in patients without CRSwNP. Within the same study period, the proportion of patients achieving symptom control according to CARAT varied from 0% to 47.4% in those with CRSwNP and from 12.5% to 66.7% in patients without CRSwNP.
Conclusions: Patients with SEA treated with benralizumab for up to 24 months experienced substantial improvements in AER, mOCS use and asthma control, regardless of the presence or absence of CRSwNP.

Keywords: *Severe eosinophilic asthma. Benralizumab. Chronic rhinosinusitis with nasal polyps. Real-world.*

CO 065. BENRALIZUMAB EFFECTIVENESS IN BIOLOGIC-NAÏVE AND BIOLOGIC-EXPERIENCED PATIENTS WITH SEVERE EOSINOPHILIC ASTHMA: THE BETREAT STUDY

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Introduction: Benralizumab has shown to reduce exacerbations, oral corticosteroid (OCS) use and to improve asthma control for patients with severe eosinophilic asthma (SEA). However, real-world data on treatment response in patients previously treated with other biologic therapies are scarce. This analysis from the BETREAT study aimed to describe the clinical outcomes with benralizumab in terms of asthma exacerbation, oral corticosteroid (OCS) use asthma control in patients with SEA with or without prior biologic use.
Methods: BETREAT is a multi-center, observational, retrospective study. In this analysis, patients with SEA were divided in two groups regarding their 12-months history of previous biologic therapy: biologic-naïve and biologic-experienced. Baseline (12 months before index date) clinical and laboratory characteristics were collected prior to benralizumab treatment initiation (index date). Change in annualized exacerbation rate (AER), maintenance OCS (mOCS) use and asthma control (ACT and CARAT) were collected for both groups at 24-months follow-up.
Results: A total of 73 patients were included in the analysis, 49 (67.1%) were biologic-naïve. The main cause for discontinuation of previous biologic was lack of efficacy (91.7%). The majority of patients were treated with either omalizumab (50.0%) or mepolizumab (45.8%). Mean baseline AER was 3.02 and 3.29 in biologic-naïve and -experienced patients, reducing to 0.39 and 0.69, respectively, at 24-months (relative reduction [RR]: 87.1% and 79.0%). Most patients remained free of exacerbations until the 24-months follow-up, 53.1% of biologic-naïve and 58.3% of biologic-experienced patients. The proportion of patients with mOCS use decreased from 44.9% at index to 14.6% at 24-months in biologic-naïve patients and from 58.3% to 52.2%, respectively, in biologic-experienced patients. Among patients using mOCS at baseline mean (SD) daily dose was 21.7 mg/day for biologic-naïve patients and 17.6 mg/day for -experienced patients; for those patients still using mOCS at 24-months, mOCS daily dose was 22.6 mg/day and 12.1 mg/day for biologic-naïve and -experienced patients, respectively. Between the closest date to index and 24-months, the proportion of patients achieving symptom control according to ACT varied from 26.7% to 77.1% in biologic-naïve patients and from 12.5% to 47.4% in biologic-experienced patients. 90.9% of biologic-naïve and 76.2% of biologic-experienced patients had an improvement in symptom control matching or exceeding the minimal clinically difference in ACT (3 units) from baseline to 24-months. Within the same study period, the proportion of patients achieving symptom control according to CARAT varied from 0% to 38.7% in biologic-naïve patients and from 20.0% to 45.0% in biologic-experienced patients. 55.6% and 66.7% of biologic-naïve and 76.2% of biologic experienced patients had an improvement in CARAT score 3 units from baseline to 24-months.
Conclusions: Both biologic-naïve and -experienced patients with SEA treated with benralizumab for up to 24 months had substantial improvements in AER, mOCS use and asthma control.

Keywords: *Severe eosinophilic asthma. Benralizumab. Real-world.*

CO 066. CLINICAL OUTCOMES IN SEVERE EOSINOPHILIC ASTHMA PATIENTS TREATED WITH BENRALIZUMAB IN REAL-WORLD SETTING: BETREAT STUDY

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Introduction: Benralizumab has been shown to reduce exacerbations, oral corticosteroid (OCS) use and to improve asthma control for patients with severe eosinophilic asthma (SEA). It is indicated as add-on maintenance treatment in adult patients with SEA inadequately controlled despite high-dosage inhaled corticosteroids plus long-acting -agonists. In-depth knowledge of real-world profile of patients with SEA being treated with benralizumab is needed. The BETREAT study aimed to describe demographic and clinical characteristics, background treatment patterns of SEA patients treated with benralizumab, and to assess clinical outcomes during up to 24-months follow-up after initiation of benralizumab.
Methods: BETREAT is a multi-center, observational, retrospective study. SEA patients aged > 18 years that were treated at 16 investigational sites and had their first benralizumab dose between July 2019 and October 2020 were included upon informed consent. Baseline (12 months before index date) clinical and laboratory characteristics were collected prior to benralizumab treatment initiation (index date). Change from index in exacerbations, maintenance OCS (mOCS) use and asthma control (ACT and CARAT) were assessed at 24-months follow-up.
Results: A total of 74 patients were included in the study, 73% were female. Most patients (75.0%) were diagnosed with asthma at 18 years of age or older. At least one comorbidity was reported in 91.9% of patients, with chronic rhinosinusitis with nasal polyps (29.7%), allergies (39.2%) and respiratory infections (35.1%) as the most frequent respiratory comorbidities. Obesity, hypertension and type 2 diabetes were present in 45.9%, 43.2% and 16.2% of patients, respectively. Mean blood eosinophil counts (BEC) (+SD) was 729.07 ± 651.81 x103 cells/L and the majority of patients (62.0%) had BEC above 400x103 cells/L. Most patients (89.2%) had at least one asthma-related exacerbation and the mean (SD) number of exacerbations per patient was 3.12 (2.20). The majority of patients (95.9%) had received ICS+LABA and half of patients received mOCS. Most patients (66%) were naïve to biological therapy. Of those with previous biologic experience, 50.0% received omalizumab and 45.8% mepolizumab. The main cause for discontinuation of previous biologic treatment was lack of clinical efficacy (91.7%). Overall treatment persistence with benralizumab was very high, with only one patient discontinuing treatment. Benralizumab treatment reduced mean (SD) annualized exacerbation to 1.00 (2.20) (relative reduction 85%) and most patients (61.6%) remained free of exacerbations until the 24-months follow-up. Considering patients with mOCS use at index (23.5%), 45.7% were no longer using mOCS at 24-months follow-up. Between the closest date to index and 24-months, the mean (SD) CARAT score varied between 15.1 (5.1) and 21.0 (6.1). The proportion of patients achieving symptom control according to CARAT varied from 4.3% to 40.4%. Within the same period, mean ACT (SD) varied between 12.9 (4.6) and 20.4 (4.1). The proportion of patients achieving symptom control according to ACT varied from 4.0% to 67.3%
Conclusions: In this real-world cohort of SEA treated with benralizumab there was a reduction in exacerbation rates, OCS use and led to clinically important improvements in PROs. This study complements available randomized trial evidence on the clinical outcomes with benralizumab in a high-risk, hard-to-treat, SEA patient population.

Keywords: *Severe eosinophilic asthma. Benralizumab. Real-world.*

CO 067. CLINICAL OUTCOMES IN SEVERE EOSINOPHILIC ASTHMA PATIENTS

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Introduction: Biological therapies have been changing paradigms around severe asthma treatment. Several studies showed benefits in forced expiratory volume in 1 second (FEV1) with different drugs. There is lack of evidence showing the impact on forced vital capacity (FVC), forced expiratory flow 25-75% (FEF25-75), airway resistance (reff), total lung capacity (TLC), residual volume (RV) and carbon monoxide diffusion capacity (DLCO).
Objectives: To determine the impact on lung functional after 6 and 12 months of biological therapy in patients with severe asthma.
Methods: Multicentric cross-sectional study, including patients from two hospitals followed up in a severe asthma consultation under biological therapy. Data were collected from the Asthma Control Test (ACT) questionnaire and lung function tests after 6 and 12 months of treatment. Results are presented as mean and standard deviation for a normal distribution; median and interquartile range for non-normal distribution. Comparison between continuous variables was performed using the paired t-test or the Wilcoxon test, respectively. Spearman Correlation was used to assess the correlation between variables.
Results: A total of 89 patients were included (under mepolizumab 47, omalizumab 32 and benralizumb 10), mean age 52 years (± 13), 80% female. Mean lung functional values before treatment were: FEV1 63% (± 22), FVC 82% (± 17), FEF25-75 27% (16-41), TLC 111% (± 15), RV 170% (± 128), Reff 203% (± 88), DLCO 82% (± 19), FeNO 33 ppb (14-64). After 6 months of treatment there was a statistically significant improvement in the values of FEV1 72% (± 24) ($p < 0.001$), FVC 88% (± 17) ($p = 0.003$), FEF25-75 43% (± 28) ($p = 0.005$) and airway resistance Reff 145% (± 54). In the remaining lung functional values there was no statistically significant improvement. After 12 months of treatment there was a statistically significant improvement for FEV1 71% (± 22) ($p < 0.001$), FVC 89% (± 17) ($p < 0.001$) and FEF25-75 44% (± 30) (< 0.001). There were no statistically significant differences between the lung functional assessment at 6 and 12 months of treatment. There were no statistically significant differences between the improvement in FEV1 or FVC and the different biological therapies. After 12 months of treatment the median improvement in FEV1 was 155 mL (-80 - 532) and in FVC 155 mL (-180 - 493). This lung functional improvement showed a statistically significant correlation with the median improvement in the ACT (9 (7-12)) ($p = 0.033$, = 0.287 and $p = 0.012$, = 0.338 respectively).
Conclusions: This study demonstrated that biological therapy improved FEV1, FVC, FEF25-75 and airway resistance values. The improvement of these parameters may contribute to symptomatic improvement. As shown in other studies, there was a statistically significant improvement after 6 months of treatment.

Keywords: *Biological therapies. Severe asthma. Lung function.*

CO 068. WHERE ARE THE SUPER-RESPONDERS IN SEVERE ASTHMA? – APPLICATION OF THE EXATO SCALE

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Introduction: In recent years, therapeutic offers for severe asthma have made it possible to aim for the so-called remission of the disease/status of superresponders. The standardization of the use of objective scales for this evaluation is a necessity. The EXATO scale, recently developed, is a tool available for this purpose. It is divided into 4 categories: no response, partial response, good response or complete response/superresponder and includes 4 vari-

ables: number of exacerbations, ACT, dose of systemic corticosteroid and FEV1. The FEOS score (FEV1, exacerbations, oral corticosteroids, symptoms score), which varies between 0 and 100, is another tool available to quantify this response.
Objectives: To identify asthmatics who are superresponders to biological therapy, using the EXATO scale, in a cohort of patients followed up in a functional unit for severe asthma and to verify its agreement with the FEOS score.
Methods: We analyzed 58 patients with at least 1 year of treatment with anti-IL5/IL5R and anti-IL4R. We applied the EXATO scale at 12 months of treatment and analyzed the change in the 4 variables that integrate it over 1 year, every 4 months, through hierarchical linear modelling. We also analyzed the concordance (association) between the EXATO scale and the FEOS score in the classification obtained at 12 months, using the chi-square and Cramer's V as an indicator of the effect size.
Results: There was a significant change over 1 year of treatment in all variables. We verified a significant decrease in the number of exacerbations (average of 0.82 exacerbations every 4 months), being more accentuated between 0 and 4 months. Significant linear increase in ACT (on average 1.02 every 4 months). Significant linear decrease in OCS dose (on average 0.64 every 4 months). Significant increase in FEV1 (on average 0.11 every 4 months) being more pronounced between 0 and 4 months. In the application of the EXATO scale at 12 months of treatment, of the 58 initial patients, 16 were excluded due to lack of data. Thus, of the 42 patients evaluated, 2% had no response, 2% had a partial response, 7% had a good response and 88% had a complete response. Attending the criteria for disease remission after 12 months of treatment, which includes the absence of symptoms (we considered ACT > 20) and exacerbations, stable pulmonary function and absence of systemic corticosteroids; we found that, of the patients classified as superresponders, 65% fulfilled these criteria. The chi-square indicated a significant association between the classifications obtained by the EXATO and FEOS scales, with this association having a large size (Cramer's V = 0.69), indicating strong agreement. We found that all patients with scores greater than 80 on the FEOS score were classified as superresponders on the EXATO scale, and that the majority of patients (75%) classified as superresponders on the EXATO scored more than 60 on the FEOS scale.
Conclusions: The EXATO score is a very informative and easy to use tool for evaluating the response to biological therapy, which makes it a useful tool to apply in clinical practice.

Keywords: *Severe asthma. Biologics. Super-responders. EXATO. FEOS.*

CO 069. IMPACT OF HOME ADMINISTRATION OF BIOLOGICALS ON SEVERE ASTHMA CONTROL: A REAL-LIFE STUDY

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Introduction: The Asthma Control Questionnaire (ACT) and Control of Allergic Rhinitis and Asthma Test (CARAT), along with a history of exacerbations, peripheral eosinophil count, and assessment of spirometric parameters, are widely used tools for monitoring disease control in asthma patients. The emergence of biological agents in severe asthma has led to promising results as targeted therapy in recent years. Despite being traditionally administered in a hospital setting, there has been a trend towards changing this paradigm. In fact, the safety and efficacy of subcutaneous self-administration at home for selected biological agents have been demonstrated by several studies.
Methods: A retrospective observational study was conducted based on the review of electronic medical records of all patients undergoing home self-administration of biological therapy for severe asthma or eosinophilic granulomatosis with polyangiitis (EGPA) at the Pulmonology and Immunology Department until August 2022. The results of ACT and CARAT questionnaires, respiratory functional tests, exacerbations, and peripheral eosinophil count were compared for 1 year and 6 months before and after the start of home biological administration. Repeated measures analysis was performed, and statistical significance was considered for $p < 0.05$.
Results: Thirty patients under biological treatment were identified, with 2 having EGPA and the remaining having severe asthma. Among them, 19 (63.3%) self-administered the therapy at home, with a median duration of 15.7 months (9.9-17.3) in this regimen. The mean age was 54 ± 10 years, and 15 (78.9%) were female. Twelve patients (63.2%) were on Mepolizumab, and the rest (n = 7, 36.8%) were on Benralizumab. Additionally, 4 (21.1%) were on systemic corticosteroids. Descriptive analysis of variables used to infer asthma control at the 4 time points (1 year before, 6 months before, 6 months after, and 1 year after transitioning to home biological administration). There were no statistically significant differences over time in CARAT score ($p = 0.202$) or ACT score ($p = 0.603$), peripheral eosinophil count ($p = 0.362$), FVC ($p = 0.124$), FEV1 ($p = 0.297$), FEV1/FVC ($p = 0.882$), and positive bronchodilation tests ($p = 0.392$). There was a statistically significant difference between the two groups in the exacerbation parameter, which was lower after home biological administration; however, the absolute number of exacerbations was low (between 0 and 1) in both groups.
Conclusions: The results suggest the non-inferiority of home biological therapy administration compared to hospital administration concerning asthma control. Despite the limitations of sample size and study design, these real-world results align with other published studies, emphasizing the effectiveness of this therapeutic regimen.

Keywords: *Asthma. Biologic agents. At-home treatment.*

CO 070. ALLERGY TO HYMENOPTERA – SENSITIZATION AND SYMPTOMATOLOGY BY INHALATION

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Introduction: Hymenoptera venom allergy affects 5% of the general population. For an IgE-dependent hypersensitivity reaction to occur, prior exposure is necessary, either directly through sting, or through antigenic exposure via inhalation or digestive route.
Objectives: To determine which are the predictors of the development of respiratory symptoms with the inhalation of hymenoptera antigens, in patients with allergy to these insects.
Methods: Observational retrospective cohort study, analyzing patients followed at the CHTMAD Immunoalergology Consultation for allergy to hymenoptera, from June 2020 to June 2021. Statistical analysis performed with SPSS Statistics25.
Results: 63 patients were included, 41 (65.1%) male, with a mean age of 41.5 ± 15.5 years. Fifty-one patients (80.9%) were beekeepers and 8 were farmers (12.7%). Seventeen patients were diagnosed with rhinosinusitis, 10 with asthma and 15 had a history of atopy. Fifty patients (79.4%) were followed for allergy to bee, 10 (15.9%) for allergy to wasp and the rest to poles. The most frequent symptoms with the sting were urticaria (76.2%; n = 48), pruritus (50.8%; n = 32) and angioedema (49.2%; n = 31). Respiratory symptoms such as dyspnea (66.7%; n = 42), wheezing (31.7%; n = 20), oropharyngeal tightness (25.4%; n = 16) and cough (23.8%; n = 15) were also common. With regard to previous reactions to the anaphylaxis episode, 42 patients (66.7%) had stinging symptoms: 35.7% (n = 15) with a mild local reaction, 9.5% (n = 4) with an exuberant local reaction and 54.7% (n = 23) with systemic reaction. Fifteen patients previously

had rhinitis (86.7%; n = 13), conjunctivitis (46.7%; n = 7), wheezing (33.3%; n = 5) and dyspnea (26.7%; n = 4), with the inhalation of hymenopteran antigens. Of these, only 5 presented symptoms with inhalational exposure, having never been stung before. It was found that patients who developed coughing (OR 6.64; p = 0.005) and wheezing (OR 3.17; p = 0.069) with the sting were more likely to experience symptoms with inhaled exposure to hymenoptera antigens. In addition, with inhalation exposure, beekeepers more frequently had respiratory symptoms (OR 13.81; p = 0.01) and asthmatics were more likely to develop wheezing (OR 11.54; p = 0.006) and dyspnea (OR 10.97; p = 0.001). At baseline, patients had a mean bee IgE of 26.0 ± 42.5 kU/L, wasp IgE 9.6 ± 19.1 kU/L and polystes IgE 8.5 ± 9.3 kU/L L. Patients who experienced symptoms with inhalation exposure had higher bee IgE values (p = 0.008).
Conclusions: Some patients developed an anaphylactic reaction the first time they were stung, having previously only presented respiratory symptoms (namely cough, wheezing and dyspnoea) with inhalation. It was found that beekeepers, asthmatics and patients who developed coughing and wheezing from a hymenopteran sting were more likely to experience respiratory symptoms from inhalational exposure. These patients also had higher levels of IgE at baseline, reflecting greater sensitization. This work demonstrates that inhalational exposure to hymenoptera should not be undervalued, both as a means of inducing allergy and as a triggering factor for symptoms in asthmatic patients.

Keywords: *Hymenoptera. Allergy. Anaphylaxis. Asthma.*

CO 071. MODEL OF CARE FOR SEVERE ASTHMA PATIENTS – AN EXPERT CONSENSUS RECOMMENDATIONS

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Introduction: Although the emergence of new models of care and biological drugs has enabled further tailored therapeutic approaches to patients with severe asthma (SA) – a heterogeneous chronic respiratory condition – more complex treatments require additional strategies to be effectively implemented in practice. Severe Asthma Multidisciplinary Units (SAMUs) are increasingly plea as value-added services for a person-centeredness management of SA as they allow the access to personalized multifaceted care approaches aiming at improving patients' outcomes. However, the development and unified implementation of SAMU is still challenging in several regions worldwide. Our aim was to evaluate the perception on the barriers and opportunities of SAMUs implementation among a wide range of clinical experts in Portugal.
Methods: This was designed as a 2-phase cross-sectional evaluations of a set of 16 evidence-based statements (previously defined by a scientific committee) that were assessed by experts in SA (pulmonologists, allergists, and a range of other clinical specialists). During each cross-sectional assessment, experts expressed their agreement with each statement in a 3-point Likert scale (1-'agree'; 3-'disagree'). Results of the first survey were shared with the participants, subjected to debate, and further scored by the panel during the second round. Descriptive statistics with categorical variables described as counts and frequencies were performed (STATA/SE 15.1).
Results: Overall, 101 experts (n = 44; 43.6% allergists, n = 44; 43.6% pulmonologists, n = 13; 12.9% other specialties), mostly attending physicians (n = 88; 87.1%) participated in the study. Less than half of them (n = 41; 40.6%) work in a SAMU or are members of the National Specialists in Severe Asthma Network (n = 44; 43.6%). Statements 1, 2, 9 and 16 - defining SAMU's goals and proposing a minimum set of implementation requirements following international protocols and recommendations to manage and properly registering patients - obtained full agreement (95%, 98%, 96% and 96% respectively) among participants. Nonetheless, around 11% of experts disagree that a SAMU can be created in any hospital center in Portugal (statement 3). Although most participants believe that a SAMU should have an organizational chart (statement 6; 97% consensual) and promote scientific advancement by engaging clinical trials (statement 15; 96%), the exact composition of the multidisciplinary team still seems controversial (disagreement of 9.2% and 6.2% in items 4 and 5, respectively). Yet, although experts agree that both clinical and humanistic outcomes should be evaluated by means of validated questionnaires (item 10; 95% agreement), debate on the access to complementary precision diagnostic tests or further interventional procedures for SA still exist (disagreement of 5.2% and 8.9% in statements 7 and 8, respectively). There are also some barriers regarding the implementation model of a SAMU and its performance/quality indicators (statement 13; disagreement 5.1%).
Conclusions: Experts in SA agreed on a minimum set of requirements for the standardization and optimization of SAMU in Portugal. However, challenges regarding the implementation of this management model, including the definition of a core of human and technical resources, needs to be addressed.

Keywords: *Severe asthma. Quality of care. Multidisciplinary care. Multidisciplinary units.*

CO 072. THE RELATIONSHIP BETWEEN BLOOD EOSINOPHILS AND PSYCHOPATHOLOGICAL SYMPTOMS IN ASTHMA PATIENTS

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Introduction: Asthma is a heterogeneous disease with a variety of clinical manifestations, including psychopathological ones, such as anxiety and depression, which may be associated with worse control of the disease. The objective of this work is to analyze the relationship between blood eosinophils and psychopathological symptoms in asthmatic patients.
Methods: The target population included adult patients with a confirmed asthma diagnosis followed up in a Pulmonology consultation at a tertiary hospital for at least 6 months. Asthma control was assessed using the Asthma Control Questionnaire (ACQ), while the level of blood eosinophils was determined within 7 days prior to the consultation. The assessment of psychopathological symptoms was performed using the Brief Symptom Inventory 18 (BSI 18), which assesses three dimensions of symptoms: anxiety, depression and somatization. Each subscale consists of six items and the score of each subscale is given by the sum of these items. The Global Severity Index corresponds to the general level of the individual's psychological distress and results from the sum of all items in the questionnaire.
Results: The sample included 93 patients, 29 with < 150 eosinophils/uL and 64 with > 150 eosinophils/uL.
Conclusions: Increased peripheral blood eosinophils in patients with asthma appear to be associated with more symptoms of anxiety and depression.

Keywords: *Asthma. Eosinophils. Psychopathological symptoms.*

CO 074. CYSTIC FIBROSIS – A CALL FOR NEW APPROACHES

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Hospital Prof. Doutor Fernando Fonseca.

Introduction: Cystic fibrosis (CF) is an autosomal recessive disease caused by mutations in the cystic fibrosis transmembrane conduc-

tance regulator (CFTR) gene. More than 2,000 mutations have been reported worldwide, but not all of which have been proven to cause disease. The fact that most research is conducted in developed countries has made the molecular diagnosis of this disease difficult in individuals from under-developed countries, who are invariably underrepresented in the studies carried out.
Case reports: Case 1: 31 years old female patient originally from Sao Tome & Principe, presented with history of bronchiolitis requiring invasive mechanical ventilation (IMV) in childhood and recurrent respiratory infections in adulthood. She has diffuse varicose bronchiectasis, more pronunced in the upper lobes, and chronic methicillin-susceptible *Staphylococcus aureus* (MSSA) infection. There is no evidence of gastrointestinal affection. These clinical conditions lead to chronic obstructive pulmonary syndrome (FEV1 41%). Due to frequent exacerbations, she is under azithromycin and inhaled antibiotics with colistimethate sodium and tobramycin. The diagnosis of CF was made at the age of 26 after a positive sweat test (ST) (63 mmol/L). However, the extended genetic study identified merely one disease-causing mutation [2307insA], with contradictory data in the literature regarding the rest. Case 2: 36 years old male patient, African descendant, with a history of poor weight status progression and steatorrhea since childhood. The hypothesis of CF was raised at the age of 28 after hospitalization for a respiratory infection that led to the performance of ST (116 mmol/L) and subsequent genetic evaluation. Nevertheless, it was only possible to identify a mutation in one of the alleles [F508del]. Additionally, patient suffers from exocrine pancreatic insuficiency (EPI), CF-associated liver disease and central cylindrical bronchiectasis with chronic *Pseudomonas aeruginosa* (PSAE) infection. He is currently on inhaled tobramycin and aztreonam and azithromycin due to frequent exacerbations. In spite of therapeutic measures, he maintains a poor nutritional status (BMI 16 kg/m^2) and severe respiratory obstruction in the functional assessment (FEV1 48%). Case 3: 23 years old female patient, born in Cape Verde, with recurrent pancreatitis and respiratory infections since childhood. The diagnosis of CF was assumed at 13 years of age after positive ST (120 mmol/L) and genetic assessment with only one disease-causing mutation [R334W/(TG)10]. She has EPI, CF-related diabetes (CFRD) and bilateral varicose bronchiectasis (more prominent in the apical segments) with chronic pulmonary infection to PSAE and methicillin-resistant *Staphylococcus aureus* (MRSA). Samples with *Burkholderia cepacea* are also described in the past. Functionally, she presents a moderately severe obstructive syndrome (FEV1 56%). She is currently under CSI and with all other medical therapy optimized.
Conclusions: An inconclusive genetic study does not exclude the diagnosis of CF. These cases highlight the importance of characterizing the CFTR mutational spectrum and the adjustment of molecular testing according to ethinicity and geographical origin of population. The access to health care remains one of the main determinants of the prognosis of this disease. In the future, the issue of eligibility for CFTR modulators will be discussed due to the increasingly frequent presence of “rare mutations”.

Keywords: *Cystic fibrosis. Genetics. Under-developed countries.*

CO 075. DEPRESSION AND ANXIETY IN CYSTIC FIBROSIS – A RETROSPECTIVE STUDY

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Centro Hospitalar Barreiro Montijo.

Introduction: Studies have shown that patients with cystic fibrosis (CF) have a high prevalence of anxiety and depression. However, the results vary according to the methods used and the location of the studies.
Objectives: We aimed to determine the prevalence of depression and anxiety in the adult population with CF in the south of Portugal (regions of Lisbon and Vale do Tejo, Alentejo and Algarve).
Methods: A retrospective study was carried out in a Portuguese CF Reference Center. Depressive and anxious symptoms were assessed using questionnaires that patients completed during visits to the center: Patient Health Questionnaire 9 (PHQ-9) and Generalized Anxiety Disorder 7 (GAD-7). Additional information on age, sex, genotype and therapy was obtained by consulting the clinical file. Statistical analysis was performed using the SPSS IBM® program, Version 29.
Results: Forty-nine patients were evaluated from March 2022 to January 2023. They had a mean age of 32 ± 11 years, with a slight predominance of females (51%). Forty-two patients (86%) had the F508del mutation, 13 of which were homozygous. Twenty-eight patients (57%) were medicated with Elexacaftor/Tezacaftor/Ivacaftor (ELX/TEZ/IVA). Twenty patients (41%) had scores consistent with anxiety on the GAD-7. Of these, 80% had mild anxiety and 20% moderate. In the PHQ-9, 17 cases of depression (35%) were detected, of which 65% were mild depression, 23% moderate, 6% moderately severe and 6% severe. It was also found that the PHQ-9 score was significantly lower in the group of patients under ELX/TEZ/IVA ($p < .05$), with no differences observed on the GAD-7. There were also no differences in questionnaire scores between genders.
Conclusions: In this study, a high prevalence of anxiety and depression was observed in patients with CF. Patients under ELX/TEZ/IVA had less depressive symptoms than the rest, which is possibly due to the improvement in the respiratory manifestations of the underlying disease. The diagnosis, treatment and psychological approach to mental illness are fundamental in the population with CF, given the prognostic value and impact on quality of life. Our small sample and the retrospective nature of the study prevent the generalization of these results, requiring more research on anxiety and depression in CF, as well as on the possible effect of the new CFTR modulators.

Keywords: *Cystic fibrosis. Depression. Anxiety. CFTR modulators.*

CO 076. THE IMPACT OF CFTR MODULATORS ON SUBFERTILITY IN WOMEN WITH CYSTIC FIBROSIS

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Introduction: In recent decades, due to advances in therapies, there has been an increase in life expectancy and quality of life of patients with Cystic Fibrosis (CF). With this, fertility became a frequent concern in these patients. CFTR (Cystic Fibrosis Transmembrane Regulator) modulator therapies show promising results in improving lung disease; however, there are still few data about its impact on fertility and the safety of its use in pregnancy.
Methods: Sixteen female patients aged over 18 years are being followed up at the Reference Center for CF at the Centro Hospitalar e Universitário de Coimbra, 8 of which have experienced pregnancy. Two women became pregnant naturally prior to the diagnosis of CF. Three patients became pregnant without treatment with CFTR modulators, one naturally and two using assisted reproductive thecnologies. The remaining pregnancies occurred under therapy with CFTR modulators. One of the patients had two pregnancies: one using assisted reproductive technologies, prior to therapy with modulators and another conceived naturally already under ivacaftor/tezacaftor/elexacaftor. The remaining three patients also became pregnant naturally after starting treatment with ivacaftor/tezacaftor/elexacaftor. None of the patients used contraceptive methods prior to pregnancy.
Results: Of the total of 9 pregnancies, one is still ongoing, without complications so far. Of the 8 completed pregnancies, no relevant

complications related to CF were recorded during pregnancy or delivery and the babies were born healthy even in the case of patients who became pregnant under therapy with CFTR modulators, who chose to maintain treatment. The patients maintained FEV1 stability and did not experience severe exacerbations or that required hospitalization.
Conclusions: The use of CFTR modulators appears to benefit fertility in patients with CF. However, the mechanisms by which it affects fertility are still unknown, making it relevant to advise these patients on family planning and contraception. In addition, there is no information regarding the safety of its use during pregnancy and breastfeeding, the challenging decision of whether or not to maintain therapy with CFTR modulators in these phases remains up to the patient and the attending physician.

Keywords: *Cystic fibrosis. Fertility. CFTR modulator therapies.*

CO 077. IMPACT OF CFTR MODULATORS THERAPIES IN ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS

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Introduction: Cystic fibrosis (CF) is a genetic disease caused by mutations in the gene that encodes the protein Cystic Fibrosis Transmembrane Regulator (CFTR), an epithelial ion channel involved in the transport of chloride and bicarbonate on the surface of cells, regulating salt and water balance. Its absence/dysfunction results in the dehydration of secretions, translating into a multisystemic disease, which manifests itself at the pulmonary level by bronchiectasis, secondary to chronic inflammation and infection. Although the predominant microorganisms in the airways are bacteria, fungi play a major role in the progression of lung disease, with Aspergillus fumigatus being the most frequently isolated. Allergic Bronchopulmonary Aspergillosis (ABPA) is a hypersensitivity response, mediated by Th2 and IgE, to Aspergillus fumigatus. CFTR modulators have revolutionized disease progression by mproving/normalizing CFTR expression, function and stability.
Case reports: We present the cases of 5 patients with CF and history of ABPA, three males. The mean age is 27.0 ± 9.3 years and the mean age at diagnosis was 14 ± 8.2 years. The average value of the sweat test was 102.0 ± 20.1 mmol/L. Regarding the genetic study, 3 patients had delF508/delF508, one had delF508/R334W and finally, one patient had G542X/G85E. The mean number of ABPA episodes was 3.0 ± 1.3, and were treated with corticosteroid therapy, some cases with itraconazole/voriconazole, and one case with inhaled amphotericin and omalizumab. The 5 patients started triple modulator therapy with ivacaftor/tezacaftor/elexacaftor (ELZ/TEZ/IVA), a mean of 19 ± 5.3 months ago. The mean values of immunoglobulins (Ig) prior to the start of ELZ/TEZ/IVA were: total IgE 411.0 ± 235.7 kU/L, Aspergillus fumigatus IgE 3.7 ± 2.6 kU/L, Aspergillus fumigatus IgG 102.0 ± 70.8 mgA/L. The average of the highest value of total IgE that the patients presented, prior to the beginning of ELZ/TEZ/IVA, was 826.0 ± 1,127.6 kU/L. At the start of modulator therapy, only one patient was under therapy for ABPA, having discontinued inhaled amphotericin 3 months after starting ELZ/TEZ/IVA and corticosteroids after 6 months. After starting ELZ/TEZ/IVA, the average values of the Igs were: total IgE 76.0 ± 127.6 kU/L, Aspergillus fumigatus IgE 3.5 ± 2.3 kU/L, Aspergillus fumigatus IgG 60.1 ± 46.8 mgA/L. The mean value of eosinophils was 237.0 ± 178.6/L and 200.0 ± 98.0/L, before and after starting the modulator therapy, respectively. Three patients presented isolation of Aspergillus fumigatus in the microbiological examination of sputum, with an average of 5 ± 1.7 isolations. After starting the ELZ/TEZ/IVA, 3 isolations were obtained from only one patient. The patients are stable, with no further episodes of ABPA or any targeted therapy.
Discussion: CF treatment with CFTR modulators had revolutionized the disease phenotype. Despite studies demonstrating that these therapies are associated with significant changes in the airway microbiome, it is still unknown what is their impact on microbial colonization rates, namely colonization by Aspergillus fumigatus, and consequently on ABPA. In the patients presented, the initiation of ELZ/TEZ/IVA led to a decrease in total IgE and Aspergillus fumigatus IgE and IgG and the absence of new episodes of ABPA, probably due to the improvement in mucociliary clearance and the eventual attenuation of the immune response to microorganisms.

Keywords: *Cystic fibrosis.* Aspergillus fumigatus. *Allergic bronchopulmonary aspergillosis. CFTR modulator therapy.*

CO 078. INCIDENCE AND CASE FATALITY RATES OF ADULTS HOSPITALISED WITH INVASIVE PNEUMOCOCCAL DISEASE IN PORTUGAL, 2017-2018 – THE SPHERE STUDY

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Introduction and objectives: Invasive pneumococcal disease (IPD), caused by *Streptococcus pneumoniae*, is the most severe form of pneumococcal disease, primarily affecting children < 5 years and adults 65 years. All forms of this disease have a significant morbidity and mortality, and vaccination is considered the primary intervention to reduce them. This study aimed to determine the incidence and fatality rates for IPD among hospitalized adult patients in mainland Portugal.
Methods: This was a retrospective, multicentric, and cross-sectional study based on secondary data collection from electronic hospital databases of 7 centers in mainland Portugal. The study included adult patients (18 years old) hospitalized with IPD between 2017-2018.
Results: A total of 395 adult patients were included in the study, with a majority being male (61.8%) and aged 65 years (55.4%). Among the participants, 26.3% were current smokers and 17.4% heavy alcohol consumers. Majority of patients (72.2%) had at least one medical condition of interest, namely chronic cardiac disease (27.1%), diabetes mellitus (25.6%), and chronic respiratory disease (20.5%). Bacteremic pneumonia was the most frequent clinical manifestation of invasive infection (80.0%). *S. pneumoniae* serotype information was not available for any patient. Vaccination status was unknown in 64.3% of individuals, while only 4.8% of total had been vaccinated against *S. pneumoniae*. The average length of hospitalizations was 16.8 ± 18.7 days, with 95 patients (24.1%) requiring intensive care unit (ICU), for an average of 11.0 ± 11.0 days. Global mortality during hospital stay was 16.5%, and was more probable in patients who required ICU admission (36.8%). Overall, the global incidence rate of IPD was found to be 0.93 cases per 1,000 hospitalized adults, with a global case fatality rate of 16.5 deaths per 100 hospitalized adults with IPD.
Conclusions: This study provides real-world evidence on the incidence and fatality rates of IPD in mainland Portugal as reflected in the number of hospitalizations, ICU admissions, length of stay and mortality and emphasizes the need for effective management strategies. This data highlights the need for increased vaccination coverage, especially among those 65 years, and the identification of S. pneumoniae serotypes.

Keywords: *Invasive pneumococcal disease. Incidence rate. Case fatality rate. Vaccination.*

CO 079. A RARE CAUSE OF BRONCHIECTASIS: THE SENIOR-LKEN SYNDROME

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Introduction: Senior-Lken syndrome is a rare autosomal recessive genetic disorder belonging to the group of ciliopathies and affects 1 in 1,000,000 individuals. Currently, less than ten cases are described in the literature. Eyes and kidneys are the most affected organs, with retinitis pigmentosa or Leber congenital amaurosis, and nephronophthisis, respectively.
Case report: A 61-year-old woman referred to the bronchiectasis outpatient appointment for diffuse cylindrical and varicose bronchiectasis. Since her 20's, she complained of nyctalopia and progressive decrease of visual acuity, and was diagnosed with pigmentary retinopathy. At the same time she had bilateral otosclerosis, surgically approached. She also has a history of chronic kidney disease since 34 years-old with unknown etiology, under hemodialysis and in active list for kidney transplant since 54 years-old. Other medical history included arterial hypertension, valvular cardiopathy and more recently a monoclonal gammopathy of undetermined significance. Familiar antecedents were irrelevant. A genetic study identified a c.397G > T p.(Glu133*) variant, probably homozygous in the SDCC4G8 gene, and the diagnosis of Senior-Lken Syndrome was established. Regarding respiratory history, two years ago she had a hospital admission for haemoptysis, and infected bronchiectasis were diagnosed. Bronchofibroscopy revealed a blood clot in the medium lobar bronchium and susceptible Escherichia coli and the filamentous fungi *Paecilomyces variottii* were identified in the bronchial aspirate. The cytologic exam was negative for neoplastic cells. These findings together with a consolidative image in the angiography CT scan were suspicious for a pulmonary mycetoma, and treatment with itraconazole was performed. Since then the patient is stable with respiratory secretions controlled, under respiratory kinesitherapy, and without new episodes of haemoptysis.
Discussion: So far, there are no reports of meaningful bronchiectasis in patients with Senior-Lken syndrome. In fact, ciliopathies are a possible cause of bronchiectasis. Although primary ciliary dyskinesia is the most common ciliopathy, other syndromes that impair ciliary function are described, including Senior-Lken syndrome. As a direct consequence, these individuals at more prone to severe respiratory infections due to the impairment of airway clearance mechanisms. Thus, respiratory involvement, namely bronchiectasis, in a patient with kidney and ocular involvement in a context of the rare Senior-Lken syndrome must be investigated.

Keywords: *Senior-Lken syndrome. Ciliopathy. Bronchiectasis. Hemoptysis.*

CO 080. CHARACTERIZATION OF THE BRONCHIECTASIS CONSULTATION AT CENTRO HOSPITALAR DE LEIRIA FOR 6 MONTHS.

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Centro Hospitalar de Leiria.

Introduction: Bronchiectasis is a chronic lung disease characterized by abnormal and irreversible bronchial dilation, leading to chronic inflammation and long-term impairment of respiratory function. The etiology of bronchiectasis includes chronic respiratory infections such as pneumonia and tuberculosis, hereditary diseases, as well as other conditions like autoimmune and congenital respiratory tract disorders. Risk factors include smoking, immunodeficiencies, gastroesophageal reflux, aspiration, among others. In Portugal, there has been an increase in the incidence and prevalence of this condition in recent years, affecting all age groups. The Bronchiectasis consultation is conducted by Pulmonologists, and it is not universally available in all hospitals. This consultation is essential for managing a disease that often arises in the context of multiple pathologies. The following is a casuistic report of the Bronchiectasis consultation at the Pulmonology Service of Centro Hospitalar de Leiria for the period from January to June 2023, including patient characteristics such as gender, age, medical history, risk factors, etiology of bronchiectasis, microbiology, number of exacerbations, instituted therapy, and influenza and pneumococcal vaccination. Data were collected from patients' medical records and analyzed using Microsoft Excel.
Methods: A total of 116 patients were observed, comprising 54 men and 62 women. The average age was 56 years. The majority of patients, around 31% (36), were in the age group of 61 to 70 years. It is worth noting that 4.3% (5) of the patients were in the age group of 18 to 30 years. On average, patients had 2 consultations per year. Out of the 116 patients analyzed, 25 (21.6%) were former smokers, and 7 (6%) were active smokers, with an average packyears of 25.3. Regarding medical history, asthma and COPD were the most prevalent, with 30.1% (35) having asthma and 14.7% (17) having COPD. Some isolated important medical histories were also noted, such as severe asthma under immunomodulator therapy, Scimitar Syndrome, poliomyelitis, Trisomy of chromosome 14, among others. The 116 patients were also evaluated for their lung function based on the most recent spirometry results. The analyzed data showed an average FEV1 of 68%, an average FVC1 of 82.3%, and an average Tiffeneau index of 64.4%.
Results: From the analysis, it was found that the most common etiology is post-infectious, representing 56.9% of the patients, of which 36.4% were cases of bronchiectasis following Mycobacterium tuberculosis infection. The second most common etiology is idiopathic, representing 36.2% of the analyzed patients. In recent sputum culture, the most frequently isolated microorganisms were *Pseudomonas aeruginosa*, representing 17.2% of the patients, *Haemophilus influenzae*, 11.2% of the patients, and *Staphylococcus aureus*, 5.2% of the patients. Patients were also analyzed regarding their chronic therapy, with 3.4% of them using inhaled Colistin, and 8.6% using Azithromycin. The number of exacerbations per year, antibiotic therapy used during exacerbation, and immunizations were also studied.

Keywords: *Bronchiectasis. Consultation. Colonization.*

CO 081. RELATIONSHIP BETWEEN FLAME RETARDANTS AND RESPIRATORY HEALTH- A SYSTEMATIC REVIEW AND META-ANALYSIS OF OBSERVATIONAL STUDIES

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Introduction: Chronic respiratory diseases are a dealing cause of death and disability worldwide. Their prevalence is steadily increasing and the exposure to environmental contaminants, in which Flame Retardants (FR) are included, is being considered as a possible risk factor. Despite the widespread and continuous exposure to FRs, the role of these contaminants in chronic respiratory diseases is yet not clear. This study aims to systematically review the association between the exposure to FR and chronic respiratory diseases.
Methods: Searches were performed using the Cochrane Library, MEDLINE, EMBASE, PUBMED, SCOPUS, ISI Web of Science (Science and Social Science Index), WHO Global Health Library and CINAHL EBSCO. Analytical, observational, and epidemiological studies (cohort, case-control, and cross-sectional studies) reporting associa-

tions between chronic respiratory diseases and different types of FR or their metabolites quantified in environmental or biological matrices were included. Random-effects meta-analysis were used to summarise the numerical effect estimates.
Results: Among the initial 351 articles found, only 7 fulfilled the inclusion criteria and were included (5 cross-sectional and 2 cohort studies). No statistically significant increase in the risk for chronic respiratory diseases with exposure to FR was found and therefore there is not enough evidence to support that FRs pose a significantly higher risk for the development or worsening of respiratory diseases. However, a non-significant trend for potential hazard was found for asthma and rhinitis/rhinoconjunctivitis, particularly considering urinary organophosphorus FRs (PFR) including TNBP, TPHP, TCEP and TCIPP congeners/compounds. Most studies showed a predominance of moderate risk of bias, therefore the global strength of the evidence is low.
Conclusions: The limitations of the studies here reviewed, and the potential hazardous effects herein identified highlights the need for good quality large-scale cohort studies in which biomarkers of exposure should be quantified in biological samples.

Keywords: *Flame retardants. PBDES. Organophosphorus flame retardants. Respiratory diseases. Asthma. COPD. Rhinitis. Rhinoconjunctivitis.*

CO 082. KNOWLEDGE, BELIEFS AND ATTITUDES ABOUT ELECTRONIC CIGARETTE USE IN PEOPLE UP TO 40 YEARS OLD

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Introduction: According to the World Health Organization (WHO) eight million deaths are caused by smoking annually. Electronic smoking devices (ESDs) are the new face of the smoking epidemic among young people in Brazil and other countries. Therefore, it is necessary to understand their beliefs, knowledge and their consumption pattern, to promote effective preventive public policies.
Objectives: To understand the behaviors involved in the use of ESDs. In addition, we sought to identify consumption patterns, associated behaviors and identify current beliefs about these products.
Methods: Qualitative research on the knowledge/use of electronic cigarettes, made available online through Google Docs and disseminated mainly among university students at UFOP, with completion stimulated in person and by varied online interactions. An attempt was made to apply it on both sides of the Atlantic in the expectation of being able to contrast possible differences, but the summer vacations in Portugal made it difficult to obtain more responses.
Results: 900 people responded, 9 of them in Portugal. Most (75.1%) were aged 17-24 years, another 25.9% were aged 25-39 years. Among the participants, 53.8% were women and 45.8% men. Of these, 58.6% are white, 29.7% brown, 10.7% black and 1% yellow. In addition, 9.7% have literacy (1st degree or 2nd degree), 74.7% incomplete higher education, 15.5% complete higher education or postgraduate degree. Of the respondents, 44.5% are current smokers or have smoked various products at some time. Among current smokers, 37% are daily users and 43.2% non-daily users. 15% of ESDs users made daily use of the product. In addition, 47.4% said they had used ESDs before. 29% acquired them at social events and 20.2% through WhatsApp. Regarding the frequency of use, 68% answered that they only use ESDs when using alcohol. 52.3% believe that it does more harm than the common white cigarette. In addition, 3.5% answered that ESDs do not have nicotine, while 96.5% believe that they do. About 78.2% of respondents answered ''yes'' or ''maybe'' if they would like to quit smoking, with the top three products of interest in quitting being the straw cigarette (59.2%), the electronic cigarette (35.3%) and the regular cigarette (23.1%). 13.6% of respondents claimed to have already tried to quit smoking ESDs without success, with 44.7% having made one attempt and 55.3% having tried two or more times. **Conclusions:** The prohibited commercialization of ESDs by Anvisa in Brazil does not prevent their utilization in the country. Although a little more than half of the participants believe that the electronic cigarette is more harmful than the common one, its use still occurs. A significant number of people stated that they only use this device with the consumption of alcoholic beverages and a relevant portion of the participants showed interest and registered difficulty in stopping using ESDs. It is of great relevance to understand the beliefs and motivations involved in the use of ESDs, for the elaboration of preventive campaigns and other effective actions.

Keywords: *Electronic cigarettes. Smoking. Nicotism. Young.*

CO 083. THE PRESS DEBATE FOLLOWING THE ANNOUNCEMENT OF THE PORTUGUESE NEW TOBACCO BILL: A DESCRIPTIVE AND THEMATIC ANALYSIS

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Introduction and objectives: The World Health Organization (WHO) emphasizes that the tobacco industry (TI) is the vector of the pandemic, through marketing, advertising and promotion strategies, in addition to interfering/obstructing tobacco control policies. The solution to reduce the impact of this pandemic is not in the health sector, but in the political will to implement multisectoral public prevention policies, aligned with the WHO Framework Convention on Tobacco Control (FCTC). It also requires civil society activism with governments and policymakers. In May/2023, the Ministry of Health (MoH) announced a proposed Tobacco Law comprising: 1) extension of smoke-free policies to outdoor environments and all enclosed public spaces (tobacco + vaping); 2) reinforcement of the ban on TI advertising, promotion and sponsorship; 3) restriction of tobacco supply at points of sale and vending machines, ban on tobacco sales and vaping at music and youth festivals; 4) transposition of the European Directive on heated tobacco, banning flavors, additives and mandating health warnings with text and image. After the press release, a media debate ensued. The Government backed down, removing some measures, especially the supply restriction, and added exceptions and moratoria. In order to identify the various actors and their discourses, a narrative and thematic analysis was conducted.
Results: The actors identified were journalists, parliamentary deputies, minister of health and secretary of state for health promotion, health professionals, mainly physicians, business associations and IT. The predominant discourse was one of controversy and opposition to the law. Journalists defended smokers' right to free choice and freedom, criticizing the intervention of an ultra-protective state. Some parliamentarians criticized the measures to restrict the supply and extend smoking environments to outdoor spaces, calling them "excessively prohibitionist", "abusive and intrusive" or "too restrictive"; and also opposing the regulation of heated tobacco by calling for a "harm reduction" strategy. In addition, they justified it with legal principles such as violation of the right to liberty and proportionality. Business associations (tobacco retailers, restaurants) strongly opposed, claiming possible economic losses and increased tobacco smuggling. The same arguments were used by IT, which asked to be involved in the political nego-

tiation of the law. Health professionals defended the proposed measures, elucidating the public health evidence supporting them and warning of TI interference, either in opinion articles or quoted and/or interviewed in articles written by journalists. The MoH justified the rollback of the law with economic arguments and equitable access to tobacco products, failing to exercise its duty to educate society and policymakers about the public health evidence.
Conclusions: Opposition to the law was the winning discourse. The arguments used and some of the actors are identified by researchers as discourse/groups allied to IT. These findings and the Government's backtracking by weakening and delaying the legislation constitute a clear violation of FCTC Article 5.3.

***Keywords**: Tobacco control. Public health. Tobacco industry.*

CO 084. COMPARATIVE EVALUATION OF POST-OPERATORY LUNG FUNCTION AFTER ROBOTIC AND VATS ANATOMIC RESSECTIONS

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Objectives: One of the goals of lung anatomic resections (segmentectomy or lobectomy) performed with minimally invasive techniques, either robotic (RATS) or thoracoscopic (VATS), is to allow patients a better recovery from their procedure, with less pain, less time with chest tubes, better recovery of lung function and therefore a faster return to active life. We aim to compare lung function tests, before and after surgery, of patients submitted to anatomic ressections performed by RATS and VATS.
Methods: Our 7-year experience, from June 2016 until June 2023, with RATS was 156 surgeries, 132 of them were lung surgery We retrospectively analised lung function tests, pre-operative and at 3 months post-op, of 45 patients submitted to anatomic resections (25 segmentectomies and 20 lobectomies) by RATS. We then compared the actual values with the predicted post operative values for the procedures in question. This population was then compared with 50 anatomic resections (31 segmentectomies and 19 lobectomies) performed by VATS, in the same period, at our institution. Statistical analysis, was performed with STATA 16.
Results: The mean baseline and post-op values of FEV1, DLCO, TLC and FVC in our RATS and VATS group were not significantly different. When comparing the mean post operatory values of FEV1 and DLCO with the Predicted Post-operative (PPO) they were in both groups better that the expected values, but no difference was shown between the two surgical approaches.
Conclusions: Both minimally invasive approaches have shown similar results in post-operative lung function at 3 months and in both cases results are better that the ones predicted by the formulas used to calculate the PPO values.

***Keywords**: Robotic surgery. Rats. Lung function. Anatomical resections.*

CO 085. SURGICAL APPROACH TO THORACIC ENDOMETRIOSIS: A 10-YEAR RETROSPECTIVE ANALYSIS IN A CENTRAL HOSPITAL

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Introduction: Thoracic endometriosis is defined by the presence of endometrial tissue in the lung or pleura and can manifest clinically by pneumothorax (more frequently), hemothorax or catamenial hemoptysis. It appears mostly in the right hemithorax. Histopathology of a biopsy lesion during menstruation is the gold standard for diagnosis. The combination of hormonal and surgical treatment is a therapeutic option for this pathology in order to prevent recurrence.
Objectives and methods: The objective of this study is to characterize patients diagnosed with thoracic endometriosis undergoing surgical treatment. This is a retrospective analysis of the last ten years of patients operated on at the Department of Thoracic Surgery at Hospital de Santa Marta. Data were obtained from clinical files.
Results: Over the last ten years, fifteen patients with thoracic endometriosis underwent surgical treatment, all female, with a mean age of 37.4 years (26 - 48 years). The main antecedents were diagnosed endometriosis (46.7%, n = 7), smoking habits (26.7%) and previously treated pulmonary tuberculosis (13.3%, n = 2). Thoracic endometriosis manifested itself through pneumothorax in 86.7% (n = 13) and hemothorax in 13.3% (n = 2) of patients, occurring on the right in all cases (100%, n = 15). With regard to surgical treatment, all patients underwent video-assisted thoracoscopic surgery (VATS); regarding pneumothorax, 92.3% (n = 12) underwent pleurodesis, 92.3% (n = 12) atypical pulmonary resection (APR), 38.5% (n = 5) pleurectomy, 23.1% (n = 3) pleural biopsy, 23.1% (n = 3) diaphragmatic implant biopsy and 7.7% (n = 1) diaphragmatic orifice repair; in the case of hemothorax, 50% (n = 1) underwent decortication and 50% (n = 1) pleural biopsy, RAP and pleurodesis. The main surgical findings were diaphragmatic fenestrations in 73.3% (n = 11), pleural implants in 26.7% (n = 4) and diaphragmatic implants in 20% (n = 3) of the cases. As for histology, only 20% (n = 3) of the samples collected during surgery showed the presence of endometriosis. In the postoperative period, the mean time under thoracic drainage was 4.2 days and the mean hospital stay was 8.3 days. Of the patients submitted to surgery, 33.3% (n = 5) relapsed, of these 60% (n = 3) operated on in our center and the remaining 40% (n = 2) operated on in other hospitals, being later re-operated on in our center, no evidence of new recurrence to date; the median time to relapse was 2.6 years (5 months - 6 years); Of these patients who relapsed, 20% (n = 1) were on hormone therapy, while the remaining 80% (n = 4) had discontinued it.
Conclusions: In this analysis, it was found that thoracic endometriosis is an entity that appears in women of reproductive age. The VATS approach allows not only the diagnosis but also the treatment of this pathology. It was verified that the histological diagnosis is not always possible, in which case it can be presumed based on the anamnesis, imaging and visualization of the endometrial lesions, highlighting the diaphragmatic fenestrations. The combination of surgical treatment and hormone therapy prevents recurrence, and the latter should not be discontinued.

***Keywords**: Thoracic endometriosis. Catamenial pneumothorax. Catamenial hemothorax.*

CO 086. EXTRACORPOREAL MEMBRANE OXYGENATION AS A BRIDGE TO LUNG TRANSPLANTATION – OUTCOMES OF THE PORTUGUESE TRANSPLANTATION CENTER

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Introduction: Lung transplantation (LTx) is a final treatment option for end-stage lung disease under optimized medical therapy. The

increasing number of procedures allowed a temporal division into ERA1 (2001-2015) with less than 25 transplants/year and ERA2 (2016-2023) with more than 25 transplants/year. Extracorporeal Membrane Oxygenation (ECMO) is a technique with concurrent growing use for pre-transplant support. This study aims to analyze survival outcomes and outcomes in patients undergoing LTx with ECMO as a bridge.
Methods: From June 2001 to January 2023, 355 lung transplants were performed. Twenty-one of these patients had ECMO support as a bridge to transplantation. Eight (38%) were male and 13 (62%) female, with a mean age of 41.5 years (minimum 13; maximum 60). Diagnoses included: interstitial lung disease (52.4%); cystic fibrosis (CF) (14.3%); non-CF bronchiectasis (9.5%); ARDS due to COVID-19 infection (9.5%) and lung re-transplantation (14.3%). Eighteen patients underwent bilateral transplantation, one both bilateral and renal and two unilateral. All were adapted to VV ECMO, with a mean duration of 34 days (minimum 3; maximum 203), with 3 admitted in pre-LTx list already under ECMO. Eleven were switched to VA intraoperatively and three left the operating room without ECMO support.
Results: Of the 21 patients, nine cases of primary graft dysfunction (PGD) and five cases of acute rejection were observed in the immediate postoperative period. During this period, thoracic complications occurred in 17 patients, the most prevalent being atrial fibrillation (33%) and hemothorax (24%). Extra-thoracic complications were identified in 18 patients, the most common being iatrogenic leukopenia and acute kidney injury. Until discharge, 19 patients had respiratory infections, three of which developed into septic shock. In the initial 12 months of follow-up, five patients had graft dysfunction. Mortality was 41% (7 patients), all happening within four months of transplantation. The most common cause of death was PGD (67%). Overall survival was 81% in the first month, 71% in the third month and 58.8% in those who completed one year of follow-up. Taking into account only ERA2, this survival is 80%, 75% and 63.5% respectively. There were no significant differences at one month and three months compared to patients not requiring ECMO as a bridge, but survival at one year was significantly lower in patients on ECMO ($p = 0.029$). A marginal divergence between the two groups was observed for ERA2 alone, but it was not statistically significant ($p = 0.087$).
Conclusions: The increased number of transplants performed and the rising utilization of ECMO as a bridging procedure for LTx reinforces the feasibility of this technique, with no major impact on survival and acceptable results in carefully selected patients. However, results should be cautiously evaluated, given the small sample size and further research is required into the use of this type of support.

Keywords: *Lung transplant. Bridge. ECMO. Outcomes.*

CO 087. ECMO AS BRIDGE DO LUNG TRANSPLANT: THE INTENSIVE CARE PERSPECTIVE

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Introduction: Lung transplant is an established treatment for patients with advanced chronic non-malignant lung disease, with an increasing number of lung transplants being performed worldwide, Portugal included. The Lisbon Central Hospital – Centro Hospitalar Universitário Lisboa Central – performed 355 lung transplants from January/2001 to January/2023. Extracorporeal Membrane Oxigenation (ECMO) is a cardiopulmonary support that is becoming increasingly used. In respiratory failure it allows oxygen supply on refractory hipoxemia and also a less agressive ventilation, reducing morbimortality. Due to organ shortage, there is an increasing number of people waiting for lung transplantation, and it is essential do develop new approaches in order to reduce morbimortality during the waiting process. Although ECMO devices have been used in lung transplantation programmes, only a few studies include a large number of patients and data about long term survival.
Methods: Among the 355 lung transplants, 73 took place on the last 2 years. 21 patients from the 355 (6%) have been submitted to ECMO as bridge to transplant. Those patients came from Intensive Care Units all over the country. 9 of those patients came from our unit, and of them, 1 received ECMO in the beginning as a bridge to recover but, due to non recovery of its respiratory function, was referred to lung transplantation. 3 patients died while waiting for lung transplant. The main diagnosis of the 9 patients that received a lung transplant were n = 5 to interstitial lung disease, n = 2 to bronchiectasis (1 due to cystic fibrosis and 1 non cystic fibrosis), n = 1 due to lung fibroelastosis and n = 1 due to Granulomatosis. VV-ECMO was the main support used until lung transplant (1 of the patients was converted to VAV-ECMO). The duration of ECMO-support until transplant ranged from 7 to 203 days (with a median time of 21 days). The majority (n = 6) of patients needed 2 oxygenation membranes until the transplant. In terms of cannulation, 6 patients had "fem-fem" VV ECMO cannulation and 6 had femoral-jugular configuration.
Results: This analysis is only referred to ECMO support until transplant.
Conclusions: Although there are significant risks related with ECMO, this technique allows physical rehabilitation in the awake patient. 3 month-survival rates after lung transplantation of patients that received ECMO as bridge to transplant are similar to those without ECMO support. On our 9 patients the 3 month-survival rate after lung transplantation was of 88%.

Keywords: *VV-ECMO. Lung transplantation. Bridge to transplant.*

CO 088. TUBERCULOSIS IN CRITICALLY ILL PATIENT AT INTENSIVE CARE UNIT: A CLINICAL CASE

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Case report: 42-year-old man, from Guinea-Bissau, living in Portugal for a few months, construction worker, with relevant personal history of arterial hypertension and unspecified liver disease that led to hospitalization for three months in his country. Admitted to the Emergency Department with weight loss, progressively worsening fatigue and cough with hemoptoic sputum. After etiological investigation, *Mycobacterium tuberculosis* was identified in the bronchoalveolar lavage by nucleic acid amplification test (negative microscopic examination), leading to the diagnosis of disseminated tuberculosis: pulmonary and pleural affection (empyema, pulmonary nodules and right lung cavitation), central nervous system (parietal space-occupying lesion with vasognic brain edema and midline shift) and probably also liver (hyperbilirubinemia and transaminases elevation with no other identified cause). Due to difficult control of the pulmonary focus, it was necessary to place a chest drain in the operating room under anesthesia, where he had an episode of vomiting during mobilization with consequent aspiration pneumonia in the left lung. As a consequence, a worsening of the respiratory point of view led to admission to the Intensive Care Unit (ICU), with the patient being initially under high-flow oxygen therapy but later requiring invasive mechanical ventilation (IMV) due to severe acute respiratory distress syndrome. In view of this scenario, several questions arise about the particularities of the management of critically ill patients with tuberculosis in the ICU, leading to a lack of information and specific recommendations for this group of

patients, starting in the use of non-invasive ventilation and IMV. There is also a constant need for aerosol generating procedures, such as endotracheal suction and bronchoscopy, leading to an increased risk of disease spreading. There are also several challenges from the therapeutic point of view, starting in anti-tuberculosis drugs dose adjustment in situations of kidney and liver failure.
Discussion: Gastrointestinal disorders often identified in these patients make it difficult to administer and properly absorb drugs – most of it available only in peroral formulations, leading to higher risk of inadequate drug levels and inadequate control of the disease, increasing risk of multidrug-resistant tuberculosis. This case is intended to report the experience of managing a critically ill patient with tuberculosis, addressing the difficulties identified and the solutions found to overcome them, in order to guarantee the best level of care without compromising health professionals safety.

Keywords: *Tuberculosis. Critically ill patient. Intensive care.*

CO 089. THE HOSPITAL SCORE AND LACE INDEX AS PREDICTORS OF 30-DAY READMISSION IN RESPIRATORY PATIENTS

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Introduction: Hospital readmissions are common. Validated risk assessment tools such as the HOSPITAL score and LACE index have been developed to identify patients at high risk of hospital readmission so they can be targeted for interventions aimed at reducing the rate of readmission. This study aims to evaluate the utility of HOSPITAL score and LACE index for predicting hospital readmission or death within 30 days in a large-sized university hospital.
Methods: All adult patients who were admitted to the Pulmonology Department from January to September of 2022, were retrospectively evaluated to determine if the HOSPITAL score and LACE index were significant predictors of hospital readmission within 30 days. Data were collected from consultation of clinical electronic records and statistical analysis was performed with SPSS® software.
Results: 222 discharges were analysed after exclusion of patients who died during the hospital stay, were transferred to another hospital or left against medical advice (25 cases). There was a predominance of males (58.6%) and the mean age was 64.2 years. The majority (81.1%) of patients were admitted through the emergency department. The median duration of stay was 14 days. The most prevalent main diagnosis were: pneumonia (20.72%); exacerbation of COPD (13.6%); lung cancer (11.71%); pneumothorax (9.01%); ILD (8.56%); exacerbation of bronchiectasis (7.21%). Of the patients included, 35 (15.7%) were readmitted to the same hospital within 30 days and 11 (4.95%) died in the same period. Both HOSPITAL score and LACE index were significantly higher in readmitted patients ($p < 0.02$). On logistic regression, only HOSPITAL was significant concerning the association with readmission but the determination of the area under the ROC curve yielded a value of 0.67. In turn, the LACE index showed a good association with mortality after discharge with a ROC value of 0.77.
Conclusions: The HOSPITAL score may be superior to the LACE index to identify patients at higher risk of hospital readmission within 30 days, but LACE index showed superiority in identifying the risk of death after discharge. The authors feel that there is a need for the development of tools to predict patients at risk for early hospital readmission or death in the respiratory population, as most scores already developed focus, mainly, on COPD patients.

Keywords: *HOSPITAL score. Lace index. Readmission. Death.*

CO 090. STILL ABOUT THE PANDEMIC – IMPACT OF SARS-CoV-2 ON THE DIAGNOSTIC WORKUP AND FOLLOW UP OF SUSPECTED LUNG CANCER PATIENTS

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Introduction: The COVID-19 pandemic forced unprecedented challenges on healthcare systems around the world. Besides the direct impact of the disease itself, clinicians were also confronted by procedural difficulties, and likewise patients' access to medical healthcare was heavily impaired. Consequently, disease burden also reflected on other pathologies such as lung cancer, possibly bringing to a halt recent diagnostic and therapeutic advances.
Objectives: We aimed to assess the impact of the COVID-19 pandemic on lung cancer diagnosis and management.
Methods: Retrospective study including all patients newly diagnosed with lung cancer between January 2019 and December 2020 in a tertiary center. Two groups were then established: a control group, comprising patients diagnosed before the pandemic, and a study population, including patients diagnosed during the nationally implemented emergency/calamity states (lockdown months). t-Student and Mann-Whitney tests were applied for continuous variables and the chi-square test was used to compare categorical variables.
Results: A total of 447 patients were diagnosed with lung cancer during the two years, 242 in 2019 and 205 in 2020. Of all patients diagnosed in 2020, 49% (n = 102) were referred to follow up during the lockdown months (versus 147 patients in the same timeframe of 2019). Mean age at the time of diagnosis was 66.7 ± 11.3 years. Most patients were male (67.8%) and were either smokers or former smokers (71.7%). While most patients diagnosed outside of the lockdown period were referred from primary care/other specialties (83%; n = 88), more than half the patients diagnosed during the pandemic were referred from either the emergency department and/or after hospital admission (55.6%; n = 55; $p < 0.001$). Patients referred during the pandemic had a significantly worse ECOG-Performance Status (17.2% prevalence of ECOG 3-4 versus 4.7% in patients diagnosed outside the lockdown period; $p = 0.004$) and were more likely to be symptomatic prior to referral (66.7% of incidental imaging findings outside the pandemic versus 33.3% during COVID-19; $p < 0.001$). Overall, most patients were diagnosed using transthoracic lung biopsies (58%; n = 119), although during the pandemic this proportion was significantly lower (67 versus 48.5%; $p = 0.007$); on the contrary, the number of patients diagnosed using ultrasound-guided procedures was significantly higher during the pandemic (8.3 versus 2.9%; $p = 0.009$). The were no significant differences concerning tumor histology between groups, with lung adenocarcinoma being the most prevalent (n = 139), followed by squamous cell lung cancer (n = 29) and small cell lung cancer (n = 18). The proportion of patients with advanced-stage disease was significantly higher in the pandemic subgroup (78.8% versus 50.9%; $p < 0.001$) and, as expected, this translated into a significantly lower proportion of patients proposed to curative-intent treatment (32.3 versus 67%; $p < 0.001$) and higher rates of best supportive care (11.1 versus 2.8%, p =.019). The cumulative burden resulted in higher mortality rates for the subgroup diagnosed during the pandemic, despite the more recent diagnosis (74.7 versus 59.4%; $p = 0.020$).
Conclusions: Delay in patient referral and overall diagnostic/staging workup led to a significantly higher mortality rate and overall higher morbidity for patients diagnosed with lung cancer during the SARS-CoV-2 pandemic, hindering some of the advances of the previous years in this field.

Keywords: *COVID-19. Lung cancer. Staging. Diagnosis.*

CO 091. DELAYED PNEUMOTHORAX AFTER COVID-19 IN A SMALL PORTUGUESE GROUP OF ADULTS

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Centro Hospitalar de Lisboa Norte.

Introduction: In COVID-19 pandemic, a great number of complications during treatment of acute phase was observed, such as pneumothorax frequently associated with invasive and non-invasive ventilation. Delayed occurrence of pneumothorax after recovery from the infection is less commonly reported, especially in non-ventilated patients.
Objectives: The purpose of our study was to determinate if there was any risk factor associated with the development of pneumothorax after COVID-19 recovery and observe the chronology of presentation.
Methods: We selected all cases of spontaneous pneumothorax in the Pulmonology department of Hospital Santa Maria – Centro Hospitalar Universitário de Lisboa Norte during the period between January 2021 and August 2022 and observed our population retrospectively. All patients who did not present SARS-CoV-2 infection were excluded, after verifying the information on the national platform for infectious disease notification (SiNAVE). Other relevant pulmonary conditions were excluded by examining CT-scan, alfa1antitripsin level and medical history. We identified a group of 15 patients with the described characteristics.
Results: All our patients had asymptomatic to mild illness. Of the observed population, 67% were males (n = 10). Mean age was 36 years (19-84y), all individuals were Caucasians and 13% (n = 2) were active smokers. 74% (n = 12) had no history of previous pneumothorax, 13% (n = 2) had already been affected by pneumothorax during acute phase of SARS-CoV-2 infection and 13% (n = 2) had a previous episode before SARS-CoV-2 infection, without any evident etiology. Median interval between SARS-CoV-2 infection and the occurrence of pneumothorax was 70 days (19-120d). Our population immunization status against SARS-CoV-2 was: 53% (n = 9) vaccinated with full scheme, 33% (n = 5) with only 1 administration and 14% (n = 2) not vaccinated. For what concerns treatment, 53% (n = 8) underwent collocation of thoracic tube, 47% (n = 7) were admitted for clinical and radiological monitoring, and none needed surgical intervention. Only one patient suffered a recurrence after hospital discharge and needed further treatment undergoing atypical pulmonary resection.
Conclusions: We found no obvious risk factor for the occurrence of delayed pneumothorax, such as severity of primary infection, immunization status or smoke habits. With a great number of SARS-CoV-2 infections every year, it is important to study and understand medium- and long-term sequelae of this disease.

Keywords*: Pneumothorax. COVID-19.*

CO 092. INSPIREGBS – INSPIRATORY MUSCLE TRAINING IN PEOPLE WITH GUILLAIN-BARRÉ SYNDROME: A FEASIBILITY STUDY

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Introduction: Guillain-Barré syndrome (GBS) is a rare immune-mediated peripheral nerve disease often preceded by infections. Respiratory muscle weakness is a common complication in GBS patients, leading to decreased vital capacity, weakened coughing ability, atelectasis, and pulmonary infections. Inspiratory muscle training (IMT) has been widely used to enhance inspiratory muscle strength and pulmonary function in various diseases, however, its application in GBS is unknown. Our study aimed to assess the safety, feasibility, and preliminary effectiveness of an IMT protocol - InspireGBs - in people with GBS.
Methods: A pre/post feasibility study was conducted. Feasibility of InspireGBs was determined by participant recruitment/retention, adherence, time spent in each session and adverse events. Secondary outcome was inspiratory muscle strength. InspireGBs was informed by well-designed studies involving patients with chronic obstructive pulmonary disease and spinal cord injury and clinical experience of the researchers. It consisted of three sets of 10 breaths, separated by quiet breathing for 1 min, performed twice daily, 5 days a week for 6 weeks. Participants were asked to comfortably be sat on a chair with back support with a hip angle of 90°, upper limbs resting on the table, and feet on the floor, while using a nasal clip. Initial resistance was set at 50% of participant's baseline maximal inspiratory pressure (PImax) and increased weekly by 10% of the measured PImax if tolerated; otherwise, an increment of 5% was conducted. Tolerance to the IMT was measured using the modified Borg score for "difficulty to breathe through the device". All sessions were supervised by a trained physiotherapist familiarised with IMT and GBS rehabilitation.
Results: Fourteen patients with GBS were screened and assessed for eligibility and 11 proceeded to the intervention (63% male; 639 years). One participant was lost due to health-related problems. Ten participants completed the intervention and were included in the final analysis for feasibility and inspiratory muscle strength. Recruitment and retention rates were high (100% and 91% respectively). Excellent adherence rates (96%) were obtained with no reported adverse effects. Sessions lasted from 4 to 6 minutes. The PImax improved (median:39 [26.5-50]cm/H2O vs 61 [56.3-64.5]cm/H2O; p = 0.005).
Conclusions: This feasibility study provided valuable information on the implementation of an IMT protocol for people with GBS integrated in their rehabilitation program. InspireGBs is a feasible and safe intervention with high adherence, and it may improve inspiratory muscle function when added to usual inpatient rehabilitation care. A randomized controlled trial is now needed to strengthen these findings.

Keywords*: Guillain-Barré syndrome. Inspiratory muscle training. Respiratory rehabilitation.*

CO 093. RECOVERY OF OPTIMAL VITAMIN D IMPROVES RESPONSIVENESS TO PHOSPHODIESTERASE-5 INHIBITORS THERAPY IN PULMONARY ARTERIAL HYPERTENSION

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Introduction: Vitamin D (vitD) deficiency is highly prevalent in patients with pulmonary arterial hypertension (PAH). Moreover, PAH-patients with lower levels of vitD have worse prognosis. We demonstrated that in animals with PAH and severe deficit of vitD, restoring vitD levels to an optimal range partially improves some pathophysiological features of PAH. Also, recent evidence suggests that vitD deficiency may cause insufficient response to phosphodiesterase-5 inhibitors (PDE5i), such as sildenafil, in some patients with PAH, a possibility that remains to be tested. Thus, in this study, we hypothesize that the recovery of optimal vitD levels in experimental PAH might help to improve responsiveness to PDE5i therapy.
Methods: Male Wistar rats were fed a vitD-free diet for five weeks and then received a single dose of Su5416 (20 mg/Kg) and were exposed to vitD-free diet and chronic hypoxia (10% O2) for three weeks to induce PAH. Following this, vitD deficient rats with PAH were housed in room air and randomly divided into two groups: (a) daily tadalafil therapy (oral; 10 mg/kg) + continued vitD-free diet (n = 9) or (b) daily tadalafil therapy (oral; 10 mg/kg) + single oral

dose of 50,000 IU/Kg of vitD plus standard diet (n = 9) for four weeks. Animals were then used for exercise capacity evaluation, invasive haemodynamic, pulmonary vascular remodelling and contractility analysis, and sample collection. Temporal evolution of cardiac (dys)function was assessed by echocardiography.
Results: Recovering optimal levels of vitD improved pulmonary endothelial function, measured by an increase in the endothelium-dependent vasodilator response to acetylcholine. It also increased the vasodilator response to sildenafil. Moreover, pulmonary small artery (< 55 µm) remodeling was decreased in vitD-restored group, as measured by a decline in mean lumen/total ratio and mean medial thickness. In a cardiac morphometric analysis, vitD treatment attenuated increases in both right ventricle (RV) and right atrial hypertrophy, as well as the fulton index (RV/LV+S). VitD supplementation also significantly improved the exercise capacity with increases seen in distance run, evaluated by endurance tests in a treadmill set. RV catheterization showed that vitD did not decreased the RV dysfunction, evaluated by end-systolic and end-diastolic pressure. Similar to the RV, no alterations were observed in pulmonary artery pressures. However, serial echocardiographic analysis revealed an improved pulmonary flow in the vitD-restored group, where pulmonary artery acceleration time normalized to ejection time ratio (PAAT/PAET) and pulmonary artery velocity-time integral (PAVTI) were increased. It also improved tricuspid annular plane systolic excursion (TAPSE).
Conclusions: Altogether, these data suggest that in animals with PAH treated with tadalafil, restoring vitD levels to an optimal range improves some pathophysiological features of PAH. Therefore, in addition to recovery of optimal vitD status being indicated to restore calcium homeostasis in those PAH patients with severe deficiency, it might help to improve responsiveness to PDE5i.

Keywords: *Vitamin D. Pulmonary arterial hypertension. Phosphodiesterase-5 inhibitor. Hypoxia-sugen.*

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PC 001. SEQUENTIAL VS MULTIPLEX PARALLEL STRATEGIES FOR THE MOLECULAR CHARACTERIZATION OF NON-SMALL CELL LUNG CANCER SAMPLES OBTAINED BY ENDOBRONCHIAL ULTRASOUND TRANSBRONCHIAL NEEDLE ASPIRATION – A SINGLE CENTER EXPERIENCE

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Introduction: Treatment algorithms of non-small cell lung cancer (NSCLC) emphasize the need for detailed knowledge of the molecular characterization (MC) to unveil the presence of actionable mutations. However, diagnostic tools are evolving to minimal invasive procedures, such as endobronchial ultrasound transbronchial needle aspiration (EBUS-TBNA), lending clinicians the dilemma of retrieving adequate samples to meet the demands of pathologists and molecular geneticists. Although the suitability of samples retrieved by EBUS-TBNA for histopathology and sequential molecular profiling (SMP) has been thoroughly studied, the feasibility of multiplex parallel next generation sequencing (MP-NGS) in this type of samples is still under debate.
Objectives: To evaluate the suitability of NSCLC samples retrieved by EBUS-TBNA for MC by both SMP and MP-NGS.
Methods: We conducted a retrospective analysis (January, 2019-December, 2022) of all patients that simultaneously performed EBUS-TBNA and MC of NSCLC either by SMP (real-time polymerase chain reaction for the detection of EGFR status followed by determination of ALK gene rearrangements by fluorescence in-situ hybridization) or MP-NGS. Data regarding demographics, smoking history, histopathological classification, staging, procedure details and final molecular analysis were collected.
Results: During this 4-year period, 102 NSCLC patients simultaneously performed MC of NSCLC and EBUS-TBNA. Of these, SMP was used in 59 cases, whereas MP-NGS was performed in 43 cases. EBUS-TBNA derived samples were used for MC in 66 patients (64.7%). The remainder 36 patients had their MC performed in alternative biological samples (mainly CT guided transthoracic lung biopsy, videobronchoscopy forceps biopsies, surgical lung biopsies and less frequently peripheral blood samples).

Patients in SMP group (n = 38) were mainly male (65.7%), with a median age of 67 years and half of them with smoking history. Most NSCLC were lung adenocarcinomas (86.8%), and 25 cases (65.8%) were TMN stage IV. A median of 2 lymph node stations were biopsied, with a median of 3 needle passages. Thirty-four samples (89.5%) were considered satisfactory for EGRF assessment, whereas 31 (81.6%) were suitable for ALK evaluation. EGFR mutations were identified in 6 patients and ALK rearrangements in 2. Similarly, patients in MP-NGS group (n = 28) were mainly males (57.1%), with a median age of 68.5 years and smoking history (57.1%). Stage IV lung adenocarcinoma was observed in 26 patients (92.9%). A median of 1 lymph node station was biopsied, with a median of 4 needle passages. EBUS-TBNA provided adequate samples in 26 patients, while 2 were insufficient for MPNGS and required a second EBUS-TBNA. Overall, 21 patients (75%) had actionable mutations, most frequently EGFR (28.6%). The median delay from initial EBUS-TBNA to final SMP and MP-NGS results was 20 days and 36 days, respectively.
Conclusions: Our results agree with those of larger studies, demonstrating that NSCLC samples retrieved by EBUS-TBNA are feasible for both SMP and MP-NGS. As expected, using a similar sample, MP-NGS was able to identify significantly more actionable mutations than SMP. Further data may be required concerning the delay observed from EBUS-TBNA to final MC.

Keywords: *NSCLC. EBUS-TBNA. MP-NGS.*

PC 002. PRESENTATION OF PRIMARY EFFUSION LYMPHOMA AS AN ENDOBRONCHIAL MASS – A CLINICAL CASE

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Introduction: Primary effusion lymphoma (PEL) is an uncommon subtype of lymphoma, being described in immunosuppressed individuals, often diagnosed with infection by the human immunodeficiency virus (HIV). The extracavitary form is a rare presentation of this entity.

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Case report: 52-year-old male with a personal history of pneumonia. He went to the emergency department because of a dry cough that had been going on for about six months, associated with exertional dyspnea and constitutional syndrome. The complementary study showed elevation of inflammatory markers and positive serology for HIV, with high viral load and marked decrease in CD4+ Tlymphocyte counts, indicating severe immunosuppression. A plain chest X-ray was performed, documenting middle lobe consolidation; chest computed tomography was then performed, confirming the presence of middle lobe pneumonia, with a small ipsilateral pleural effusion and subcarinal and right paratracheal adenopathies. The patient was admitted and started empirical antibiotic therapy. Thoracic ultrasound was performed, confirming a consolidation pattern and a very small free pleural effusion. The clinical evolution was unfavorable, with the patient maintaining fever and elevation of inflammatory markers. Flexible bronchoscopy was performed, documenting the presence of a pearly white lesion occluding the entrance hole of the middle lobar bronchus, as well as small polypoid lesions in the subsegmental spurs of the basal pyramid right. Both lesions were biopsied. The immunohistochemical study carried out allowed the diagnosis of extracavitary PEL. Proton emission tomography was performed, documenting lung, pleural, liver, ganglionic and bone disease. The patient was referred to Clinical Hematology to start chemotherapy treatment.
Discussion: The extracavitary form of PEL is very rare, and the endobronchial manifestation has not been described in the revised literature. This case allowed endobronchial documentation of the lesion, in a patient with de novo HIV infection who, at the time of diagnosis, had no involvement of serous cavities. In the presence of an endobronchial mass, the possibility of lymphoma should always be considered, especially in immunosuppressed individuals, as it can be a challenging diagnosis.

Keywords: *Non-Hodgkin's lymphoma. Extracavitary primary effusion lymphoma. Flexible bronchoscopy. Human immunodeficiency virus infection.*

PC 003. ENDOBRONCHIAL HAMARTOMAS: CLINICAL REVIEW OF 2 CASES

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Introduction: Hamartomas are benign tumors that can occur in the lungs, skin, heart, and breasts, representing a mixture of mature mesenchymal tissue (like cartilage, bone, muscle, or adipose tissue), and are the most common benign pulmonary neoplasm in adults. The vast majority of them are located in the peripheral parenchyma but very rarely they may originate endobronchially. These tumors are usually present in the fifth and sixth decades of life and are more common in males. Most pulmonary hamartomas produce no symptoms, often being incidental findings, with persistent coughing or wheezing, dyspnea, hemoptysis, rhonchi, pneumonia, atelectasis, or pneumothorax being the most common manifestations. Endobronchial neoplasms additionally present the risk of airway obstruction.
Case reports: We present a 45-year-old non-smoking male with a personal history of obesity and hyperuricemia who was referred to a pulmonology appointment after having performed a chest computed tomography which revealed an irregular high-density foreign body in the lumen of the middle lobar bronchus with 12 mm. There were no lung-related symptoms relevant for this case and physical examination was unremarkable. The patient underwent a flexible videobronchoscopy that showed a firm and stiff endobronchial lesion completely obstructing the middle lobar bronchus and was removed with biopsy forceps. After removal, bronchial patency was found. Histological examination revealed a pulmonary hamartoma. The patient repeated flexible videobronchoscopy, which revealed a well-defined whitish pedunculated lesion on the B4/B5 spur of the middle lobe bronchus, which was biopsied and revealed nonspecific reactive changes in the bronchial mucosa (without residual lesions of pulmonary hamartoma). We also present an 85-year-old man, a former smoker, with a personal history of arterial hypertension, diabetes mellitus, obesity, ischemic heart disease, and prostate cancer. As he had been hospitalized 3 times in 4 months for pneumonia of the right lung, he underwent a flexible videobronchoscopy that showed a whitish rounded endobronchial lesion obstructing the lumen of the apical segment of the right lower lobe bronchus, which was biopsied and concluded to be a pulmonary hamartoma. A CT scan of the chest revealed an extensive area of alveolar consolidation involving a large part of the right lower lobe, groundglass densification, and less extensive consolidation in the right upper lobe, middle lobe, and lingula. Given the patient's advanced age and comorbidities, surveillance was decided.
Discussion: Despite hamartomas often mimic pulmonary malignancies, on imaging they typically present as coin-shaped and solitary masses, with well-defined edges, usually measuring less than 4 cm. Calcification may be present, most frequently in the "popcorn" or "comma-shaped" forms. Surgery is the only definitive curative option and can be necessary for neoplasms that have become symptomatic. The prognosis for these patients is generally excellent, as lesions are slow-growing and, despite the possibility of airway obstruction, with atelectasis or recurrent pneumonia, only in very rare cases, sarcomatous transformation was noted.

Keywords: *Hamartoma.*

PC 004. ENDOBRONCHIAL OBSTRUCTION DUE TO A BENIGN TUMOR – A CLINICAL CASE

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Introduction: Inflammatory myofibroblastic tumor (IMT), more common in children and adolescents, is a rare benign neoplasm consisting of myofibroblasts, generally presenting a high proliferative index, with a high risk of local progression and recurrence after removal. Its presentation at the endobronchial level is quite rare, constituting an increased risk for the patient due to the potential for airway obstruction. The authors present the case of an endobronchial IMT and respective approach.
Case report: Female, 26 years old, with a personal history of mild allergic asthma. She went to the emergency department due to a 2-day history of dry cough and feverish syndrome. On admission, she was tachycardic, tachypneic and feverish, with a peripheral oxygen saturation of 90%; pulmonary auscultation demonstrated decreased vesicular murmur at the left base. Complementary exams were performed: arterial gasometry documented hypoxemia and hypocapnia; plain chest X-ray documented left lower lobe (LLL) atelectasis; analytical study showed elevation of inflammatory markers. LLL pneumonia was assumed, and empirical antibiotic therapy was started. Clinical deterioration ensued in less than 24 hours, with development of severe respiratory failure. A repeated chest X-ray now demonstrated total atelectasis of the left lung. Thoracic computed tomography confirmed atelectasis of the left lung, associated with total occlusion of the left main bronchus (LMB) due to an endoluminal expansive formation. For this reason, rigid bronchoscopy (RB) was performed, which documented the presence of a highly vascularized lesion with smooth contours. Laser photocoagulation

and mechanical debridement were performed, with profuse bleeding controlled with cold saline solution, topical adrenaline and tranexamic acid. Downstream of the injury site, the segmental and subsegmental bronchi were patent, with aspiration of mucopurulent secretions. Due to the presence of post-obstructive pneumonia, empirical antibiotic therapy was maintained for seven days, with improvement. Immunohistochemical examination of the excised lesion revealed the presence of fusiform cells with ill-defined borders and an ovoid nucleus, together with an abundance of lymphocytes and plasmocytes and positive staining for anaplastic lymphoma kinase (ALK). The listed characteristics allowed the diagnosis of IMT. Flexible revision bronchoscopy was performed three weeks after RB, confirming irregular mucosa at the implantation site of the excised lesion, but without lesion recurrence; The patient was completely asymptomatic during this period, with normal pulmonary auscultation.
Discussion: The presented case recalls the importance of considering benign neoplasms as a potential cause of endobronchial obstruction, especially in young individuals. The availability of BR plays a fundamental role in the urgent management of these cases, constituting an important alternative to surgical excision. Carrying out a careful immunohistochemical examination is also essential, as the overexpression of ALK, which is characteristic of IMT and which was observed in this case, has therapeutic significance. Despite being benign, IMTs often express an aggressive evolution, with a high potential for recurrence after excision; certain patients may be candidates for targeted therapy with ALK inhibitors. Careful monitoring with computed tomography and fiberoptic bronchoscopy should be considered.

***Keywords**: Rigid bronchoscopy. Inflammatory myofibroblastic tumor. Post-obstructive atelectasis.*

PC 005. AN UNUSUAL DIAGNOSIS – FROM THE BILE DUCT TO THE LUNG

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Introduction: The lung is an organ of distant metastasis common to several neoplasms, with the breast, kidney, colon and rectum being the most frequent primitive tumors. Pulmonary metastases from biliary tract neoplasms are less common. Cholangiocarcinoma is a rare neoplasm of the biliary tree, and its intrahepatic variant represents less than 10%. They have a poor prognosis and usually appear in the fourth decade of life. Because they are associated with nonspecific symptoms, they are often diagnosed in advanced stages, when there are already distant metastasis. The authors present the case of an intrahepatic cholangiocarcinoma diagnosed through a pulmonary metastasis with endobronchial extension.
Case report: Female, 55 years old, without any relevant environmental or occupational exposures. She was admitted because of a lung mass detected in an imaging exam carried out in the context of clinical worsening during a course of appropriate antibiotic therapy for a respiratory infection. Thoraco-abdomino-pelvic computed tomography (TAP CT) showed a right hilar pulmonary mass measuring 42 mm, with voluminous mediastinal and right hilum adenopathies, associated with osteolytic lesion of the right acetabulum, hypodense hepatic nodule and heterogeneous solid nodules in the right adrenal gland. She underwent fiberoptic bronchoscopy, later converted to rigid bronchoscopy due to an endobronchial mass, which was biopsied and subsequently submitted to laser treatment. The biopsy revealed an adenocarcinoma originating from the bilio-pancreatic axis. She was then referred to a Medical Oncology consult. Given a personal history of a genetic mutation that confers increased susceptibility to cirrhosis, a diagnosis of intrahepatic cholangiocarcinoma with lung and adrenal metastasis (stage IV) was admitted. Due to the rapid progression of the neoplastic disease, the patient died about a month and a half after the diagnosis.
Discussion: The diagnosis of primary neoplasms of the biliary tract still represents a diagnostic challenge in the early stages of the disease, with intrahepatic cholangiocarcinoma being less frequent and more difficult to diagnose, manifesting symptoms associated with distant metastasis, such as pulmonary metastasis.

***Keywords**: Rigid bronchoscopy. Endobronchial tumor. Lung metastasis. Intrahepatic cholangiocarcinoma.*

PC 006. TRANSTHORACIC BIOPSIES OF LUNG LESIONS GUIDED BY REAL-TIME COMPUTED TOMOGRAPHY: THE EXPERIENCE OF ONE CENTER

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Introduction: Computed tomography-guided transthoracic lung biopsy (TATB) is a well-established and commonly performed technique for the diagnosis of lung lesions. Indications for BPTT include indeterminate pulmonary nodules or solid lesions not amenable to transbronchial biopsy or after inconclusive bronchoscopy and persistent focal infiltrates for which diagnosis is not possible with other investigations. It allows the confirmation or exclusion of neoplasia and the assessment of histological and molecular subtypes. It is minimally invasive and safe, with low complication rates: between 10-17%. The sensitivity, specificity and cost-effectiveness of BPTT for the diagnosis of malignancy are reported to be > 90%, > 99% and > 90%, respectively, even for nodules < 1 cm.
Methods and objectives: Descriptive, observational and retrospective analysis of the diagnostic yeld and safety profile of BPTT performed in 20 patients from January to February 2022 at CHLO-HEM. The information was obtained by consulting the clinical files of the respective patients.
Results: The analysis of the population of patients undergoing real-time BPTT showed a male predominant gender distribution (55%, n = 11) and a mean age of 65.9 years (n = 11; minimum age 43; maximum age 97). BPTT results were diagnostic in 90% of cases (n = 18), of which 70% were positive for malignancy (n = 14) and non-diagnostic in 10% (n = 2) of cases. In 95% (n = 19) of the patients, BPTT was decided given the inaccessibility of the lesion by BFO. Only 5% (n = 1) were referred for BPTT due to a previous negative diagnosis of bronchial biopsy and bronchial secretion cytology by BFO. From a technical point of view, the use of a tru-cut needle was chosen in 85% of cases (n = 17) when biopsy of pulmonary nodules or masses was required. Fine-needle aspiration accounted for 15% (n = 3) of BPTTs, used in cases of suspected infectious etiology. Of the pathology results obtained, primary lung neoplasia predominated (64.29%, n = 9) with lung adenocarcinoma being the most common histological pattern (55.56%, n = 5). Cases of lung metastasization from extrapulmonary primary neoplasms accounted for 35.71% (n = 5) of cases. BPTT performed with fine needle aspiration allowed the isolation of bacterial agent in 100% of cases. The cases in which diagnosis by BPTT was not possible (10%, n = 2), occurred due to insufficient sample collection, both in peripheral lesions > 2 cm. One of them with concomitant pleural effusion. The complication rate was 3% (n = 1), represented by only one complicated case of small pneumothorax, without the need for drainage, in a patient with emphysema.

Conclusions: BPTT is a highly accurate and safe technique for the diagnosis of lung lesions with radiation exposure. Its high diagnostic accuracy should be weighed against the risk of pneumothorax and hemorrhage, taking into account patient preference. The risk-benefit ratio is higher in patients with concomitant emphysema, bullous disease or chronic respiratory failure. The results obtained at this hospital center include diagnostic yield and complication rates comparable to previous studies.

***Keywords**: Computed tomography. Transthoracic needle biopsy. Lung lesions. Diagnostic yield. Pneumothorax.*

PC 007. A RARE CAUSE OF HEMOPTYSIS: AORTOBRONCHIAL FISTULA AFTER AORTIC ANEURYSM REPAIR

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Introduction: Hemoptysis is a frequent sign in respiratory diseases. Most of the times the underlying cause is easily recognized, however, sometimes the etiology can be difficult to identify. The presence of an aortobronchial fistula is a rare cause of hemoptysis, but it can lead to massive hemorrhage. Clinical suspicion should be high in patients with a history of aortic aneurysm submitted to surgical treatment.
Case report: Male 79 years old, PS 0, former smoker (120 pack-years). Personal history of arterial hypertension, dyslipidemia and contained rupture of a descending thoracic aorta aneurysm in December 2019, submitted to TEVAR (Thoracic Endovascular Aneurysm Repair) with stent-graft placement. The patient was admitted in the hospital in March 2020 for tracheobronchitis with reference to episodes of hemoptoic sputum. After discharge, he maintained follow-up at an Internal Medicine consultation and because he continued to have episodes of hemoptysis in small amounts, he was referred to a Pulmonology consultation. Chest CT with contrast revealed patent endoprosthesis in the thoracic aorta with a 3-mm continuity solution between the upper segment of the left lower lobe and the aorta, compatible with an aortobronchial fistula, without signs of contrast extravasation into the bronchial tree or gas in the stent-graft lumen. The case was discussed with Vascular Surgery and an endoscopic evaluation was proposed. Fiberoptic bronchoscopy was performed, with visualization of the stent-graft at one of the subsegments of B6. Due to the absence of symptoms and because the subsegment was contained by the stent, it was decided not to place an endobronchial prosthesis, which would exclude the entire left lung. The case was again discussed with Vascular Surgery who considered that the patient was not a candidate for open surgery given his risk factors and the complexity of the procedure. Conservative treatment was maintained. The patient continued follow-up in the Pulmonology consultation and a diagnosis of COPD was also established. There was spontaneous cessation of hemoptysis and the patient remains asymptomatic so far. The most recent chest CT scan from April 2023 shows no significant evolution of the aortobronchial fistula.
Discussion: Aortobronchial fistula is a rare condition in which there is a pathological fistulous path between the aorta and the bronchial tree. Most cases have a secondary origin, especially due to interventions in the thoracic aorta. This complication can occur several years after the procedure. The left bronchial tree tends to be the one involved due to the proximity of the descending thoracic aorta (there is a greater distance between the right bronchial tree and the ascending aorta). The most common manifestation is hemoptysis, but there may also be chest pain, dyspnea or hemodynamic instability. After identifying an aortobronchial fistula, a multidisciplinary approach should be conducted, taking into account the patient's symptoms, comorbidities and risk factors. Therapeutic options include correction by open surgery, endovascular repair or conservative treatment. We demonstrate a rare case in which only clinical and radiological surveillance was maintained, with good evolution and stability of the fistula.

***Keywords**: Aortobronchial fistula. Thoracic aortic aneurysm.*

PC 008. BRONCHOLOGY IN MALIGNANT TRACHEAL OBSTRUCTION – PALLIATE TO TREAT

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Introduction: Primary tumours of the trachea are rare, with malignant lesions in this location mostly due to direct invasion by lung, laryngeal or thyroid neoplasms, or, less frequently, by haematogenous metastization. Their incidence is approximately 0.1 in 100,000 people per year and they are more common in male patients with a history of smoking. Symptoms usually appear when there is obstruction of more than 50% of the tracheal lumen.
Case report: Male patient, 57 years old and active smoker, with a personal history of gastroesophageal reflux disease and high-grade vocal cord dysplasia, he underwent left cordectomy and radiotherapy seven years ago, under surveillance and without evidence of locoregional recurrence. In March 2023, he started coughing and hemoptysis. He underwent chest X-ray and gastroesophageal transit without alterations; respiratory function tests (RFT) with moderate bronchial obstruction, without response to bronchodilation; and chest CT that showed, at the level of the aortic arch, a lobulated lesion of the left lateral wall of the trachea, measuring 28 × 22 × 16 mm, causing 75% obstruction of the tracheal lumen and with a cleavage plane with the aortic arch preserved. Due to worsening symptoms, with dyspnea at rest (grade 8 on the modified Borg scale), comfort position in left lateral decubitus and expiratory stridor; the patient underwent rigid bronchoscopy for tumor clearance and symptomatic relief. Rigid bronchoscopy with videobronchoscopy support was performed and the tumor was observed at the level of the middle third of the trachea, with an extension of 25 mm and 80% luminal obstruction. Endobronchial evaluation distal to the tumor showed a healthy airway in the main carina and both bronchial trees. First, partial destruction of the tumor was performed with an electrocoagulation probe and mechanical removal with rigid forceps, which allowed identification of the implantation base in the left posterolateral wall. The beveled tip of the tracheoscope was then advanced to the base of the tumor, with core-out of the lesion under direct visualization and removal of the tumor with rigid forceps. At the end of the procedure, tracheal permeabilization was possible, with a final lumen of 90% of normal, and electrocoagulation was performed under the remaining tumor base. After the procedure, the complaints of dyspnea and stridor resolved, and the patient was discharged at 72 hours. Histological examination revealed invasive, moderately differentiated squamous cell carcinoma. Postoperative RFPs showed reversal of the obstructive pattern. Staging of the disease revealed a single suspicious uptake on PET-CT in tracheal thickening, corresponding to the base of the tumor, and absence of cranioencephalic lesions. The patient was proposed for segmental resection of the trachea.
Discussion: The clinical case presented demonstrates the importance of the rigid bronchoscopy technique in the approach of patients with tumours of the airway. In the case of tracheal tumours, surgery is the definitive treatment, however, in patients with obstructions that may compromise the airway, this technique assumes a "life-saving" role and constitutes a bridge to surgery, allowing

better optimization of the patient, planning of the procedure and performance of the necessary staging tests.

Keywords: *Bronchoscopy. Rigid. Obstruction. Tracheal.*

PC 009. ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION (EBUS-TBNA) – INITIAL EXPERIENCE FROM A CENTER

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Introduction: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is a minimally invasive procedure established for the diagnosis of pathologies involving the mediastinum/hilar region and lung cancer staging. Available in Northern Portugal since 2009, initially limited to Central Hospitals, the technique has become increasingly demanded, resulting in a surge of requests and contributing to delays in the diagnosis/staging of lung neoplasia. As of February 2023, EBUS-TBNA has been available in our center, and this study aims to describe the initial experience and diagnostic performance of EBUSTBNA in a Portuguese district hospital.
Methods: A retrospective analysis of EBUS-TBNA results from February to July 2023 was conducted. The final disease diagnosis was obtained through a combination of other diagnostic tests, clinical surveillance, imaging, and the final pathological staging result for operated neoplasms. Descriptive analysis of procedure-related parameters and their outcomes was performed, along with sensitivity/specificity determination and ROC curve analysis.
Results: During this period, 37 patients underwent EBUS-TBNA. The median age was 66 [57-75] years, with a male predominance (26, 70%). Most referrals came from the Pulmonology clinic (23, 62%), while others were from the Internal Medicine clinic (5, 14%), Oncology clinic (4, 11%), inpatient setting (4, 11%), and CDP-Matosinhos (1, 3%). The maximum waiting time for EBUS-TBNA was 2 weeks. Twenty-one (57%) procedures were performed for diagnostic purposes, 11 (30%) for lung cancer staging, and 5 (14%) for simultaneous diagnosis and staging. With an anesthetist available once a week, the majority (29, 78%) of procedures were performed under general anesthesia with intubation via a laryngeal mask. Eight (22%) procedures were conducted with mild-moderate sedation using midazolam and fentanyl. Out of a total of 89 needle aspirations, most were performed in stations 7 (25; 28%), 4R (22; 25%), and 11R (17; 19%). The median number of punctured stations per patient was 2 [2-3]. Lymph node representativeness was achieved in 100% of cases. Microbiological analysis was conducted in 14 (38%) patients, and flow cytometry in 13 (35%). The procedure resulted in a definitive diagnosis in 20 (54%) patients: 13 (35%) with malignancy [adenocarcinoma (5), squamous cell carcinoma (2), small cell carcinoma (5), non-small cell carcinoma (1)], 6 (16%) with sarcoidosis, and 1 (3%) with non-tuberculous infection. EBUS-TBNA demonstrated a sensitivity, specificity, positive predictive value, and negative predictive value of 87%, 100%, 100%, and 82%, respectively. The area under the ROC curve was 0.935 [CI 0.850-1.000]. One significant complication occurred, with acute respiratory failure/alveolar hemorrhage, which was resolved with conservative measures.
Conclusions: The initial diagnostic performance of EBUS-TBNA in our center was high, with sensitivity and specificity comparable to other published studies. The availability of this technique allowed for a more timely diagnosis/staging of patients with neoplasia. Future objectives include increasing the number of procedures performed, conducting more examinations under sedation, and combining diagnostic and staging purposes.

Keywords: *EBUS-TBNA. Diagnosis. Sensitivity. Specificity.*

PC 010. PLEURAL EFFUSIONS SUBMITTED TO THORACENTESIS IN A TERTIARY HOSPITAL – DESCRIPTIVE ANALYSIS

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Introduction: The approach to medically caused pleural effusions by invasive methods falls under the competence of Pulmonology. The authors carried out a descriptive evaluation of the cases approached by thoracentesis in the first half of 2023 at the Interventional Pulmonology Unit of Hospital de Santa Maria.
Methods: A total of 120 patients with pleural pathology were evaluated. Most had pleural effusion (n = 110; 91.7%), and all underwent chest ultrasound. More than half underwent thoracentesis (n = 71; 64.5%), and patients who underwent placement of pleural drainage were excluded from this analysis. Gender distribution was roughly equal (54.9% female and 45.1% male), mean age was 70.3 ± 16.8 years (minimum: 25; maximum: 98 years old) and the patients were mostly referred from the Internal Medicine Service (52.1%), the Emergency Service (14.1%) and the Pulmonology Service (5.6%). Most patients (n = 32; 42%) had a personal history of cancer (suspected or confirmed), the most frequent being lung cancer (totaling 26%), followed by breast (20%) and rectal cancer (10%). In second place were patients with decompensated heart failure (n = 13; 19%) and in third place were patients with pleural effusion under study (n = 6; 9%). Half of the patients (n = 36; 50.7%) underwent thoracentesis for diagnosis and evacuation purposes simultaneously, while a third (n = 24; 33.8%) underwent for evacuation purposes and the remaining (n = 11; 15.5%) for diagnostic purposes. The average amount of liquid drained among the 60 patients who underwent evacuating thoracentesis was 1,240.4 ± 544.4 ml.
Results: The biochemical examination revealed 61.4% of exudates and 30.0% of transudates, and the remaining samples (n = 6) were not sent for biochemical study. Among the 70 samples sent for anatomopathological study, 61.4% were negative for neoplastic cells, 14.2% had reactive mesothelial cells, 11.4% inflammatory exudate, 7.1% blood sediment and 5.7% detected neoplastic cells (one gastric carcinoma, one clear cell carcinoma metastasis, one adenocarcinoma and one suspected mesothelioma). The microbiological examination was negative in all samples.
Conclusions: Pleural effusions were the pleural pathology in most need of approach by Interventional Pulmonology. Most effusions submitted to thoracentesis were associated with suspected or confirmed neoplastic pathology, followed by heart failure, and the predominance of exudates over transudates seems to support this distribution as it is in agreement with the data found in the medical literature.

Keywords: *Pleural effusion. Thoracocentesis. 2023.*

PC 011. PLEURAL EFFUSIONS SUBMITTED TO THORACIC DRAINAGE IN A TERTIARY HOSPITAL – DESCRIPTIVE ANALYSIS

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Introduction: The approach to medically caused pleural effusions by invasive methods is within the scope of Pulmonology. The authors carried out a descriptive evaluation of the cases treated with tho-

racic drainage in the first half of 2023 at the Interventional Pulmonology Unit of Hospital de Santa Maria.
Methods: A total of 120 patients with pleural pathology were evaluated, most of whom had pleural effusion (n = 110; 91.7%). A quarter of these patients underwent placement of pleural drainage (n = 27; 24.5%). The main indications were largescale malignant effusion (n = 11; 40.7%) and empyema (n = 7; 25.7%). Gender distribution was similar (51.9% female and 48.1% male), with a mean age of 63.2 ± 16.3 years (minimum: 26; maximum: 96 years). One third of the patients were referred from the Medicine Service (n = 9; 33.3%), followed by the Emergency Service (n = 7; 25.9%) and the Surgery Service (n = 4; 14.8%). All pleural effusions had characteristics of exudate.
Results: Of the 19 samples of pleural fluid sent for microbiological examination, four were positive (21.5%), and one of them isolated two microorganisms. All isolations occurred in patients with empyema – *Escherichia coli* (n = 2; 4.2%), *Eikenella corrodens* (n = 1; 1.4%), *Fusobacterium nucleatum* (n = 1; 1.4%) and *Streptococcus constellatus* (n = 1; 1.4%). Of the 18 samples sent for anatomopathological study, four were positive for neoplastic cells (n = 4; 21.1%) – three adenocarcinomas, two of pulmonary origin and one of ovarian origin, and one metastasis of renal cell carcinoma. Of the patients with malignant pleural effusion, almost half (n = 5; 45.6%) underwent pleurodesis using the slurrytalc technique. The remainder had an incarcerated lung (n = 1; 9.1%) or contraindication for pleurodesis (n = 5; 45.6%). No patient presented condition to place a long-term tunneled catheter. As complications associated with the placement of pleural drainage, there was only one episode associated with re-expansion edema.
Conclusions: A significant percentage of patients with pleural effusion present indication for pleural drainage, with malignant effusion and empyema being the most frequent indications. Pleural drainage allows, in a safe way, the rapid drainage of the effusion, the control of the infectious focus and allows the posterior palliative approach of the pleural effusion.

Keywords: *Pleural effusion. Thoracic drainage. 2023.*

PC 012. WHEN WAITING IS THE HARDEST

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CHULN.

Introduction: Iatrogenic injuries to the trachea and main bronchi are rare complications associated with invasive procedures. They are usually the result of tracheal intubation, with a reported frequency of 0.05-0.37%. Risk factors include emergent intubation, out-of-hospital intubation, double-lumen tracheobronchial tubes, rigid bronchoscopy, mechanical ventilation and surgical procedures at the level of the thyroid, esophagus and lungs. The most important diagnostic method continues to be bronchoscopy, allowing assessment of the location, extent and type of lesion.
Case report: We present a clinical case of a 72-year-old woman, non-smoker, autonomous. With a history of exposure to birds, no known connective tissue pathology. As previous diagnoses, she had asthma, HTA, dyslipidemia and NIT diabetes with diabetic retinopathy. She also refers to previous hospitalization due to SARS-CoV-2 infection lasting 12 days without the need for mechanical ventilation. She reported worsening tiredness, dyspnea and wheezing since hospitalization for SARS-CoV-2, despite optimization of therapy aimed at asthma and a cycle of antibiotics. Imaging showed a pattern of reticular densification in ground glass, associated with traction bronchiectasis and "honeycomb", with signs of slight volumetric retraction of the basal and right apical parenchyma – suggestive of fibrotic interstitial disease. Functionally with severe decrease in DLCO. Echocardiogram showing non-dilated cavities, PASP 41 mmHg with intermediate probability of pulmonary hypertension. The case was discussed in a multidisciplinary reunion of Interstitial Pathology, posing a diagnostic hypothesis of chronic interstitial pneumonia, having decided the need for cryobiopsy for etiological clarification. A cryobiopsy was performed under general anesthesia with placement of an orotracheal tube (OTT). During the procedure, there was evidence of minimal bleeding originating above the distal end of the OTT. After the procedure and careful raising of the TOT, a laceration of the tracheal posterior wall of approximately 3 cm in length was seen. The patient was admitted to the Intensive Care Unit for clinical and imaging surveillance, with no evidence of pneumomediastinum, pneumothorax or subcutaneous emphysema. Conservative therapy and surveillance were chosen. Endoscopic bronchial reassessment at 4 days showed posterior tracheal wall laceration with some signs of healing of the flaps. Classified as grade I - laceration limited to the mucosa/submucosa, without pneumodiastinum/mediastinicitis; according to Cardillo *et al*. She was discharged after 4 days, with indication for surveillance. Endoscopic bronchial reassessment after 1 month, showing complete healing of the laceration, with no continuity solution. Cryobiopsy showed alterations suggestive of chronic hypersensitivity pneumonitis.
Discussion: Iatrogenic injuries to the trachea and main bronchi are rare complications. The treatment is not standardized, given the little scientific evidence, so this case is presented, highlighting the success of conservative therapy in selected cases.

Keywords: *Iatrogenic tracheal injury. Tracheal intubation.*

PC 013. APPROACH TO ANASTOMOTIC STENOSIS IN PATIENTS SUBJECTED TO LUNG TRANSPLANTATION- THREE CLINICAL CASES

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Introduction: The development of bronchial anastomosis stenosis (BAS) is one of the main complications after lung transplantation, with a reported prevalence of 8.4%. Clinically, the patients develop progressively worsening dyspnea, accumulation of bronchial secretions, consequently with a greater risk of infectious complications. Early diagnosis and therapeutic intervention are essential to reduce its impact on morbidity and mortality. Among the endobronchial techniques used in the approach of BAS, the most commonly used are: balloon dilation, placement of an endobronchial prosthesis, laser ablation or electrocautery, argon plasma, cryotherapy, and instillation of mitomycin C. These techniques can be used alone or in combination. In this work, we present three clinical cases, to illustrate some of the different therapeutic strategies for BAS intervention and their results.
Case reports: Case 1: A 31-year-old male diagnosed with Granulomatous Polyangiitis. Following severe alveolar hemorrhage and refractory respiratory failure, he was placed on ECMO and subsequently underwent bi-lung transplantation. Two months after the surgery, he presented stenosis of the left main bronchus (LMB) > 50%, associated to dyspnea. We proceeded to mucosal cuts at the level of the stenosis with electrocautery, balloon dilation and placement of endobronchial prosthesis, with immediate improvement in ventilation after the procedure. Case 2: A 67-year-old man diagnosed with severe COPD, submitted to bi-lung transplantation. Two months after the transplant, there was fibrinous tissue around the

circumference of the anastomosis, extending distally to the secondary bronchi, mainly at the level of the right anastomosis. The patient presented worsening dyspnea associated with a decrease in pulmonary function (FEV1). Seriated bronchofibroscopies showed progressive worsening of the bronchial stenosis at the level of the right anastomosis. The patient was subjected to mechanical dilation through a rigid bronchoscope and with an endobronchial balloon, with clinical and functional improvement. Case 3: A 45-year-old man diagnosed with unclassifiable idiopathic interstitial pneumonitis underwent bi-lung transplantation. Bronchofibroscopy one month after the surgery showed fibrinous material at the level of the anastomosis bilaterally, with areas of necrosis in the emergence of the right upper lobe bronchus (RULB). Five months after transplantation, he presented stenosis of > 50% of the RULB, LULB and at the intermediary bronchus. Four rigid bronchoscopies were performed, with associations of interventional techniques (mechanical and balloon dilation, electrocoagulation, and instillation of mitomycin C), but reassessment exams always showed restenosis. Finally, we placed an endobronchial prosthesis at the level of the intermediate bronchus.
Discussion: Several risk factors may be associated with the development of central bronchial stenoses, such as tissue hypoperfusion, presence of infections, state of immunosuppression and preservation of the transplanted organ, as well as the type of surgical technique and factors related to the donor and the recipient. Despite the high prevalence of BAS in transplanted patients, there are no randomized controlled studies to date that assess the effectiveness of different endobronchial techniques, with the best available evidence being case series and expert opinion.

***Keywords**: Lung transplantation. Bronchial stenosis. Endobronchial techniques.*

PC 014. BENIGN TRACHEAL STENOSIS: THE IMPORTANCE OF LONG-TERM FOLLOW-UP

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Introduction: Benign tracheal stenosis is a non-malignant pathological condition characterized by the narrowing of the trachea, resulting in compromised airway function. The stenosis is typically caused by factors such as inflammation, fibrosis, or other non-neoplastic processes, requiring endoscopic or surgical intervention.
Case report: We present the case of a 71-year-old man who developed benign tracheal stenosis after post-surgical intubation due to intestinal occlusion in 1997. The patient had a medical history of colon adenocarcinoma, which had been in remission since 1997, and arterial hypertension treated with perindopril and hydrochlorothiazide. In 1997, the tracheal stenosis was initially treated with the placement of an endotracheal prosthesis, which was subsequently removed in 1998. A surgical intervention was necessary, during which three tracheal rings were removed. The patient underwent regular follow-up and endoscopic review of the trachea for 5 years. However, after relocating to Évora, he lost follow-up. He was referred to our observation by his family doctor due to a one-week history of progressive stridor and worsening respiratory symptoms. Upon arrival, the patient was conscious and oriented but dyspneic with retractions and stridor. Due to rapid clinical deterioration and a decreased level of consciousness, orotracheal intubation was performed with the assistance of bronchofibroscopy to address the anticipated difficulty in airway management. During the visualization of the trachea, a significant reduction in tracheal lumen partially obstructed by mucopurulent secretions was observed. Conversion to rigid bronchoscopy was required for stenosis dilation and the placement of a new endotracheal prosthesis to ensure airway patency. The procedure proceeded without immediate complications, and the patient was admitted to the Pneumology department for monitoring. Throughout the hospitalization, no further complications were observed, and the patient was discharged with a referral to the Pneumology clinic for regular clinical and endoscopic follow-up.
Discussion: Benign tracheal stenosis following orotracheal intubation can be a potentially serious complication. The authors present this case to highlight the importance of prolonged follow-up for patients with a history of orotracheal intubation and/or tracheal stenosis corrected through endoscopic or surgical means, to ensure the ongoing effectiveness of treatment. Some cases may require long-term management, and lifestyle changes may be necessary to reduce factors contributing to airway inflammation and potential worsening of the stenosis.

***Keywords**: Tracheal estenosis. Follow-up. Bronchoscopy.*

PC 015. BRONCHOSCOPIC EVALUATION OF AIRWAY INVASION IN ESOPHAGEAL CANCER

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Introduction: Bronchoscopy is often used to assess invasion of the airways by esophageal cancer, and is important in staging, preoperative evaluation and prediction of resectability.
Objectives: To evaluate the usefulness of flexible bronchoscopy to assess the involvement of the tracheobronchial tree by esophageal cancer.
Methods: Retrospective observational study. We selected patients who underwent flexible bronchoscopy in the context of esophageal cancer staging between January 2020 and July 2023. Statistical analysis was performed using SPSS software.
Results: 24 patients with esophageal cancer who underwent bronchoscopy in the aforementioned period were included. All patients (100%) were male, with a mean age of 62.7 ± 2.12 years. Most patients (76.2%) had active or past smoking habits. Endoscopic alterations were found in 45.8% of the patients (n = 11), the most frequent alteration being extrinsic compression (45%, n = 5), followed by infiltration of the bronchial mucosa in 27.2% (n = 3) of the cases. The presence of bronchoesophageal fistula was verified in 18.2% (n = 2) of the patients with endoscopic alterations and tracheoesophageal fistula in 9.1% (n = 1). 17% (n = 5) of the total number of patients had respiratory symptoms, and 80% of these had endoscopic changes. There was disagreement between CT scan and fiberoptic bronchoscopy in 33% of cases (n = 8). Of the patients who showed changes on bronchoscopy, 45% (n = 5) also had suspicious changes on CT scan. On the other hand, 7 patients (29.1%) had CT scan changes suspicious of airway involvement, which was confirmed by bronchoscopy in 71.4% (n = 5). 54.2% of patients were categorized in Choi Baisi's classification as category I, 16.7% as category IIA, 12.5% as IIB and 16.7% as category III. 45.8% of patients (n = 8) underwent surgical treatment after neoadjuvant chemoradiotherapy. Of these, 50% had discrete signs of extrinsic compression of the tracheobronchial tree (IIa). The mortality rate observed in this sample was 58.3% (n = 14) and the median survival was 8.5 months.
Conclusions: Bronchoscopy plays an important role in the staging of esophageal cancer, by allowing the assessment of tumor invasion of the tracheobronchial tree, with consequent impact on the most adequate treatment. In our sample, endoscopic alterations were found in 45.8% of the cases, with disagreement between CT and bronchoscopy in 33% of the cases. Choi Baisi's classification makes it possible to categorize patients according to the identified endo-

scopic alterations and predict resectability, with category II being the most heterogeneous in this regard.

Keywords: *Esophageal cancer. Bronchoscopy.*

PC 016. THE DIAGNOSTIC RANGE OF OESOPHAGEAL ECHOENDOSCOPY PERFORMED WITH A BRONCHOSCOPE (EUS-B) – CASE SERIES

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Introduction: Esophageal echoendoscopy performed with a bronchoscope (EUS-B) has proven to be a powerful tool in the diagnostic approach of thoraco-abdominal lesions. The objective is to demonstrate the diagnostic utility and versatility of EUS-B through the presentation of different clinical cases.
Case reports: Case 1: 63-year-old woman underwent PET-CT in the context of lung cancer staging, with the identification of two hypermetabolic lesions, one corresponding to the neoplastic lung lesion in the left upper lobe, as well as a nodular formation adjacent to the left anterolateral wall of the gastric body (20mm). EUS-B was used to puncture the nodule in the gastric wall. The histology revealed it was a gastrointestinal stromal tumour. Case 2: 73-year-old man underwent thoraco-abdominal-pelvic (TAP) CT, which identified a lesion in the upper lobe of the right lung, mediastinal adenopathies and expansive lesions in both adrenal glands. By performing EUS-B, it was possible to puncture the left adrenal gland, whose histology revealed infiltration by lung adenocarcinoma, allowing diagnosis and staging in a single procedure. Case 3: 61-year-old male with 2 pulmonary nodules on chest CT. PET-CT identified hyperuptake in the left glottic region and in the pulmonary nodules. He underwent transthoracic biopsy of one of the pulmonary nodules, which was inconclusive. He was proposed for EUS-B to approach the cervical lesion, with puncture of a mass at station 1L, compatible with large cell neuroendocrine carcinoma combined with adenocarcinoma. Case 4: 73-year-old man with a pulmonary mass in the left lower perihilar region and multiple liver lesions. Endobronchial ultrasound (EBUS) was performed and no mediastinal adenopathies were identified. Through EUS-B it was possible to puncture a liver lesion, obtaining the diagnosis and staging of atypical carcinoid. Case 5: 74-year-old man with a right para-aortic lesion (17 mm), which could be punctured by EUS-B, with drainage of yellowish liquid content, with a high concentration of triglycerides, compatible with a thoracic duct cyst. Case 6: 54-year-old man with a nodular lesion in the right upper lobe and multiple mediastinal and abdominal adenopathies. He underwent EBUS, with puncture of mediastinal adenopathies. Through EUS-B it was possible to puncture an adenopathy of the celiac trunk. The anatomopathological result revealed aspects suggestive of sarcoidosis. Case 7: 48-year-old male with a history of testicular germ cell tumor under surveillance. A right upper mediastinal mass was identified on a CT scan. Using EUS-B, it was possible to puncture the mass in location 2R, whose histology revealed a squamous cell carcinoma of the esophagus. Case 8: 46-year-old woman, with a history of papillary thyroid carcinoma, who underwent total thyroidectomy and lymph node dissection. A control CT showed a right paratracheal nodule. Using EUS-B, this lesion was punctured at location 1R. By titrating the thyroglobulin levels in the aspirate, the persistence of thyroid carcinoma was determined. The described procedures had no complications.
Discussion: EUS-B is a safe and effective diagnostic method. It allows to approach lesions inaccessible by the airway, being a complementary technique to EBUS and should be integrated in the diagnostic tools of interventional pulmonology.

Keywords: *Esophageal echoendoscopy performed with a bronchoscope. Endobronchial ultrasound. Diagnosis. Staging.*

PC 017. MEDIASTINAL BRONCHOGENIC CYST: A MINIMALLY INVASIVE APPROACH

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Introduction: Bronchogenic cysts are the most frequent cystic lesion of the mediastinum. Most don't cause symptoms and are discovered incidentally, however they can cause potentially serious complications by compressing adjacent structures. Complete surgical removal is the definitive treatment, but when this isn't possible, drainage of the cyst by transbronchial aspiration guided by endobronchial ultrasound (EBUS-TBNA) may be an option.
Case report: A 30-year-old woman, with a history of a mediastinal bronchogenic cyst with auricular compression, underwent partial resection in 2007. In November 2022, chest CT reappeared with a nodular formation measuring 60 × 50 × 45 mm with homogeneous content, high density and regular contours, compatible with a bronchogenic cyst. Better characterized on MRI, located between the carina and the left auricle, with slight compression of the inferior vena cava, spontaneous hypersignal on T2 and T1 images suggestive of having a high protein content and with internal septa. In July 2023, she went to the emergency room complaining of dyspnea and was hospitalized for infected cyst (which showed dimensional progression – 80 × 60 × 60 mm) with superior vena cava syndrome (SVCS) due to mechanical compression and compression of the left main bronchus with associated extensive left lower lobe (LLL) pneumonia. She was started on empirical antibiotic therapy with piperacillin/tazobactam and vancomycin, but on the 2nd day of admission she developed severe hypoxemic respiratory failure requiring invasive mechanical ventilation and admission to the intensive care unit. Considering the associated surgical risk, on the 4th day of hospitalization, the cyst was drained through EBUS-TBNA with a 22G needle. About 150 ml of purulent brownish liquid were drained and at the end of the procedure a significant reduction in the size of the cyst was observed by endoscopy ultrasound, without immediate or late complications of the procedure. The cytological examination of the aspirated content identified a granular background with numerous neutrophils and macrophages compatible with an infected cystic lesion and the microbiological examination showed the isolation of *Candida albicans* and antifungal therapy with fluconazole was initiated. In the reassessment CT scan, she showed a dimensional reduction of the cyst with resolution of the SVCS and improvement on the consolidation of the LIE. Clinically with clinical and blood gas improvement, allowing extubation on the 7th day of hospitalization.
Discussion: Infection is a rare complication of bronchogenic cysts, but it is among the most serious and potentially life-threatening. The best strategy for managing infected mediastinal bronchogenic cysts is not yet fully defined. It is known that in these situations the priority is to drain the infectious focus in the least invasive way possible until clinical stability is achieved. EBUS-TBNA can be diagnostic and therapeutic in infected cysts, with drainage by this route being technically simpler and with a lower risk of complications compared to surgical intervention in the acute phase of infection. In this case, fine-needle aspiration with drainage of the cyst's contents together with adequate antibiotic therapy played a leading role and constituted a viable and minimally invasive alternative for the resolution of the compression and control of the infection.

Keywords: *EBUS-TBNA. Bronchogenic cyst. Superior vena cava syndrome.*

PC 018. THE ROLE OF BRONCHOSCOPY IN FEBRILE NEUTROPENIA

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Introduction: Febrile neutropenia is a severe consequence of treatment with chemotherapeutic agents of neoplastic diseases. By definition it implies a single assessment with oral temperature > 38.3 ºC or temperature 38.0 ºC maintained for 1 hour, with an absolute neutrophil count < 500 cells/microliter, or which is expected to decrease to < 500 cells/microliter. Respiratory infections represent an important cause of mortality in these patients (~30%) and, although empirical antibiotic therapy is recommended, the recommendations in the literature suggest trying to identify the agent in question. The aim of this study was to understand the role of bronchoscopy (BF) in therapeutic management and possible impact on prognosis in these patients.
Methods: The BFs performed at Centro Hospitalar e Universitário de Coimbra during the period from July 2022 to June 2023 (1 year) were reviewed and patients who met the criteria for febrile neutropenia were identified. All patients had imaging changes supported by chest radiography or chest CT. Nineteen patients were analyzed, 13 men and 6 women who met these criteria with an average age of 59 years. All patients had hematologic malignancy and had an average neutrophil count of 10^2 cells/microliter. They were all under empirical antibiotic therapy since admission to hospital, 42% with antifungal coverage.
Results: The BF was requested with the purpose of identifying the pathological agent and in all of them the collection of bronchial aspirate and directed bronchial lavage or bronchoalveolar lavage was performed, with isolation of the etiological agent in 47% of the cases, the most frequent agents being *Klebsiella pneumoniae* and *Staphylococcus aureus*. In this subgroup of patients, there was a change in therapy in 77% of cases, including a spectrum reduction. Within the total number of procedures performed, only 1 post-procedure intercurrence stands out, with worsening respiratory failure. Of the 19 patients, 7 died during hospitalization due to lack of response to therapy, 4 of these with an isolated etiologic agent.
Conclusions: (BF) may play an important role in the microbiological identification of the agent involved in conditions of febrile neutropenia, as verified in this sample. However, its execution requires a risk-benefit balance, since it is not a harmless procedure and its diagnostic accuracy is limited.

Keywords: *Febrile neutropenia. Bronchoalveolar lavage. Bronchoscopy.*

PC 019. THE ROLE OF TRANSBRONCHIAL LUNG BIOPSY IN THE DIAGNOSIS OF SARCOIDOSIS

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Introduction: Sarcoidosis is a multisystemic disease of unclear etiology. Histologically, it is characterized by the presence of non-necrotizing granulomas, and often presents with pulmonary micronodules with centrilobular distribution. Transbronchial lung biopsy (TBLB) is an easily accessible technique, with an estimated 50-75% yield in the diagnosis of sarcoidosis. Objective: To determine the role of TBLB in the diagnosis of sarcoidosis in patients followed in a tertiary hospital.
Methods: Retrospective analysis of demographic data, diagnostic procedures, and clinical, analytical, imaging, and functional characteristics in a population of 130 patients with sarcoidosis followed up at a university hospital.
Results: 130 patients were included, with a mean age of 57.3 ± 12.7 years, of which 50.8% (n = 66 patients) were male. Tobacco exposure was present in 49 patients (37.7%), 22 active smokers (16.9%) and 27 former smokers (20.8%). Ganglionar involvement was the most frequent (n = 110, 84.6%), followed by lung (n = 90, 69.2%) and skin (n = 25, 19.2%) involvement. Three patients presented with Lofgren's syndrome. The most frequent radiological stage at diagnosis was stage II (n = 70, 53.8%), followed by stage I (n = 37, 28.5%). Bronchofibroscopy was carried out in 78 patients (60%), all with bronchoalveolar lavage (BAL) for performing absolute cell counts of lymphocyte population. Of these, 52 patients (66.7%) had a CD4+/CD8+ ratio > 2.5. TBLB were performed in 36 patients (46.2%): one stage I patient, 26 stage II patients, two stage III patients, and seven stage IV patients. TBLB allowed the histological diagnosis of sarcoidosis in 28 patients: 21 in stage II, two patients in stage III, and five patients in stage IV, corresponding to an overall diagnostic yield of 77.8% in this sample. Fragments were insufficient for diagnosis in three cases and, in five cases, no granulomas were detected in the lung parenchyma. There were no complications associated with the procedures performed.
Conclusions: In this sample, TBLB proved to be a safe and highly cost-effective test for the diagnosis of sarcoidosis, particularly in stage II (n = 21, 80.8%).

Keywords: *Sarcoidosis. TBLB.*

PC 020. BRONCHO-BILIARY FISTULIZATION – A CLINICAL CASE

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Introduction: Bronchobiliary fistula (BBF) is an abnormal communication between the biliary system and the bronchial tree. It may be congenital or develop after an inflammatory reaction of the subdiaphragmatic space, with subsequent rupture in the bronchial system and diaphragmatic erosion (after trauma, due to lithiasis, subdiaphragmatic abscess, cholecystitis, pancreatitis, or bile duct tumors). The bile causes significant irritability when in contact with the bronchial mucosa, leading to respiratory symptoms.
Case report: A 74-year-old man with a history of arterial hypertension and gallstones; recurred to the emergency department after one week of worsening abdominal pain, fever, mild jaundice, dyspnea, cough and green-yellowish sputum. Analytically, he had an increase of the inflammatory parameters, and the chest X-ray identified a right pleural effusion, with ipsilateral parenchymal infiltrate. Computed tomography allowed the identification of biliary tract thickening compatible with cholangitis, associated with a right subphrenic abscess. Despite the initiation of empirical broad-spectrum antibiotic therapy, the patient continued to deteriorate clinically, imagiologically and analytically; progressing to respiratory failure and transient need for non invasive ventilation. Thoracentesis showed a green-yellowish pleural fluid, with pH 6.64, LDH 34.424 U/L, bilirubin 6 mg/dl (serum 1 mg/dl), with leukocytosis of 12,300 with predominance of polymorphonuclear cells, and cultural examination isolated *Citrobacter koseri* and *Klebsiella oxytoca*. Given the characteristics of the and concomitant pathology of the bile ducts, the existence of abilio-pleural fistula was considered. Retrograde cholangiopancreatography identified extravasation of contrast, in favor of these hypothesis. Fibroscopy bronchoscopy was performed, observing large amounts of green-yellowish secretions from the middle lobar bronchus and the right basal pyramid, without direct identification of the fistula. The patient underwent cholecystectomy with exploration of the biliary tract and closure of the diaphragmatic orifice with an epiploic patch, with subsequent improvement in respiratory symptoms.

Discussion: This clinical case illustrates a rare diagnosis in clinical practice, for which a high degree of suspicion is required. Bile is a strong irritant of the airway mucosa and the presence of broncho-biliary fistulas is associated with a high rate of morbidity and mortality (12.2%).

Keywords: *Bilioptysis. Broncho-biliary fistula. Endobronchial techniques.*

PC 021. FOREIGN BODY ASPIRATION IN ADULTS – A 12-YEAR RETROSPECTIVE ANALYSIS IN A PULMONARY TECHNIQUES UNIT

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Introduction: Epidemiologically, foreign body aspiration has a bimodal distribution with a peak in pediatric age 1-3 years and a peak in late adulthood (> 75 years). The latter may occur as a result of acute or chronic neurological pathology, altered swallowing or dental procedures. Clinical presentation is often acute with stridor and dyspnea, but chronic presentation with repeated respiratory infections and chronic cough may also occur.
Methods: The aim of this study is to present a retrospective and descriptive analysis of data from adult patients who underwent endoscopic procedures for foreign body aspiration in the last 12 years in the Pulmonary Techniques Unit of a tertiary hospital. Demographic data, degree of autonomy, neurological pathology or pathology related to altered state of consciousness, type of clinical presentation, foreign body classification and location in the bronchial tree, type of endoscopic procedure and instrument used for its removal and associated mortality were evaluated.
Results: 45 patients diagnosed with adult foreign body aspiration were identified and 24 cases were analyzed whose study variables were complete in the computerized medical records. The majority were male (66.7%, n = 16) with a median age of 71 years (minimum 27 and maximum 87 years) and autonomous in activities of daily living (79.2%, n = 19). Most patients had no known medical pathology (62.5%, n = 15); in 3 cases they were associated with dental procedure; in the remaining cases there was an association with alcoholism (n = 2), Parkinson's disease (n = 2), sequelae of central nervous system disease (n = 2), altered mental status (n = 1), altered swallowing due to hypopharyngeal carcinoma submitted to radiotherapy (n = 1) and vocal cord paresis (n = 1). In 7 cases the presentation was acute with sudden dyspnea and in 7 subacute with post-obstructive pneumonia; there were 9 cases of chronic presentation (with repeated respiratory infections, n = 5; chronic cough, n = 3; hemoptoic sputum, n = 1) and 1 case without associated symptoms (imaging finding). In most cases (n = 19) the foreign body was removed by rigid bronchoscopy, 11 with initial assessment by videobronchoscopy. These were mostly located in the right bronchial tree (n = 17) and were removed with crocodile forceps (n = 22). Most foreign bodies were mineral (n = 12), followed by organic (n = 7) and inorganic (n = 5). Laser photocoagulation of granulomas associated with chronic presentation was performed in 3 cases. It is noteworthy that there were no deaths during and up to 30 days after the procedure.
Conclusions: Despite the known risk factors for foreign body aspiration in adults, most cases occurred in autonomous individuals with no known risk pathologies. Chronic presentation was frequent, which highlights the importance of differential diagnosis concerning other more common chronic pathologies. The value of rigid bronchoscopy in these situations should be emphasized as an extremely safe and effective procedure.

Keywords: *Foreign bodies. Rigid bronchoscopy.*

PC 022. PULMONARY ADENOCARCINOMA: EXPRESSION IMBALANCE OF ALK, ROS1, RET AND OTHER TARGET MUTATIONS BY NGS

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Introduction and objectives: Gene fusions have significant prognostic and predictive value being screened as part of molecular pathology testing for patient management. Different approaches have been developed to detect fusion and in next generation sequencing, 3'/5' imbalance value can evaluate novel fusions for diagnosis, still under therapeutic interpretation.
Methods: Oncomine™ Precision Assay Panel workflow applied to fusion detection using expression "imbalance" in Oncomine Reporter™ Software, generates 3'/5' imbalance value, reporting the difference in expression between 5' assay and 3' assay of each driver gene ALK, ROS1 and RET. Fluorescence in situ hybridization (FISH) and Immunohistochemistry (IHC) were applied to 3'/5' imbalance cases to confirm these targets in pulmonary adenocarcinomas.
Results: Genexus sequencing recently reported ten cases with 3'/5' imbalance values were considered. Six cases were ALK 3'/5' imbalance and five presented other concomitant driver mutations: EGFR, KRAS, MET exon skipping and ALK-EML4 rearrangement. These five cases were either ALK FISH or IHC negative. One case presented ALK 3'/5' imbalance with FISH negative and IHQ (3+) positive. Four cases presented RET 3'/5' imbalance. Three of the four cases presented concomitant mutations: two cases in the EGFR gene and one case with RET gene fusion, the fusion partner being the CCDC6 gene. One case did not present mutation. All cases were RET FISH negative.
Conclusions: NGS has brought advantages in multiple genes mutations/fusions detection. This fast and informative technology demands less tumoral cellular burden to detect novel mutations/fusions. Possible novel fusion mutations (3'/5' imbalance) detection requires confirmatory analyses. Tumoral cells that contain a gene fusion are often expected to have elevated expression of the 3' assay compared to the 5' assay, and these cases have to be confirmed through other methods – IHC and FISH, to complete Molecular Pathology Reports for targeted therapies prescription.

Keywords: *Expression imbalance. ALK. ROS1. RET. NGS.*

PC 023. PRALSETINIB IN THE TREATMENT OF NON-SMALL CELL LUNG CANCER (NSCLC) WITH RET GENE REARRANGEMENT

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Introduction: RET gene rearrangements are more common in young, non-smoking men, with the most frequent rearrangement occurring between introns 11 of the RET gene and 15 of the KIF5B gene. Selpercatinib and Pralsetinib are inhibitors that target these RET gene rearrangements, with significant benefits demonstrated in the clinical trials LIBRETTO-001 and ARROW. The guidelines from NCCN and ESMO recommend these inhibitors as first-line or subsequent treatment options for metastatic NSCLC with RET rearrangements, with a tolerable toxicity profile.
Case report: A 76-year-old patient with an ECOG performance status of 1 presented with severe sudden right-sided back pain, which prompted a chest CT scan. The scan revealed a 5.3 cm mass in the

right upper lobe with tissue bridging towards the pulmonary hilum, along with an associated adenopathy conglomerate. In the left upper lobe, there was a 4.5 mm micronodule. Pretracheal, Barety's location, pre-carinal, infra-carinal, and left para-aortic lymph node involvement were observed. EBUS with aspirational puncture was performed in stations 7 and 4L, which were consistent with lung adenocarcinoma, Stage IVB (T3N3M1c). The patient had a PD-L1 expression of 40% and a KIF5B (15)-RET (12) fusion. For further staging, the patient underwent contrast enhanced MRI, which showed multiple nodular lesions on the right side in frontal, parietal, and occipital locations measuring 5 mm, 6 mm, and 7 mm, respectively. Additionally, a 5.4 mm nodule was observed in the posterior parietal region on the left side. PET-CT revealed intense metabolic activity in the right lung tumour (SUVmax 12.22) with a small hypometabolic central area suggestive of necrosis. Adenopathy clusters were seen in the right lateral tracheal distal region (SUVmax 12.16), infracarinal region (SUVmax 12.12), left lateral tracheal distal region, and lateral to the aortic arch (SUVmax 11.86). Two suspicious small adenopathies were found in the right deep cervical root. In the osteomedullary compartment, two small foci were observed, one in the right iliac body and the other in the left sacral wing. The patient initiated Pralsetinib treatment, which has been well-tolerated for the past 6 months. Three months after starting Pralsetinib, a follow-up chest CT scan and contrast-enhanced MRI showed a partial response.

Discussion: The development of Selpercatinib and Pralsetinib has brought a significant paradigm shift in the treatment of NSCLC with RET alterations. These targeted therapies have demonstrated high efficacy and favourable tolerability profiles, as evidenced in this clinical case.

Keywords: *Adenocarcinom. KIF5B-RET. Pralsetinib.*

PC 024. SECONDARY HYPOPHYSITIS DUE TO PEMBROLIZUMAB: A LATE ADVERSE EVENT FOLLOWING DISCONTINUATION OF IMMUNOTHERAPY

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Centro Hospitalar de Leiria.

Case report: The authors present the case of a 65-year-old man, ECOG 1, smoker, with history of erythematous gastropathy of the antrum and allergy to diclofenac. In August 2021, the patient presented with a parenchymal lesion in the right peri-hilar region measuring 46 × 22 mm, invasion of retrocardiac mediastinal fat and suspicion of pleural metastasis. He was diagnosed with stage IVA Lung Adenocarcinoma with PD-L1 expression of 60-70% and negative NGS sequencing panel. The patient started first-line immunotherapy with Pembrolizumab in November 2021. After the second cycle, the patient developed grade 1 dermatitis on the forearms, which improved with topical medication. Thoraco-abdominal CT scans after the second and fourth cycles showed a clear partial response. After the fifth cycle in April 2022, due to significant gastric complaints, an esophagogastroduodenoscopy was performed, revealing grade 3 gastritis. Pembrolizumab was discontinued, and prednisolone 50 mg/day was initiated. The prednisolone dose was gradually reduced to < 10 mg/day, but the patient experienced a worsening of symptoms, leading to an increase in the prednisolone dose to 50 mg/day. Slow tapering was performed until complete discontinuation on 09/08. In August 2022, the patient was evaluated by Dermatology for a rash on sun-exposed areas that had been present for 2 months. Biopsies confirmed subacute lupus (grade 2), likely related to immunotherapy. The patient resumed prednisolone 20 mg/day, leading to significant improvement of the lesions. In October 2022, due to clinical stability, absence of corticosteroid use, and expressed willingness to resume immune checkpoint inhibitor (ICI) therapy, repeat tests confirmed ongoing response, and a rechallenge with Pembrolizumab was initiated. However, 10 minutes after drug administration, the patient experienced a grade 2 infusion reaction with gastric complaints, vomiting and shivering, leading to discontinuation of the infusion. Despite the proposal for Pembrolizumab desensitization by Immunoallergology, the patient declined to continue this therapy and has since been under clinical and imaging surveillance, showing no signs of recurrence. In May 2023, 11 months after the last cycle of immunotherapy, the patient reported severe fatigue and nonspecific malaise for 1-2 months. No new neurological symptoms were present. Suspecting hypophysitis, hormonal assessment of the hypothalamicpituitary axis was requested, which showed normal results except for decreased serum cortisol level (8h) (0.5 ug/dL) and decreased testosterone levels. A contrast-enhanced MRI revealed no significant abnormalities. The patient was started hydrocortisone 20 mg/day, resulting in significant clinical improvement, and was referred to an Endocrinology consultation, where a diagnosis of central adrenal insufficiency and central hypogonadism was made.

Discussion: In this case, numerous Pembrolizumab-associated immune-related adverse events (irAEs) are reported, with hypophysitis being a particular diagnostic challenge due to its nonspecific clinical presentation and the temporal gap between the last administration and symptom onset. Hypophysitis secondary to PD-1 inhibitors is a rare irAE, with a prevalence < 1%, requiring a high level of clinical suspicion for appropriate diagnosis and treatment. Despite discontinuing immunotherapy 1 year and 4 months ago, the patient has not experienced disease recurrence, which may be attributed to the multiple irAEs experienced, which likely induced a known mechanism of immune memory.

Keywords: *Hypophysitis. Immunotherapy. Pembrolizumab. Lung cancer.*

PC 025. BULLOUS PEMPHIGOID AS AN ADVERSE EVENT TO PEMBROLIZUMAB IN LUNG ADENOCARCINOMA: A CLINICAL CASE

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Introduction: Pembrolizumab is an immune checkpoint inhibitor that targets the programmed death cell protein-1 (PD-1) receptors in lymphocytes. In recent years, the indications for this therapy in malignant tumours, particularly in lung cancer (LC), have been increasing and, therefore, it is important to understand the various immune-mediated adverse reactions of this therapy.

Case report: Male patient, smoker, with medical history of chronic obstructive pulmonary disease, aortic aneurysm, bipolar disorder and psoriasis (controlled with topic treatment). Followed in Pulmonology Oncology Outpatient Clinic for adenocarcinoma located in the left upper lobe stage IIIA at diagnosis, PD-L1 > 50% and NGS with KRAS G12C mutation. He underwent left upper lobe lobectomy on 13/07/2022 and was proposed for adjuvant chemotherapy and radiotherapy for N2 disease that he did not initiate, since the post-op computed tomography evaluation showed disease progression with pleural metastization. Therefore, first-line therapy with Pembrolizumab 400mg 6/6 weeks was proposed with beginning on 14/10/2022. After 6 cycles of immunotherapy, the patient developed a severe skin reaction with the development of scattered tense vesicles on the limbs (more exuberant in the lower limbs). He was observed on 16/06/2023 in the emergency service (ES) and medicated with hydrocortisone and clemastine, being discharged with surveillance. He was subsequently seen by a dermatologist on 19/06/2023 who performed skin biopsies and prescribed prednisolone 60 mg/day in combination with high-potency topical cortico-

steroid therapy. The anatomopathological exam identified a subepidermal vesicle with associated inflammatory infiltrate, involving polymorphonuclear eosinophils, compatible with bullous pemphigoid. The measurement of serum autoantibodies revealed an elevated anti-BP180 antibodies, confirming the diagnosis. With the appropriate treatment, the patient showed progressive clinical improvement, but given the severity of the immune-mediated adverse reaction (irAE Grade 3), it was decided at the multidisciplinary thoracic tumour group reunion to discontinue Pembrolizumab, maintaining clinical and imaging surveillance.
Discussion: Although cutaneous adverse events of immunotherapy are relatively frequent, the majority of cases are mild events not requiring systemic treatment or immunotherapy's suspension. Presentation as bullous pemphigoid is a rare and serious complication that may require discontinuation of treatment. With the widespread use of immunotherapy in LC, it is extremely important to know the possible adverse effects of this therapy in order to act quickly and effectively. Therefore, it is extremely important that Primary Health Care and ES colleagues are aware of the wide range of possible irAEs as they are often the first to intervene when the symptomatology arises.

Keywords: *Bullous pemphigoid. Pembrolizumab. Lung cancer. Adverse reaction.*

PC 026. CANNONBALL METASTASIS – BASED ON A CLINICAL CASE

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Introduction: Sarcomas represent a heterogeneous group of mesenchymal tumors that represent less than 1% of all cancers in adults. The most frequent histological subtypes are liposarcoma (20%), followed by leiomyosarcoma (14%).
Case report: A 56 year-old male, previous inhaled drugs user and alcoholism, previous diagnosis of hepatitis C, bipolar disorder and soft tissue sarcoma of the neck that was surgically removed in January 2022 with subsequent radiotherapy, at the moment without oncological follow-up. The patient was admitted to the Internal Medicine ward in May 2023 due to anorexia, loss of weight (10 kg in 3 months), abdominal pain and bilateral low back pain. Blood test with elevation of inflammatory parameters, hyponatremia and partial respiratory failure. Chest X-ray showed multiple pulmonary opacification in a Cannonball metastases pattern, and chest CT revealed multiple bilateral pleural masses, moderate-volume bilateral pleural effusion, bilateral mediastinal and hilar lymphadenopathy, and multiple bilaterally scattered pulmonary nodules, the largest in the left lower lobe with 50 mm. A videobronchoscopy with radial EBUS was performed with the identification of a lesion in the apical segment of the left superior lobe and an endobronchial pedunculated lesion in the right superior lobe that was biopsied and whose histology revealed the presence of pulmonary metastases from synovial sarcoma. The patient was discharged home and referred to oncology at a Sarcoma Reference Center and pulmonology. The patient was readmitted within 72 hours due to clinical worsening, and eventually died without initiating targeted treatment.
Discussion: This case is characterized by the rarity of a sarcoma in an adult with an unusual histological subtype (only 5% of sarcomas are synovial) and a rare pattern of metastasis (distant metastasis of sarcomas occur in about 10% of cases, being predominantly pulmonary (> 80%). The radiological pattern of "cannonball metastasis" should also include the search for primary solid tumors, namely synovial sarcoma.

Keywords: *Synovial sarcoma. Lung metastasis.*

PC 027. MALIGNANCY SHADOW – UNTIL WHEN?

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Introduction: The majority of subsolid nodules are transient and represent benign pathology. However, when persistent, they pose a higher risk of malignancy, often manifesting as in situ adenocarcinoma or minimally invasive adenocarcinoma. Recommendations from the Fleischner Society propose that ground-glass opacities with dimensions exceeding 6 mm should be monitored by computed tomography (CT) after 6-12 months, and again at 3 and 5 years.
Case report: 79-year-old male patient, retired businessman, former smoker with a smoking history of 40 packyears. He has relevant medical history of GOLD A COPD and treated laryngeal and prostatic neoplasms. In 2017, he underwent chest CT for the evaluation of pulmonary pathology, which revealed emphysema and a small nodular parenchymal consolidation with "ground-glass" appearance in the right upper lobe (RUL) measuring 17 mm. This finding suggested a differential diagnosis of inflammatory process versus atypia. He was referred to the Pulmonology for etiological investigation. Bronchofibroscopy (BFC) with bronchial lavage was performed in August 2017, showing negative results for malignant cells. A Positron emission tomography in October showed no hypermetabolic activity. Considering the diagnostic results favoring scar tissue and the nodule's dimensions, surveillance with chest CT scans was maintained at 6 months, 2 years, and subsequently as per guidelines. These scans revealed minimal variation in dimensions (14-19 mm). In March 2023, after 6 years of follow-up, it was observed that the densification had increased in size to 25mm and presented a cavitary appearance. Further investigation included a PET/CT scan showing almost undetectable uptake (SUV max 0.97), as well as bronchoalveolar lavage that revealed positive cytology for Carcinoma, along with a cytoblock containing atypical epithelioid cells. The patient was referred to the Thoracic Surgery clinic where lobectomy was ruled out due to present comorbidities. The decision was made to proceed with Stereotactic Body Radiation Therapy (SBRT).
Discussion: Despite the unquestionable utility of following guidelines, which outline the best procedures based on the most current scientific evidence, we must consider rare exceptions like the case presented above. It was only detected in its early stages due to an over cautious approach, which will likely have a significant impact on the patient's survival.

Keywords: *Pulmonary nodule. Follow-up. Neoplasm.*

PC 028. THE INNOCENCE OF THE NEUROENDOCRINE: A CASE OF SYNCHRONOUS LUNG NEOPLASMS

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Introduction: The incidence of synchronous pulmonary neoplasms is estimated to be between 0.2-8%. The distinction between independent primary tumors or metastization of a single tumor becomes crucial, due to the implications on the correct staging, therapy and prognosis.
Case report: We present the case of a 54-year-old man, followed at Hospital de Dia de Pneumologia Oncológica, since 2019, with initial presentation of hemoptysis and weight loss. An initial chest CT-scan showed the existence of a spiculated nodule (45 mm) on the right lower lobe and homolateral hilar lymph node involvement. PET-CT was performed for staging, which showed the presence of a 22 mm spiculated nodular image in the RLL (SUVmax 3) associated with a known homolateral central mass (SUVmax 9) and hilar adenopathies (SUVmax 4). EBUS and mediastinoscopy showed no gan-

glionar involvement. The patient was started on neoadjuvant chemotherapy with cisplatin + vinorelbine and a lower bilobectomy + sleeve was performed. Histological analysis revealed acinar adenocarcinoma (PL-L1 10%; pT1bN1) in the central mass and large cell neuroendocrine carcinoma (pT2aN0) in the peripheral nodule. Mediastinal lymph node dissection confirmed no metastatic infiltration. Subsequently, adjuvant chemotherapy with carboplatin + etoposide was administered. At 9 months follow-up, it was documented the progression of disease with the appearance of left adrenal gland metastasis. The patient was submitted to adrenalectomy (R2 surgery). The histology confirmed infiltration by adenocarcinoma, rather than the neuroendocrine large cell carcinoma. Following the discussion in the multidisciplinary team meeting, 1st line palliative chemotherapy with carboplatin + pemetrexed (4 cycles) and radiotherapy in the surgical site was started. At this time, the patient developed COVID-19 with subsequent worsening of its performance status. It was decided to maintain active follow-up. At 6 months follow-up, the patient was hospitalized due to a high fever of unknown origin. A new progression of disease was confirmed with the identification of multiple hepatic secondary lesions. Some of them evolved to abcedation, particularly in the IV and VII hepatic segments, measuring from 7 to 8 cm. The patient underwent antibiotic therapy and the liver lesions were biopsied. He maintained a high-grade fever despite the antibiotics and the histology confirmed adenocarcinoma metastasis. A diagnosis of paraneoplastic hyperthermia was made. It was then decided to administer a 2nd line systemic therapy with a combination of chemo and immunotherapy (carboplatin + pemetrexed and pembrolizumab). Following its start, the fever ceased and the hepatic lesions saw a partial response. Regrettably, systemic therapy was suspended after the 4th cycle due to acute nephritis. Systemic corticotherapy saw little clinical improvement and the hepatic lesions progressed again. Pemetrexed was then reintroduced as monotherapy. The patient perished due to febrile neutropenia in the 2nd cycle of pemetrexed.

Discussion: The clinical case presented alerts to the importance, in the presence of synchronous neoplasms, of the correct initial staging of each lesion, being fundamental for the adequate follow-up of the patients. In the case of disease progression, a biopsy is imperative for histological confirmation of metastasis, because the neuroendocrine tumor is not always the most aggressive histological subtype.

Keywords: *Synchronous pulmonary neoplasms. Adenocarcinoma. Large cell neuroendocrine carcinoma.*

PC 029. PULMONARY MALT LYMPHOMA – A LITTLE-KNOWN ENTITY, WHAT SHOULD WE IMPROVE?

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Introduction: Mucosal-associated lymphoid tissue (MALT) lymphoma is the most common indolent B-cell lymphoma subtype. However, MALT lymphoma with pulmonary origin is a rare disease, representing less than 0.5% of lung neoplasms. It usually appears in the age group between fifty and sixty years old, being rare in younger ages. Most patients are asymptomatic or may have respiratory complaints such as cough and shortness of breath. Currently, its origin is still not fully understood. MALT lymphoma is thought to be related to infectious or inflammatory conditions. This relationship has already been established for the case of gastric MALT lymphoma and *Helicobacter pylori* infection. In the case of pulmonary lymphoma, there are already associations with some autoimmune diseases, namely systemic lupus erythematosus, Sjögren's Syndrome, among others.

Case report: The case presented is a 67-year-old woman who had been referred to a pulmonology consultation for recurrent respiratory infections for about two years. Its antecedents, Sjögren's Syndrome and gluten intolerance stood out. She underwent thoracic computed tomography (CT) which revealed mild bronchiectasis in the inner segment of the middle lobe bronchus, close to the right upper lobe fissure. At the endobronchial level, there were no significant alterations. CT scan one year later revealed a nodular lesion that increased in size after further reassessment and the patient was eventually proposed for transthoracic biopsy. Biopsy histology revealed it to be MALT lymphoma and the patient was referred for thoracic surgery. Pulmonary MALT lymphoma is still a rare and poorly studied entity. The case presented intends to recall an uncommon pathology and the importance of having suspicion at the time of the differential diagnosis, since establishing a diagnosis is often time consuming. In addition, the definition of the therapeutic plan is still a subject with little consensus, with the possibility of surgery, chemotherapy and radiotherapy.

Discussion: There are still very few studies that compare the different approaches. In the future, it would be interesting to compile the existing cases of MALT lymphoma in Portugal and compare the different approaches with the respective outcomes.

Keywords: *MALT. Lymphoma. Neoplasia. Sjögren.*

PC 030. SMALL CELL LUNG CANCER PRESENTING WITH PARANEOPLASTIC LIMBIC ENCEPHALITIS

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Introduction: Paraneoplastic encephalitis is a rare syndrome that results from an immune response directed against antigens that are ectopically expressed by the tumor, predominantly in the nervous system. Some of these antibodies are highly specific for the presence of neoplastic pathology, and their detection is one of the criteria for the diagnosing of a paraneoplastic syndrome. In most cases, the symptoms are acute/subacute and vary depending on the affected area. The therapeutic approach involves the use of immunosuppressive therapy; however, it should not delay the diagnosis, staging, and timely treatment of the underlying neoplastic pathology.

Case report: A 71-year-old female, a smoker (43 pack-years), without any significant past medical history, presented to the emergency department due to her first epileptic seizure. The seizure was preceded by acute confusion and frontal headache persisting for four days. Upon admission, she was in a state of stupor, with the ability to open her eyes in response to verbal stimuli, but not following commands. She also had a grade 3 left hemiparesis. There were no signs of meningeal irritation. Laboratory test showed a slight elevated C-reactive protein level (5.80 mg/dL) without other notable changes, including viral serologies. Cranial computed tomography (CT) scan performed at admission and 24h later did not show any abnormalities. A lumbar puncture (LP) was performed, revealing 46 cells/mm^3 (43/mm^3 mononuclear cells), protein levels of 34.3 mg/dL, and a glucose level of 69 mg/dL. The patient was hospitalized for further investigation, during which she experienced several generalized seizures that were difficult-to-control. The seizures were recorded by electroencephalogram and showed slow and paroxysmal generalized activity, with maximum fronto-temporal and variable lateralization. She underwent a therapeutic protocol for viral encephalitis with Acyclovir, which was discontinued due to the absence of herpesvirus in the cerebrospinal fluid. Other microbiological and cytological tests of the cerebrospinal fluid and blood cultures were negative. An autoim-

mune study was conducted on peripheral blood, which did not show any abnormalities. Additionally, a cranial magnetic resonance imaging was performed, and no other abnormalities were detected. Considering the possibility of paraneoplastic encephalitis, further blood samples were taken to study anti-neural/synaptic protein antibodies, revealing the presence of anti-SOX1 and anti-GABA1/GABA2 antibodies. Combined with the previous finding, this led to the definitive diagnosis of Limbic Paraneoplastic Encephalitis. Further investigations included a thoraco-abdominal-pelvic CT scan, which showed a lung mass in the external basal segment of the right lower lobe (3.1 × 2.1 × 4.8 cm) and mediastinal adenopathies (prevascular space, infracarinal, superior right paratracheal), as well as supraclavicular and right hilar lymph nodes. A linear endobronchial ultrasound (EBUS) with puncture of group 7 (16 mm in minor axis) was performed, and the diagnosis was consistent with Small Cell Neuroendocrine Carcinoma of the Lung. The patient initiated pulses of methylprednisolone with partial clinical improvement and is currently awaiting a PET/CT scan to complete the clinical staging process.
Discussion: Due to its rarity and complexity, paraneoplastic encephalitis remains a challenging syndrome to diagnose. Therefore, a multidisciplinary approach and a high level of clinical suspicion are essential for a proper management.

Keywords: *Paraneoplastic encephalitis. Paraneoplastic syndrome. Small cell lung cancer.*

PC 031. MALT LYMPHOMA WITH PULMONARY INVOLVEMENT

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Introduction: Primary pulmonary lymphoma is defined as a clonal lymphoid proliferation originating in the lung, without previous extrapulmonary involvement at the time of diagnosis or in the subsequent 3 months. Primary pulmonary origin is rare and MALT lymphoma is the most frequent.
Case report: We present a 73-year-old male patient, with a history of arterial hypertension, BPH and TIA in 2016. Former smoker of 50 pack-years and former construction worker. Currently medicated with acetylsalicylic acid 150 mg, dutasteride/tamsulosin 0.5 + 0.4 mg and atorvastatin 20 mg. No known drug allergies. Visited the emergency department in March 2018 with persistent cough, with about 4 weeks evolution initially dry but slightly productive in the last few days, associated with asthenia and anorexia with 2 months evolution. No fever, night sweats and weight loss. On physical examination, he had a HR of 102 bpm, was apyretic, with SpO2 on room air of 98%. Eupneic in room air. Pulmonary auscultation showed a diminished vesicular murmur in the right lower third. Analytically had leukocytes of 13,100 × 10^9/L and CRP 1.49 mg/dL. Chest X-ray showed pleural effusion on the right, and infiltration in the middle third of the right hemithorax. The CT-Chest showed extensive consolidation with air bronchogram, involving the entire right lower lobe with parenchyma hepatization and a small subpleural consolidation in the left lower lobe. The interlobular septa were thickened, associated with bilateral ground-glass densification. Bilateral adenopathies in the hilar mediastinum were also visible, the largest measuring 21 × 12 mm. Bronchoscopy showed inflammation, edema and orifices of very small caliber, insurmountable in the right lower lobe bronchus, without endobronchial lesions. The bronchoalveolar lavage (BAL) was negative for neoplastic cells. The immunohistochemical study showed an abundant accompanying T lymphoid population (positive for CD3 and CD5). Bronchial biopsies showed bronchial involvement by peripheral B-small cell lymphoma, confirmed by transthoracic biopsy, that showed lung involvement by peripheral B-lymphoma with features of marginal/MALT lymphoma. The patient was referred to Hematology consultation and started chemotherapy with R-CHOP. He was send back to the Pulmonology consultation in March 2020 because a control CT-scan found new spiculated pulmonary nodules. Another bronchoscopy didn't showed malignant alterations and a PET-CT showed an area of consolidation with heterogeneously increased uptake of FDG-F18 in the right lower lobe, without extrathoracic uptake. Given the differential diagnosis between lesions secondary to lymphoma and organizing pneumonia, it was decided to repeat the biopsy, that confirmed pulmonary involvement by marginal lymphoma/MALT. The patient restarted chemotherapy. The last CT-scan showed fibrosis lesions and traction bronchiectasis in the right lung and a large reduction in the volume of the right lower lobe.
Discussion: MALT lymphoma is a slowly evolving disease that can be asymptomatic or present respiratory or constitutional symptoms. Therapeutic options include surveillance, surgery and chemotherapy. It may be necessary to maintain surveillance for a long period of time, as almost 50% of patients have a relapse of the disease.

Keywords: *Primary pulmonary lymphoma. MALT lymphoma. B cell lymphoma.*

PC 032. MENINGIOMA WITH PULMONARY METASTASIS

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Introduction: The accidental finding of pulmonary nodules is increasingly common with the availability of complementary diagnostic tests, and their radiological characterization is essential in the diagnostic and therapeutic algorithm.
Case report: We present 64-year-old female patient with a history of arterial hypertension, depression and gastric GIST underwent gastrectomy in 2012. Exposure to wood stove smoke, domestic and farm animals, including birds. Currently farm worker and a former poultry, factory and cleaning worker. GIST followed in General Surgery consultation and oncology day hospital, under Imatinib. Currently medicated with esomeprazole 40 mg, atenolol/chlorotalidone 100 + 25 mg and alprazolam 0.25 mg. Referral to Pulmonology consultation in September 2016 due to increased size of pulmonary micronodules already known since 2011. CT-scan described multiple bilateral nodules, in the upper and lower lobes, with dimensions between 4 and 11mm, all growing compared to previous exam, probably corresponding to metastases. The largest nodule in the right upper lobe had spiculated contours, raising the hypothesis of primitive neoplasia. Patient with no history of pulmonary disease but with dry cough and sneezing crises with years of evolution, with exacerbations in the current year. She was medicated with tiotropium bromide + inhaled olodaterol hydrochloride. On physical examination she was eupneic on room air, with SpO2 95%. Pulmonary auscultation revealed bronchospasm. Analytically there wasn't increase in inflammatory parameters and Ig and SACE levels were within the normal range. Bronchoscopy without macroscopic alterations, with bronchoalveolar lavage (BAL) negative for neoplastic cells, with 5% of neutrophils, lymphocytic alveolitis with 27% of lymphocytes and a CD4/CD8 ratio of 10.8. Negative bacteriological examination. Pulmonary function test showed a severe obstructive syndrome with positive bronchodilation test (FVC: 84%; FEV1: 50%; TI: 49%; R: 0.68; VR: 185%; TLC: 120 [increase > 200 ml and 27% in VEMS]; DLCO 82%). It was placed as differential diagnoses hypersensitivity pneumonitis and probable chronic asthma/COPD, medicated accordingly. The patient refused biopsy and maintained follow-up. FDG-PET performed in August 2021 showed dimensional increase of the pulmonary nodule in the apical segment of the right upper lobe, without appreciable metabolic expression. The patient agreed with trans-

thoracic lung biopsy which revealed lung parenchyma with spindle cell proliferation, raising the diagnostic hypothesis of meningothelioid nodule or meningioma. Patient never had neurological complaints. Brain MRI identified meningioma of the high cerebral convexity with bilateral expression, predominance on the right side, with invasion of the superior longitudinal sinus. She was referred to the Neurosurgery consultation and offered surgery, which she refused, maintaining follow-up in both consultations. From a respiratory point of view she only has a slight daily cough. No symptoms or neurological deficits so far.
Discussion: Meningioma is one of the most frequent central nervous system tumors, usually benign. Pulmonary metastases are rare, and sinus venosus invasion is one of the risk factors. Survival is difficult to estimate due to the small number of reported cases, but most patients survived with the disease for more than 18 months.

Keywords: *Meningioma. Multiple pulmonary metastases. Pulmonary nodule.*

PC 033. INTRALOBAR SEQUESTRATION CONCEALED AS PRIMARY LUNG CANCER: A CASE REPORT

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Introduction: Pulmonary sequestration is a rare congenital anomaly of the lower airways, occasionally associated with recurrent infections. It is characterized by the presence of pulmonary tissue supplied by systemic arterial circulation, without tracheobronchial communication. The imaging presentation varies, with the identification of a heterogeneous or homogeneous solid lesion being more common. Here, we present a clinical case of a probable primary pulmonary neoplasia, which was confirmed through anatomopathological studies to be an intralobar sequestration.
Case report: A 67-year-old man, capable of performing activities of daily living, and a smoker with a smoking history of 50 pack-years, had a medical history of chronic obstructive pulmonary disease (COPD) with pulmonary emphysema, familial adenomatous polyposis, hypertension, dyslipidemia, peripheral arterial disease, and a previous diagnosis of oral cavity carcinoma treated with radiotherapy and chemotherapy in 2012 with complete remission. Clinically, he denied any respiratory or constitutional symptoms and had an unremarkable physical examination. As part of the COPD study, a thoracic CT scan revealed predominantly apical centrilobular emphysema and a 7 mm spiculated nodule in the right upper lobe. The PET-CT 18F-FDG scan showed slightly increased FDG-F18 uptake (maximum SUV of 1.7) in the nodule. Bronchofibroscopy showed no significant macroscopic changes, and cytology of bronchial aspirate did not reveal any neoplastic cells. An endobronchial ultrasound (EBUS) was performed, showing no evidence of nodal involvement in the neoplastic disease. A transthoracic biopsy was not performed due to the inaccessibility of the lesion. In a multidisciplinary discussion, given the high suspicion of early-stage primary neoplasia and the patient's moderate to high surgical risk, it was proposed and accepted to perform a uniportal video-assisted thoracic surgery with subsegmentectomy (UniVATS)of the right upper lobe and lymphadenectomy, which was completed without complications. The anatomopathological study of the surgical specimen was compatible with an intralobar pulmonary sequestration. The patient continues to be followed up in an outpatient setting. During the postoperative period, there was functional deterioration and reduced exercise tolerance. Follow-up radiological evaluation revealed distortion of the architecture of the right upper lobe. Currently, the patient is undergoing a respiratory rehabilitation program.
Discussion: Intralobar pulmonary sequestration is associated with recurrent infections. In the presented clinical case, there were no respiratory symptoms, and the diagnosis was incidental. The therapeutic decision in cases of suspected pulmonary neoplastic disease is challenging, making a multidisciplinary discussion essential.

Keywords: *Intralobar pulmonary sequestration. Rare diseases.*

PC 034. NEW THERAPIES, NEW COMPLICATIONS

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Introduction: Sarcoidosis is a granulomatous disease of unknown etiology. However, it is known to be a systemic pathology, and despite its initial description being related to patients with cutaneous lesions, thoracic involvement accounts for approximately 90% of cases. Nivolumab is a monoclonal antibody that stimulates cytotoxic T-cell response, leading to the subsequent elimination of tumor cells. While it has significant applicability against solid neoplasms such as lung and skin, it can also trigger immune intolerance and immune-related adverse reactions that are novel and specific to this type of treatment. Abnormal activation of T cells can result in inflammation of various organs, with the skin, intestines, and lungs being the most commonly affected.
Case report: A 47-year-old female patient with a history of controlled asthma since 2007, managed with Fluticasone/Salmeterol and Montelukast, was followed up in medical oncology for melanoma (T4N1M0). She was recommended adjuvant therapy with Nivolumab following surgical resection. Two days after starting treatment, she developed erythematous and pruritic macules on arms, legs, and face, with progressive aggravation, but improvement occurred after the introduction of a second antihistamine. During a routine CT scan at 2 months of treatment, suspicious mediastinal lymph nodes were detected, and a PET scan, 4 months after starting treatment, showed moderate 18F-FDG metabolism in bilateral hilar and subcarinal lymph nodes. Analytically, she presented with elevated PCR and ESR, and normal ACE, renal function, electrolyte levels, and liver function. The patient remained asymptomatic from a respiratory standpoint, with normal pulmonary function tests. However, there was dimensional progression of the lymph nodes, without changes in the lung parenchyma. Immunology studies and EBUS-TBNA were performed, revealing clusters of lymph nodes adjacent to station 7 with heterogeneous content, apparent hilar center, and blood vessels inside, with regular contours. Cytology of the lymph nodes showed cells from the lymph node itself without evidence of malignancy. In the bronchoalveolar lavage (BAL), there was lymphocytosis (70%) and a CD4/CD8 ratio of 3.24, with negative cytology for neoplastic cells and absence of microbiological isolates. Secondary lesions were ruled out, and a diagnosis of sarcoid-like reaction, likely related to Nivolumab, was assumed. Considering the absence of respiratory symptoms and the imminent completion of Nivolumab treatment, it was decided to continue the medication. The first re-evaluation CT scan, one month after the completion of adjuvant treatment, showed dimensional reduction of mediastinal and hilar lymph nodes. However, due to persistent cutaneous lesions, a biopsy was performed, and the histology was suggestive of sarcoidosis.
Discussion: Sarcoid-like granulomas and lymphocytosis in BAL have been described as consequences of exposure to Nivolumab, and this case highlights the importance of vigilant and careful monitoring during immunotherapy. Although it presents as an asymptomatic form diagnosed through a study of associated disease, which suggests a favorable prognosis, the side effects of Nivolumab should be promptly identified and managed to ensure the best quality of life and outcomes for patients. This case serves as a warning of the need to conduct further studies to deepen our

understanding of the relationship between immunotherapy and the development of sarcoidosis.

Keywords: *Sarcoidosis. Lung cancer. Nivolumab. Surveillance.*

PC 035. IMMUNE-RELATED ADVERSE EFFECTS IN LUNG CANCER: NIVOLUMAB AND PANCOLITIS

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Introduction: Nivolumab is an antibody that stimulates the programmed cell death protein 1 (PD-1) pathway. It is used in non-small cell lung cancer, and is currently recommended in neoadjuvant therapy associated with chemotherapy in early stages. Immune-related adverse effects (IRAEs) associated with nivolumab are various and multiorganic, with diarrhea being a frequent symptom (29% to 37%), but rare (< 5%) in more advanced grades (CTCAE grades 3 or 4). It usually appears 5 to 10 weeks after starting therapy. Some potentially fatal complications include intestinal perforation, ischemia, necrosis and toxic megacolon.
Case report: Male, 69 years old, former smoker (196 Pack-Year Units), with stage IIIA squamous cell lung carcinoma (T4N1M0), under neoadjuvant treatment with nivolumab, paclitaxel and carboplatin after decision in a multidisciplinary meeting. A few days after the first cycle (C1) of treatment, he started having episodes of diarrhea with blood and mucous with more than 8 liquid dejections/day (CTCAE grade 3), refractory to symptomatic medical treatment at home and need for evaluation in the Emergency Department due to weight loss and marked asthenia. Urgent colonoscopy revealed effacement of the vascular network throughout the colon, with edema, microerosions, friability and a whitish induct, suggestive of pancolitis which, given the clinical context, was assumed to be secondary to nivolumab. He was medicated with oral corticosteroid therapy, with subsequent weaning, with symptomatic improvement.
Discussion: Knowledge of the toxicities associated with PD-1/PD-L1 axis blockade, as well as their management algorithms, is essential for optimizing the efficacy and clinical safety of immunotherapy. In this particular case, contrary to what is described in the literature, toxicity occurred soon after the first cycle and implied a change in the therapeutic strategy.

Keywords: *Pancolitis. Lung cancer. Nivolumab. Immune-related adverse effects.*

PC 036. MILLIMETRIC TUMOR BEHIND EMPHYSEMATOUS BULLAE

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Introduction: Tumorlets are defined as hyperplasia of neuroendocrine cells smaller than 5mm and absence of mitotic activity and necrosis and are almost always associated with underlying lung disease, namely bronchiectasis, fibrosis, or other chronic inflammatory processes. It is believed that they arise as an adaptive response to hypoxia or fibrosis, or that neuroendocrine cells are involved in the genesis of various lung diseases. It is a rare pathology that typically affects middle-aged women and can be found in patients with multiple endocrine neoplasia type 1.
Case report: We present a 36-year-old man, smoker, with a personal history of vocal cord polyp, who underwent a suspension microlaryngoscopy. He was referred by his attending physician for occasional wheezing and scanty mucous sputum for the past 3 months. No other symptoms or changes on physical examination. Due to changes in the chest radiography, a chest computed tomography (CT) was performed, which revealed paraseptal emphysema in the middle lobe, the largest bubble measuring 74 mm, consolidation in the medial segment of the middle lobe, and micronodular infiltrate with tree-in-bud distribution in the middle lobe and left lung base. Lab studies and respiratory functional tests were normal. A flexible bronchoscopy was performed that demonstrated purulent secretions dispersed throughout the right bronchial tree, with isolation of *Streptococcus pneumoniae* and *Haemophilus influenzae* in bronchial aspirates and inflammatory cytology (negative for malignant cells). The patient was prescribed antibiotics, followed by a chest CT that revealed resolution of the micronodular infiltrate and was observed in a Thoracic Surgery appointment. He was submitted to middle lobe bullectomy by uniportal VATS and the histological analysis of the surgical specimen revealed subpleural bulla, follicular bronchiolitis lesions, and 0.9 mm tumorlet (positive synaptophysin and chromogranin). Clinical and radiological improvement was verified, with bronchiectasis in the middle and lower lobes shown in the control CT scans.
Discussion: DIPNECH (diffuse idiopathic pulmonary neuroendocrine cell hyperplasia), tumorlets, and carcinoid tumors are neuroendocrine tumors with several common features. While DIPNECH is characterized by several small nodules constituted by the proliferation of pulmonary neuroendocrine cells in the bronchial epithelium, tumorlets, and typical carcinoid tumors can extend beyond the basement membrane, reaching the peribronchial tissue (and are distinguished only by their size). Usually, tumorlets do not cause symptoms and are incidental findings in autopsies or surgical specimens due to interventions performed for other reasons. The majority are benign incidental findings, in which surgical resection is curative, and has a good prognosis.

Keywords: *Tumorlet. Emphysema.*

PC 037. RADIATION PNEUMONITIS IN A PATIENT WITH SMALL-CELL LUNG CARCINOMA – CORTICOIDS WHY I WANT YOU?

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Introduction: Radiotherapy is an important tool in the treatment of lung cancer, both in early stages and as a palliative strategy. However, thoracic irradiation carries potential complications such as Radiation-Induced Lung Injury (RILI), which includes Radiation Pneumonitis (RP) and Radiation Fibrosis. RP is classified into 5 grades of severity, with systemic high-dose corticosteroid therapy becoming the basis of treatment from the 3rd grade onwards.
Case report: Women, 72 year old, PS ECOG 1, with stage IV small cell lung carcinoma due to cerebral metastasis, is undergoing 3rd-line chemotherapy with Topotecan. She was treated with holo-cranial and thoracic radiotherapy due to superior vena cava syndrome. About 10 days after completing radiotherapy, she developed complaints of dysphagia, anorexia, and fever, likely due to radiation esophagitis. After a few days of persistent fever and worsening general condition, she was found to have pancytopenia and febrile neutropenia (MASCC score 10 points) requiring hospitalization. Treatment was initiated with piperacillin-tazobactam and itraconazole for 3 days, followed by a switch to meropenem and voriconazole, along with acyclovir due to clinical deterioration with hypotension and persistent fever. Septic workup yielded negative results. Filgrastim was administered, leading to clinical improvement and improvement of cytopenias, but the fever only subsided after starting naproxen. On the 10th day of hospitalization, she experienced a

new exacerbation with dyspnea on minimal exertion, cough, and prostration, being bedbound. Auscultation of the lungs revealed new diffuse bilateral crackles and severe respiratory failure necessitating oxygen therapy by high concentration mask. A thoracoabdominal CT scan showed extensive areas with groundglass opacities and bilateral reticular pattern. Considering her clinical history, a diagnosis of Grade 3 Radiation Pneumonitis was considered, and treatment with methylprednisolone 2 mg/kg/day and inhaled budesonide/formoterol was initiated. Despite these measures, the patient's condition continued to worsen, and it was decided to administer methylprednisolone pulses of 500 mg for 3 days as a lifesaving intervention, followed by a maintenance dose of methylprednisolone at 4 mg/kg/day. The patient also began high-flow oxygen therapy at 100% FiO2 with a flow rate of 60 L/min. She showed slow but progressive improvement of dyspnea, cough, and overall condition, tolerating a gradual reduction in FiO2 and tapering of corticosteroid therapy. A follow-up chest CT after 23 days showed a significant reduction in ground-glass opacities, but a diffuse reticular pattern persisted with some areas honeycombing like. After 43 days of hospitalization, she was discharged home, able to sit and walk with support, on oxygen therapy at 3L/min via nasal cannula, and on oral prednisolone at a dose of 40 mg/day. She is currently under follow-up in the Pulmonology clinic.
Discussion: The diagnosis of RP is an exclusion diagnosis based on clinical and radiological findings and a history of radiation therapy. Systemic corticosteroid therapy is the recommended treatment for severe RP, but due to the severity of this case, it was necessary to initiate corticosteroid pulses to recover this patient, who, despite all the complications, regained her quality of life.

Keywords: *Radiation pneumonitis. Radiotherapy. Corticosteroid therapy.*

PC 038. SUPERIOR VENA CAVA SYNDROME: TWO CASE REPORTS

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Introduction: Superior Vena Cava Syndrome (SVCS) is a set of signs and symptoms resulting from extrinsic compression and/or intravascular obstruction of the superior vena cava (SVC). Malignant obstruction is the most frequent (60-80%) and may occur due to thrombosis, direct invasion of the SVC or extrinsic compression by tumor, lymph nodes or other mediastinal structures. About 95% of malignant causes are due to lung cancer (Non-Small Cell Carcinoma in 50%, Small Cell Carcinoma in 25-30%) and lymphoma (Non-Hodgkin Lymphoma in 10-15%). Benign causes may be related to placement of intravenous devices (20-40%), benign tumors or mediastinal fibrosis. On objective examination, edema of the face, neck and/or upper limb may be seen, with obvious collateral circulation and facial plethora. Symptoms may be mild to life-threatening, the most frequent being head and neck fullness, lipothymia, headache, as well as dyspnea, dysphagia and dysphonia when there is invasion of adjacent structures. Less frequently, there may be hemodynamic instability, confusion or stridor requiring emergent intervention. We present two clinical cases of SVCS in the initial diagnosis of lung cancer.
Case reports: Case 1) Male, 54 years old, smoker, miner for 18 years. He went to the emergency department (ED) with a cough with hemoptoic sputum, weight loss and headache that worsened in the decubitus position. Objective examination revealed an increase in cervical circumference with erythema and venous engorgement. Chest CT revealed an 8.5 cm mass in the upper segment of the left lower lobe, multiple nodular lesions bilaterally and voluminous mediastinal adenomegaly, leading to a reduction in SVC caliber. Bronchofibroscopy revealed no direct or indirect endoscopic signs of neoplasia. However, with a positive bronchial lavage for neoplastic cells and transthoracic biopsy of the anterior mediastinal conglomerate, it was possible to establish the diagnosis of poorly differentiated non-small cell lung carcinoma, PDL-1 negative. Decompressive radiotherapy was initiated, with little evidence of benefit given the progressive functional decline and infectious intercurrence, which led to the death of the patient during hospitalization. Case 2) Male, 54 years old, smoker, former construction worker and painter. He came to the ER with edema and erythema of the neck, which had been progressing for one week, associated with dysphagia for liquids for two months. Chest and neck CT revealed a large upper mediastinal mass, measuring 6 × 8 cm, with marked reduction in SVC caliber and cervical lymph node hypertrophy. Given the differential diagnosis with lymphoma and accessibility for diagnosis, he underwent surgical biopsy of the mediastinal mass with histology compatible with small cell carcinoma. Given the diagnosis, dexamethasone and chemotherapy were started with significant symptomatic improvement.
Discussion: With these cases, the authors pretend to highlight the importance of the initial presentation of lung cancer as SVCS, corroborating the data in the current literature. It is important to note that this is a syndrome whose presentation may be an oncologic emergency requiring urgent corticotherapy and/or radiotherapy. However, the immediate initiation of decompressive therapy should be an individualized decision based on the presence of alarm symptoms, as it may compromise diagnostic assessment.

Keywords: *Superior vena cava syndrome. Non-small cell lung carcinoma. Small cell lung carcinoma. Mediastinal adenopathy.*

PC 039. CARCINOID HEART, THE KEY TO AN UNUSUAL DIAGNOSIS

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Introduction: Lung carcinoid tumors are rare malignant neoplasms representing 1-2% of all lung tumors. About 20 to 30% of patients have disseminated disease at diagnosis, presenting with carcinoid syndrome and, of these, about half have carcinoid heart disease.
Case report: Male, 79 years old, active smoker, without previous known diseases. He went to the emergency department due to shortness of breath and tiredness on minor exertion (mMRC 3), productive cough, starting 1 month ago. The physical examination showed facial flushing, decreased breath sounds in the lower one third of both lung fields, wheezes, and basal crackles. Arterial blood gas analysis showed type 1 respiratory failure and chest radiograph revealed opacification of the lower one third of both lung fields, with obliteration of the costophrenic sinuses, suggesting bilateral pleural effusion. The patient was admitted with suspicion of respiratory infection and therefore started empirical antibiotic regimen with amoxicillin/clavulanate and azithromycin. Three weeks later, during the hospital admission, he noticed a clinical worsening of dyspnea for progressively minor efforts (mMRC 4), increase in the abdominal perimeter and edema of the lower limbs. Exams were carried out detecting a progressive increase in NT-proBNP (up to 4,300 pg/mL); low-voltage QRS complexes on the EKG and a transthoracic echocardiogram demonstrating dilated right cavities and left atrium, with decreased overall RV systolic function, mild to moderate tricuspid regurgitation, with an estimated pulmonary artery systolic pressure (ePASP) of about 82 mmHg and a very slight pericardial effusion, predominantly posterior. Considering the hypothesis of carcinoid syndrome, as a presentation of a disseminated

carcinoid tumor, a thoracoabdominopelvic CT was performed, which revealed a mass in the right lower lobe, with approximately 50 mm in the longest axis; mediastinal and hilar adenopathy and numerous hepatic nodules, that capture contrast. For complementary study was performed: bronchoscopy, with histology of the biopsies carried out compatible with a typical lung carcinoid tumor, expressing chromogranin and Ki67 (about 1%); measurement of serum chromogranin A and urinary 5hydroxyindoleacetic acid (5-HIAA), both high; PET-CT with gallium 68 and brain CT. PET-CT showed a malignant tumor lesion with overexpression of somatostatin receptors in the right lower lobe (Q.SUVmax = 12.3), with mediastinal-hilar lymph node metastasis (Q.SUVmax = 11.7), liver (formation in the segment VIII, with greater peripheral uptake (Q.SUVmax = 15.2) and disseminated bone metastasis (Q.SUVmax = 19.3 in the body of C2). He was then proposed for therapy with octreotide in 4 to 4 weeks schedule, which he maintained until now, on an outpatient basis. Despite significant clinical and symptomatic improvement, it showed evidence of radiological progression after 4 treatment cycles.
Discussion: The diagnosis of carcinoid syndrome and associated heart disease remains challenging. The approach should integrate a biochemical screening, an imaging exam of the primary carcinoid tumor and an echocardiogram, in order to speed up the diagnosis, treatment and prevent potential complications induced by vasoactive substances in circulation.

Keywords: *Carcinoid syndrome. Carcinoid heart disease. 5-hydroxyindoleacetic acid.*

PC 040. REVIEW AND RETHINK – DIFFERENTIAL DIAGNOSIS OF A PULMONARY NODULE

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Introduction: The differential diagnosis of a pulmonary nodule is challenging, with invasive techniques representing an important resource for a definitive diagnosis. With effect, Multidisciplinary decision-making is essential, as well as clinical and radiological re-evaluation.
Case report: This present clinical case is a 72 year-old woman, non-smoker, with late-onset asthma and diffuse pulmonary nodules and micronodules (the largest 10 mm in the lower left lobe (LLL)). She was previously followed in a Pulmonology outpatient consult, and had since abandoned follow-up due to being asymptomatic. Admitted multiple times in the emergency department (ED) on 09/2020 for wrist and knee inflammatory-rhythm arthralgias, generalized myalgia, dyspnea, non-measured fever and left pleuritic chest pain; physical examination was normal. After failed antibiotic therapy with amoxycillin-clavulanic acid and readmission to the ED, chest computed tomography (CT) revealed diffuse subsolid pulmonary nodules with random distribution, a solid nodule in LLL (17 mm) and left suprarenal nodule (22 mm). She was admitted for further study and antibiotic therapy with trimethoprim-sulfamethoxazole and azithromycin. She was submitted to videobronchoscopy with positive PCR for DNA Mycobacterium tuberculosis, and lung biopsy revealing CK7 and TTF1 expression, suggestive of lepidic lung adenocarcinoma; there were no signs of secondary lesions in abdominopelvic and cranial-CT. Autoimmune laboratory study showed sedimentation rate of 119 mm and antinuclear antibodies 1/640 (speckled pattern), interpreted as cross-reaction due to tuberculosis/neoplasia. After starting antitubercular quadruple therapy, the patient was discharged and referred to the Tuberculosis Center (Centro de Diagnóstico Pneumológico) and Oncology-specialized Pulmonology consult. In Pulmonology outpatient consult, anatomopathology review of the lung biopsy fragment was requested, revealing CD34+ cellular proliferation compatible with the diagnosis of Epithelioid Hemangioendothelioma. Positron emission tomography (PET/CT) showed variable abnormal metabolism in the pulmonary micronodules of undetermined origin, intrathoracic adenopathies with low metabolism and left suprarenal gland with a high metabolism focus; chest-CT reevaluation showed indolent growth of the LLL nodule (23 mm), as well as increased solid-component in right upper lobe (22 mm) and median lobe (18 mm) subsolid nodules. Lung biopsy was proposed after discussing the case in a Multidisciplinary Team, which the patient refused.
Discussion: Epithelioid Hemangioendothelioma is a rare vascular tumor, mainly of pulmonary origin; its most common presentation is multiple bilateral pulmonary nodules. The present clinical case highlights the challenge of simultaneous neoplastic and infectious diagnosis, as well as the importance of clinical, radiological and anatomopathology review in a Multidisciplinary Team.

Keywords: *Epithelioid hemangioendotelioma. Lung cancer. Pulmonary nodule.*

PC 041. ONE OR TWO TUMORS? A CASE OF TRANSFORMATION OF EGFR-MUTATED ADENOCARCINOMA INTO SQUAMOUS CELL CARCINOMA

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Introduction: Tyrosine kinase inhibitors (TKIs) revolutionized the treatment of patients with EGFR-mutated non-small cell lung cancer (NSCLC). However, nearly all patients on TKIs will develop resistance to them, with histological transformation being one of the known resistance mechanisms (15% of patients with progression). Histological transformation to small cell carcinoma is the most frequent one, however, transformation to squamous cell carcinoma (SCC) is also referenced in the literature. We present the case of a patient with adenocarcinoma (ADC) stage IV EGFR+ with transformation to SCC after prolonged therapy with TKIs.
Case report: Female 45 years old, PS 0, former smoker (10 pack-years) diagnosed with lung ADC in 2017, stage IVA (T3N2M1a) due to pleural metastatic involvement. EGFR exon 19 deletion was identified, so erlotinib and bevacizumab were initiated. She completed 40 cycles up until 2020, when there was disease progression in the lung. She underwent a surgical biopsy which identified EGFR Thr790Met mutation of exon 20 (a liquid biopsy had been previously performed but it was negative for this mutation). Therapy was switched to osimertinib, which she continued for 34 cycles. Due to oligoprogression (lung and bone) in June 2022, she was also submitted to radiotherapy for the lesions in the lung, sternum and D6, maintaining osimertinib. In November 2022, there was new disease progression in the lung, kidney and bone (lumbar spine) and she was started on a new therapeutic line with carboplatin and pemetrexed. Due to progression after 3 cycles, a new biopsy and simultaneous switch to docetaxel and nintedanib were proposed. After 2 cycles, the transthoracic needle biopsy result was obtained, which identified SCC. NGS (next-generation sequencing) was requested for clarification (histological transformation vs. new primary tumour), which revealed EGFR exon 19 mutation and Thr790Met mutation in exon 20, concluding that it was a histological transformation to SCC. Thus far the patient is still on docetaxel, with documented partial response.
Discussion: There are several resistance mechanisms that occur in patients with EGFR-mutated NSCLC under TKIs. Thus, it is essential to repeat biopsies to identify them, allowing targeting and personalizing therapy. Due to its rarity, there is no defined therapeutic scheme, and a platinum doublet is suggested. Overall survival (OS) is difficult to estimate due to the scarcity of cases, however,

Meador C. et al. identified OS of 13.5 months after diagnosis of this transformation.

Keywords: *Adenocarcinoma. Squamous cell carcinoma. EGFR.*

PC 042. PNEUMONIA DUE TO SALMONELLA ENTERICA – PRESENTATION OF A RARE CASE

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Introduction: Infections due to non typhoid *Salmonella* are still an important global public health concern. The most common clinical presentations of salmonellosis are gastroenteritis, bacteriemia, and focal infections, such as septic arthritis, osteomyelitis, cholecystitis, endocarditis, meningitis, and pneumonia. Since Salmonella is an intracellular pathogen, patients with impaired cell-mediated immunity present an increased risk for developing salmonellosis, particularly patients with HIV infection, diabetes mellitus, patients under prolonged systemic corticosteroid therapy, alcohol abuse, some types of malignancies (such as leukemias and lymphomas) and some types of chemotherapy.
Case report: The authors present the case of a 66-year-old female, Caucasian, partially dependent on the activities of daily living, a current smoker (100 pack-years), with previous diagnoses of chronic obstructive pulmonary disease (COPD) GOLD 1B, centrilobular pulmonary emphysema and bronchiectasis, diabetes mellitus, arterial hypertension, dyslipidemia, osteoporosis, and former ethanolic habits (abstinent for more than 10 years and without liver cirrhosis). The patient was admitted to the hospital for further investigation of fever and diarrhea, followed by constipation, associated with dyspnea and productive cough. She had a fall in her home, resulting in left thoracic trauma with rib fractures and pulmonary contusion. Laboratory tests revealed increased acute phase reactants (CRP 39.8 mg/dL and procalcitonin 17.9 ng/mL) and acute kidney failure (creatinine 1.47 mg/dL). On imaging, there was a pulmonary consolidation on the left lower lobe, and a diagnosis of community-acquired pneumonia and diarrhea with acute kidney failure was admitted. The patient was medicated with amoxicillin/clavulanate and azithromycin and fluids. A chest CT was performed on the 4th day of admission, showing a progression of the parenchymal consolidations and thickening of the bronchial walls in the upper and lower lobes, presenting a nodular morphology, with progressive segmental and subsegmental consolidations and a small volume bilateral pleural effusion. There was an isolation of Salmonella enterica subsp. enterica serovar Brikama on blood cultures, without resistance to antimicrobials, and the antibiotic therapy was changed to cotrimoxazole, which the patient completed for 14 days during the hospital admission. All additional microbiological tests were negative. The patient had a hypercapnic respiratory failure and needed supplemental oxygen with FiO2 40% through a Venturi mask but presented progressive improvement with antibiotics, respiratory rehabilitation, and bronchodilators. She was discharged home on the 18th day of admission, clinically improved, and without respiratory failure. When further asked, she said she had eaten 1 kg of plums previously to the current episode. She denied consumption of uncooked eggs or untreated water. No other relevant epidemiological context was identified.
Discussion: Bacteremia occurs in about 5% of the cases of gastrointestinal disease due to non typhoid *Salmonella* and is associated with an increased risk of focal infection, such as pneumonia. The presence of previous pulmonary disease causes an increased risk of pulmonary involvement. Treatment includes at least two weeks of oral or parenteral antibiotics. Pneumonia due to Salmonella is a rare entity and is associated with increased mortality in patients aged 60 years or more and in cases of malignancy and immunosuppression.

Keywords: Salmonella enterica *subsp. Enterica serovar brikama. Salmonellosis. Pneumonia. Bacteremia.*

PC 043. PERCUTANEOUS DRAINAGE OF LUNG ABSCESS, A GOOD ALLY IN THE FIRST APPROACH?

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Introduction: Lung abscess is an infection of the lung parenchyma with associated necrosis. It can be classified as acute or chronic. The development of infection can occur through several routes, the most common being the aspiration of oropharyngeal contents. First-line treatment is broad-spectrum antibiotics. In cases where there is poor clinical evolution, the use of complementary measures is indicated, namely endobronchial drainage, surgery or percutaneous drainage.
Case reports: The cases presented represent an exception due to the therapeutic approach. The first case is a 51-year-old man, diabetic with alcoholic habits, who went to the emergency room due to fever, weight loss and chest pain. Thoracic teleradiography (X-ray) showed loculated effusion, and he underwent drainage and antibiotic therapy for a long period, with initial improvement. Subsequently, he presented a new clinical worsening with increased productive cough. The X-ray two months after the acute episode was compatible with a lung abscess, confirmed by computed tomography (CT). Broad-spectrum antibiotic therapy was started, with little response, so he underwent percutaneous drainage of the abscess with aspiration of purulent content. He showed marked radiological and clinical improvement in the subsequent days. The second case is a 64-year-old man, autonomous, with no relevant personal history, who resorted to the emergency room due to generalized malaise, fever and productive cough with mucopurulent sputum. He also mentioned weight loss, around 9 kg in 2 months. The X-ray revealed opacity at the left base and the CT was suggestive of a lung abscess. Broad-spectrum antibiotic therapy was started, however, given the size of the abscess, percutaneous drainage of the abscess was performed, with aspiration of purulent content. The patient showed abrupt clinical and radiological improvement, and was discharged a few days later, with continued antibiotic therapy. Currently, broad-spectrum antibiotic therapy continues to be recommended as the first line, however it is known that the success rate of this method alone is limited, especially in cases of large abscesses or more chronic disease. The cases presented represent the evolution in the paradigm in the approach of lung abscesses, both submitted to percutaneous drainage, without complications. The first case demonstrates the failure of conventional treatment with antibiotics in a long-standing abscess, which required 27 days of hospitalization. The second case represents an innovation in the approach, in which it was decided to perform percutaneous drainage at an earlier stage and which culminated in a very favorable clinical evolution in the short term, with discharge 9 days after drainage.
Discussion: These examples are intended to illustrate the already known safety in what is a more interventional approach, and when performed at an earlier stage of the condition, it may result in faster clinical improvement, with less hospitalization time and possibly a reduction in the duration of antibiotic therapy.

Keywords: *Lung abscess. Percutaneous drainage. Antibiotic therapy.*

PC 044. INVASIVE PNEUMOCOCCAL DISEASE AND PREVENTION – HOW MUCH ARE WE FAILING?

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Introduction: Invasive pneumococcal disease (IPD) is caused by Streptococcus pneumoniae bacteria and is a serious disease. It is

responsible for a large percentage of deaths worldwide. This disease can be prevented with vaccination. In Portugal, the vaccine has been recommended for risk groups since 2015, with some updates since then. There are currently several types of vaccines available. Currently, the national health authority (DGS) recommends vaccination for risk groups. Although vaccination is indicated for various pathologies, this is only reimbursed for a part of these.
Objectives: The objective of our work was to identify the number of cases of invasive pneumococcal disease with respiratory origin that occurred in the Portimão hospital in a period of 5 years (from 2017 to 2022) and to correlate it with the vaccination status of the patients.
Methods: A survey of patients diagnosed with pneumococcal pneumonia was carried out. Vaccination status was obtained using the RSE tool of Sclínico. Invasive disease was considered when the blood culture was positive or the patient developed sepsis in the context of pneumococcal infection. A total of 74 patients were included. Of these, 50% (n = 37) developed invasive pneumococcal disease and about 5 of them died during the course of this infection. The vaccination status was only possible to obtain in about 64.9% (n = 24) of patients with invasive disease. In this group, only one person had been vaccinated and it was a child. In the remaining, only 5 patients were vaccinated after IPD, which means that around 79.1% (n = 19) of patients remained without vaccine, despite a previous episode of IPD.
Results: According to the guidelines of the DGS and taking into account the comorbidities, pneumococal vaccine would be indicated in about 66.7% (n = 16) of the patients. If we consider other comorbidities considered by the Center for Disease Control and Prevention (CDC) recommendations for pneumococcal vaccination, namely alcoholism and smoking, this value would rise to 87.5% (n = 21).
Conclusions: This work aims to demonstrate the still existing vaccination shortage and the importance of greater economic and educational investment in this area. We also intend to remind the active role that the medical team should assume at the time of hospital discharge by prescribing the vaccine as part of the plan for the patient. In addition, we intend to draw attention to the need to expand the recommended vaccination groups, since alcoholism and smoking were two comorbidities with great prominence in this analysis and that, despite being already contemplated by the CDC, are not yet by the DGS.

Keywords: *Invasive pneumococcal disease. Vaccination. Streptococcus. Prevention.*

PC 045. IS CUBEDX AN INNOVATION IN THE IDENTIFICATION OF MICROORGANISMS IN BRONCHOALVEOLAR LAVAGE (BAL)?

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Introduction: Lower respiratory tract infections (LRTIs) are extremely common and associated with high morbidity and mortality, particularly in immunocompromised patients. Conventional microbiological diagnostic methods, such as quantitative culture (104 CFU/mL), remain the gold standard for the etiological study of LRTIs in bronchoalveolar lavage (BAL) samples. However, culture-based methods have some limitations, including the time required for laboratory results and the potential for contamination with commensal flora from the upper respiratory tract. Cube Dx (Cube Dx GmbH) is a molecular diagnostic method based on compact sequencing using a cylindrical multiplex microarray technology (hybcell) and a fully automated device (hyborg). It allows the identification of a broad panel of bacteria and yeast-like fungi in BAL samples without the need for prior extraction, providing results in about 2 hours. The objective of this study was to evaluate the analytical performance of Cube Dx in microbial identification in BAL samples.
Methods: This was a prospective single-center study conducted at a university hospital in the northern region of Portugal from August 2022 to March 2023. The inclusion criteria were adult patients undergoing bronchoscopy with at least one of the following: changes in bronchial productivity, analytical changes consistent with respiratory infection, and/or suggestive imaging changes of infection and/or bronchiectasis on chest CT. Duplicate BAL samples were collected and processed in parallel for both conventional microbiological diagnosis and Cube Dx. Cube Dx's analytical performance was calculated compared to conventional microbiological diagnosis.
Results: A total of 36 patients were included, but 3 of these samples were not processed due to equipment error with CubeDx, and one sample was repeated. Therefore, 32 samples from 32 patients were analyzed, 19 (59.4%) of whom were female, with a mean age of 63 (± 12.8) years. Ten patients (31.3%) had undergone antibiotic therapy in the previous 3 months, and 19 (59.4%) were on antibiotic therapy at the time of BAL. Regarding bacteriological results, there was complete agreement in 23 (71.8%) patients, partial agreement in 1 (3.2%) patient, and discordance in 8 (23%) patients. The microorganism was not included in the expected identification panel in one patient. This resulted in a sensitivity of 53.8% and specificity of 89.5% (p = 0.007), with a positive predictive value of 77.8% and negative predictive value of 73.9%. Regarding the identification of fungi in BAL, there was agreement in results in only 20 samples, all of which were negative, resulting in a specificity of 83% and a negative predictive value of 71.4%, but a sensitivity and positive predictive value of 0% (p = 0.217). No statistically significant differences were observed in the microbiological identification between CubeDx and conventional methods in patients with bronchiectasis.
Conclusions: This study suggests that Cube Dx appears to be more effective in excluding LRTIs, which may be useful in clinical situations requiring a rapid response for therapeutic guidance. However, further studies with a larger number of samples are needed to validate this new diagnostic tool.

Keywords: *Bronchoalveolar lavage. Microbiology. Bronchoscopy. Lower respiratory tract.*

PC 046. FIVE-YEAR TREND OF NONTUBERCULOUS MYCOBACTERIA IN THE NORTH REFERENCE CENTER IN PORTUGAL

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Introduction: Non-tuberculous mycobacteria (NTM) are opportunistic human pathogens found in the environment. The true clinical impact of NTM infections is difficult to determine due to challenges in discriminating between disease and colonization, as they are ubiquitous in the environment. Another problematic issue of NTM disease is that it is not a notifiable disease, which hampers a proper determination of its incidence and prevalence. As such, the real burden of NTM disease is underestimated worldwide, being important to understand the epidemiology and distribution of different NTM over the years. Therefore, the study aimed to characterize the circulation trends of NTM species isolated in Portugal's north reference center.
Methods: We conducted a retrospective study where all positive NTM cultures samples at the National Reference Laboratory for Tuberculosis (NRL-TB) of the National Institute of Health (INSA) from 2016 to 2021 and from northern health institutions were included.

Results: In this period, 217 cultures samples were positive for NTM. We found a heterogenous distribution in the region with a higher concentration in Vila Real and Bragança in the northeast area, followed by Santa Maria da Feira and Porto's metropolitan area on the coastline. *Mycobacterium avium* complex (MAC) was the most frequently isolated mycobacteria (59.4%) regarding all culture samples, as well as the most frequent mycobacteria each year and in all districts. When analyzing the evolution of isolates over the years, there was a decrease in MAC and *Mycobacterium abscessus* isolation and a slight increase in *Mycobacterium fortuitum*.
Conclusions: Our results shed light on the species distribution and changing trends of NTM isolates in the northern region of Portugal, not previously reported. The prevalence and species distribution data may contribute to a better understanding of NTM infections in this specific geographic area. These findings have implications for clinical management and public health interventions to prevent and control NTM infections. Further research is needed to explore the clinical impact, risk factors, and environmental sources of NTM infections in the region, and clinical-based studies of NTM infections are crucial to understand the dynamics of these infections in our population.

Keywords: *Nontuberculous mycobacteria. Epidemiology.*

PC 047. CLAVULANIC ACID-INDUCED THROMBOCYTOPENIA – AN ADVERSE EFFECT TO BE AWARE OF

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Introduction: Drug-induced thrombocytopenia should be considered in patients with the development of platelet decrease. Simultaneous exposure to several drugs thickens the diagnostic process and requires a systematic review of prescribed medication and their adverse effects.
Case report: A 71 year-old male with multiple comorbidities including chronic kidney disease on hemodialysis was admitted to Intensive Care Unit due to a right lower lobe pneumonia with empyema leading to severe partial respiratory failure. The patient was treated with piperacillin/tazobactam and vancomycin empirically and a thoracocentesis was performed with the drainage of purulent exudate. When the patient was stable he was transferred to the Pneumology ward, where the bacteriology result of the pleural exudate was obtained with the isolation of anaerobic gram-positive. Antibiotherapy was switched to amoxicillin/clavulanic acid according to the results of antibiotic sensitivity test. About six hours after drug administration, routine blood tests were performed, which revealed an isolated thrombocytopenia (299×10^9/L to 69×10^9/L) confirmed after a repeat blood count. Analytically, the presence of positive antiplatelet antibodies should be highlighted (GP IIb/IIIa glycoproteins for HPA antigens 1a/1a; 3a/3a and 4a and for GP Ia/IIa). Due to the recent exposure to a new drug the diagnosis of thrombocytopenia secondary to amoxicillin/clavulanic acid was assumed, this antibiotic was suspended, and clindamycin was started until the patient presented platelets > 50×10^9/L (minimum 21×10^9/L, recovery trend from the seventh day after the first dose). The case was discussed with Hematology colleagues which, given the fact that thrombocytopenia is more frequently associated with clavulanic acid, suggested reintroduction of amoxicillin alone, which the patient tolerated without platelet repercussions. During the diagnostic process other causes of thrombocytopenia, namely association with other drugs, were excluded, and medical records of the patient showed no previous record of exposure to clavulanic acid.
Discussion: This case portrays an unusual adverse effect of a drug commonly used in the treatment of several infections, namely of the respiratory system. In drugs composed of more than one component, it is crucial to consider the use of an individual component in monotherapy, as in this case amoxicillin was used. It is also of particular relevance a correct association between the drug and the adverse effect, when possible, since the incorrect causality relation can lead to a false contraindication in the future to use drugs or pharmacological classes. Amoxicillin/clavulanic acid-induced thrombocytopenia cases in literature are rare.

Keywords: *Thrombocytopenia. Clavulanic acid. Adverse effect.*

PC 048. ECONOMIC BURDEN OF HEALTHCARE RESOURCES ASSOCIATED TO ADULTS HOSPITALISED WITH INVASIVE PNEUMOCOCCAL DISEASE IN PORTUGAL, 2017-2018 – THE SPHERE STUDY

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Introduction and objectives: Invasive pneumococcal disease (IPD) is a severe disease caused by *Streptococcus pneumoniae*, representing a considerable public health concern. The introduction of pneumococcal vaccination in the national immunization program (NIP) had a significant impact on the incidence of IPD in children, but also in adults via indirect protection. This study aimed to provide real-world data on the economic burden of healthcare resource utilization (HCRU) associated with IPD in adults (18 years old) hospitalized in mainland Portugal.
Methods: This was a retrospective, multicentric, cross-sectional study of adult patients hospitalized with IPD between 2017-2018. The study collected secondary data from electronic hospital databases of 7 participating centers. Costs were derived using the information from the Portuguese Health Care System.
Results: A total of 395 adult patients were included, predominantly male (61.8%) and aged 65 years (55.4%). Only a smaller proportion was current smoker (26.3%) and had heavy alcohol consumption habits (17.4%). The majority of patients (72.2%) had at least one medical condition of interest, with bacteremic pneumonia (80.0%) emerging as the prevailing clinical manifestation of *S. pneumoniae* infection. Information on the specific *S. pneumoniae* serotypes was unavailable for all patients. Of concern, 64.3% of individuals had unknown vaccination status, with only 4.8% of total having received the *S. pneumoniae* vaccination. Of the 395 hospitalized patients, 24.1% were admitted to the intensive care unit (ICU). The mean duration of hospitalization was 16.8 ± 18.7 days, with an average of 11.0 ± 11.0 days spent in the ICU, for those who required it. During hospitalization, laboratory tests were performed on all 395 adults, with imaging assessments performed in 99.7%. Additionally, various medical exams (68.9%), procedures (20.0%), and surgeries (4.3%) were performed. The mean overall HCRU cost per patient during hospitalization for IPD was €6,100.8 ± 7,263.5. This included costs namely for hospitalization (€5,051.7 ± 6,231.1), laboratory tests (€542.7 ± 252.8), exams (€264.0 ± 252.8) and imaging assessments (€152.1 ± 223.3). The total cost per patient varied specially according to the clinical manifestation, and level of care. Cost was lower in patients who presented (comparing to those who didn't) bacteremic pneumonia (3,207.2€ vs. 5,668.8€; $p = 0.0005$) and higher in those with meningitis (6,961.0€ vs. 3,221.5€; $p < 0.0001$), empyema (8,230.5€ vs. 3,400.9€; $p = 0.0131$), and in individuals admitted to the ICU (10,218.8€ vs. 3,025.7€; $p < 0.0001$).
Conclusions: This real-world study describes the economic burden of HCRU associated with IPD in adults hospitalized in Portugal, showing the substantial economic burden that remains, mainly attributed to hospitalizations and associated procedures. This high-

lights namely the need for increased vaccination coverage, especially among those 65 years, and the importance of increasing awareness of health care professionals and patients for this disease.

Keywords: *Invasive pneumococcal disease. Healthcare resources. Hospitalization. Economic impact.*

PC 049. CARBAPENEMASE GENES ANALYSIS OF CARBAPENEM-RESISTANT *KLEBSIELLA PNEUMONIAE* STRAINS FROM PORTUGAL OVER A FOUR-YEAR PERIOD (2019-2023)

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Introduction: *Klebsiella pneumoniae* is one of the most common nosocomial pathogens worldwide, representing a serious threat to public health as it causes a wide range of infections, including pneumonias, urinary tract infections, bacteremias, and liver abscesses. This pathogen produces a vast array of resistance genes including KPC, VIM, IMP, NDM, GES and OXA-48-like carbapenemases. These enzymes hydrolyse most antibiotics, including carbapenems, leading to scarce therapeutic options. In Portugal, after the discovery of the first carbapenemase in 2009, increasing trend of carbapenem resistance has been described, however reports of recent resistance among carbapenemase-producing *K. pneumoniae* (CRKP) strains are scarce. In this study, we aim to analyse the resistance among carbapenemase-producing *K. pneumoniae* strains in Portugal recovered over the last four years (20192023).
Methods: Between 2019 and 2023, *K. pneumoniae* strains (n = 1,063) were collected from two Hospital Centres in Lisbon and one Hospital centre in northern Portugal and were sent to the Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab) for further genomic analysis. PCR screening for produced carbapenemase genes were conducted.
Results: Of the total 1,063 K. pneumoniae strains collected over the 4-year study (2019-2023), 859 (859/1,073; 80.1%) produced at least one carbapenemase. Of these strains, 103 (11.9%; 103/859), 132 (15.4%; 132/859), 298 (298/859; 35.0%), 309 (309/859; 36.0%) and 17 (17/859; 2.0%) strains were collected in 2019, 2020, 2021, 2022 and 2023, respectively. In 2019, KPC (74/103; 71.8%) and OXA (25/103; 24.3%) were the most predominant carbapenemase produced. Also, KPC+OXA was observed in three (3/103; 2.9%) strains and NDM in one (1/103; 1%) strain. In 2020, KPC (61/132; 46.2%) was the most prevalent, followed by NDM (48/132; 36.4%), OXA (21/132; 18.2%), KPC+OXA (1/132; 0.76%) and GES (1/132; 0.76%) carbapenemases. For 2021, KPC (202/298; 67.8%) and OXA (60/298; 20.1%) were the most prevalent carbapenemases produced, while NDM (15/298; 5.0%), KPC+NDM (9/298; 3%), KPC+OXA (7/298; 2.3%), OXA+NDM (1/298; 0.3%) and IMP (1/298; 0.3%) was observed to a lesser extent. For 2022, KPC (228/309; 73.8%) and OXA (61/309; 19.7%) were the most predominant carbapenemase produced among K. pneumoniae strains, while KPC+NDM (5/309; 1.6%), KPC+VIM (5/309; 1.6%), KPC+OXA (4/309; 1.3%), OXA-GES (3/309; 1%) KPC+GES (2/309; 0.6%) and NDM (1/309; 0.3%) were also observed but to a lesser extent. In 2023, OXA (8/17;47.1%), KPC (7/17; 41.2%) and KPC+GES (2/17;11.8%) were the carbapenemase detected so far.
Conclusions: Herein, we report the resistance characterization of CRKP strains collected over a 4-year period (2019-2023). Overall, KPC was the most prevalent carbapenemase produced, followed by OXA-48-like carbapenemases and NDM. GES, VIM, and IMP carbapenemase were also detected. Worryingly, the co-production of carbapenemases was also observed which further reduces the effective therapeutic options. These results emphasize the importance of performing continuous molecular surveillance to give the best treatment to patients infected with CRKP.

Keywords: Klebsiella pneumoniae. *Carbapenemase genes. Portugal.*

PC 050. VIRULENCE FACTORS ANALYSIS AMONG *KLEBSIELLA PNEUMONIAE* STRAINS RESISTANT TO CEFTAZIDIME/AVIBACTAM FROM PORTUGAL

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Introduction: *Klebsiella pneumoniae* is a gram-negative bacterium found ubiquitously in nature, including plants, soil, animals, and medical devices. In humans, *K. pneumoniae* colonizes the mucosal surfaces, including the gastrointestinal tract and oropharynx, causing a wide range of infections. Aside from easily acquiring resistance to most antibiotics available mostly due to the production of resistance genes (i.e., carbapenemases), *K. pneumoniae* employs different mechanisms to grow and protect itself against the host immune system. These mechanisms include enhancement of capsule production, to be more resistant to phagocytosis and host immune responses in general; creating mechanisms of iron (an essential element for *K. pneumoniae* to survive and propagate during infection) acquisition called siderophores; creating mechanisms of adhesion to biotic and abiotic surfaces (fimbriae). The concomitant presence of both virulence and antimicrobial resistance genes in the same strains are very worrisome, and particularly in Portugal, the recent analysis of virulence genes among *K. pneumoniae* strains are scarce. As such, in this study, we analyze virulence factors among *K. pneumoniae* strains that are resistant to a vast array of antibiotics, including ceftazidime/avibactam.
Methods: Between 2019 and 2022, *K. pneumoniae* strains (n = 11) were collected from two Hospital Centres in Lisbon and were sent to the Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab) for further genomic analysis. Antimicrobial susceptibility test and PCR screening for produced carbapenemase genes were conducted as well as whole-genome sequencing for further analysis.
Results: Of the 11 strains collected, nine strains (9/11; 81.8%) produced carbapenemases (blaKPC-3 (3/9; 33.3%), blaKPC-40 (2/9; 22.2%), blaOXA-181 (2/9; 22.2%), blaKPC-70 (1/9; 11.1%) and blaKPC-98 (1/9; 11.1%)). The strains displayed several sequence types (ST13 (4/11; 36.4%), ST307 (2/11; 18.2%), ST17, ST147, ST231, ST348, ST45 (all 1/11; 9.1%)), as well as several capsular loci (KL3 (3/11; 27.3%), KL112 (2/11;18.2%), KL5, KL19, KL25, KL51, KL64, KL62 (all 1/11; 9.1%)) and antigen loci (O1v2 (4/11; 36.4%), O2v1 (3/11; 27.3%), O1v1, O1/O2v2, O3b, O5 (all 1/11; 9.1%)). Regarding fimbriae production, type I fimbriae (fimA-fimK) was observed in ten (10/11; 90.9%) while type III fimbriae (mrkAmrkJ) was observed in nine (9/11; 81.8%) strains. Additionally, enterobactin (entA-entS, fepA-fepG, fes) and yersiniabactin (ybtA-ybtX, fyuA, irp1, irp2) were also detected with the former being observed in all eleven (11/11; 100%) strains and the latter in seven (7/11; 63.6%) strains. Furthermore, three different yersiniabactin genes were detected, namely ybt17 (4/7; 57.1%), ybt16 (2/7; 28.6%) and ybt10 (1/7; 14.3%) har-

boured in three different integrative and conjugative elements of K. pneumoniae (ICEKp): ICEKp10, ICEKp12 and ICEKp4, respectively.
Conclusions: Overall, most strains in this study produced two siderophores as well as both type I and type III fimbriae, while belonging to high-risk clones disseminating worldwide. Moreover, it is worth highlighting that these strains are also resistance to most antibiotics available including last-resort antibiotics such as ceftazidime/avibactam. Altogether, the presence of both virulence and antimicrobial resistance genes in the same strain found in this study warrants further attention as it poses a great concern to public health in Portugal and around the world.

Keywords: Klebsiella pneumoniae. *Ceftazidime/avibactam resistance. Virulence factors.*

PC 051. VACCINATION AGAINST INFLUENZA AND ANTI-PNEUMOCOCCAL IN PATIENTS HOSPITALIZED FOR RESPIRATORY INFECTION IN AN INTERNAL MEDICINE WARD

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Introduction: Respiratory diseases are responsible for a large part of hospitalizations, consuming physical and economic resources. From our practice, we know that influenza (with around 1,200 admissions per season) and pneumonia (with around 40,000 admissions per year) are two of the most prevalent respiratory infections. In Portugal, between 2008 and 2018, the average direct annual cost was 3.9 million euros, or around 3,000 euros per hospitalization (Froes F *et al*. BMC Infect Dis. 2022;22:726. Vaccination is important in reducing this number of hospitalizations and their severity.
Objectives: To evaluate influenza and pneumococcal vaccine coverage in an internal medicine ward; compare severity between vaccinated and unvaccinated patients; assess the existence of vaccination counseling.
Methods: Retrospective study of patients in an Internal Medicine ward in a tertiary hospital, with respiratory infection on admission, from October 2022 to March 2023.
Results: From a total of 558 hospitalizations, 205 patients were included in this study: 52% were female, with a median age of 81 years, with hypertension being the most common comorbidity. Of those included, 44% had pneumonia and 10% the flu, with 188 being indicated for the flu vaccine and 186 for the anti-pneumococcal vaccine, of which 87 (46%) and 156 (84%) were not vaccinated, respectively. In each group, only 1 patient was advised to undergo these vaccines after discharge. Of the 23 influenza isolates, 19 had an indication for influenza vaccination, and of these, 14 (74%) were not vaccinated. In this group, 1 (7%) patient died, 4 (29%) required NIV and none required mechanical ventilation. Of the 5 vaccinated, 1 needed NIV (20%) and there was no record of deaths or need for mechanical ventilation. Of the 14 *S. pneumoniae* isolates, 12 had an indication for antipneumococcal vaccination, and of these 11 (92%) were not vaccinated. In this group, 3 (27%) required NIV, 1 (9%) required mechanical ventilation and 2 (18%) died. The only one vaccinated did not need NIV, mechanical ventilation and did not die, needing only oxygen therapy. Of the 68 patients admitted for pneumonia without isolation of the agent, 60 had an indication for antipneumococcal vaccination, and of these, 47 (78%) were not vaccinated. Of this group, 10 (21%) required NIV, 3 (6%) required mechanical ventilation and 7 (15%) died. Of the 13 vaccinated, 3 required NIV (23%), 0 required mechanical ventilation and 1 (8%) died. Limitations: The reduced number of data does not allow for a statistically significant difference regarding the severity of infections between vaccinated and non-vaccinated individuals.
Conclusions: The severity of infection seems to be greater in non-vaccinated patients, when we compare the need for NIV, IMV and mortality. Although there is a high prevalence of unvaccinated patients with an indication to undergo these vaccines, this indication was only included in the discharge note of 1 patient. Thus, this work highlights the importance of vaccination in reducing severity and hospitalizations, as well as the relevance that health professionals should have in counseling about vaccination.

Keywords: *Vaccination. Flu. Pneumonia. Prevention.*

PC 052. NON-TUBERCULOUS MYCOBACTERIA – A 5 YEAR RETROSPECTIVE STUDY ON A GENERAL HOSPITAL SETTING

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Introduction: Atypical mycobacteria infections are caused by a group of non-tuberculous mycobacteria (NTM) found in environmental settings that most frequently result in lung infections and disseminated disease. A better knowledge about these pathogens is essential for an early diagnosis and adequate management.
Objectives: Characterization of a group of patients with a NTM positive culture regarding risk factors and atypical mycobacteria infection criteria.
Methods: Descriptive retrospective study of patients with a NTM positive culture in respiratory specimens between 2017 and 2022, in a general hospital setting.
Results: The study identified 38 patients with a respiratory specimen culture positive for NTM, with a median age of 68.5 years (min. 32; max. 87), 39.4% of female subjects. 57.9% had active or past history of smoking, 65.8% had a previously diagnosed respiratory condition, most commonly bronchiectasis. 60.5% were previously diagnosed with conditions associated with chronic immunosuppression. 86.8% positive cultures were obtained from sputum specimens, 10.5% from bronchoalveolar lavage fluid a one in a lymph node biopsy. All of the specimens were positive in liquid culture media, 42.1% were positive on solid culture media and 10.5% of specimens resulted in a positive sputum spear microscopy. The most frequently isolated NMT were *M. gordonae* (42.1%), *M. chelonae* (31.6%), *M. intracellulare* (10.5%) and *M. avium* (5.2%). 21.1% of patients met the criteria for atypical mycobacteria infection, mostly due to *M. intracellulare* (25%) and *M. avium* (25%). Further follow-up on treatment eligibility and outcome was not obtainable.
Conclusions: A minority of NTM positive cultures resulted in a diagnosis of atypical mycobacteria infection, with the majority of individuals having a previous documented respiratory condition, mostly bronchiectasis.

Keywords: *Non-tuberculous mycobacteria. Immunossupression.*

PC 053. RESPIRATORY VIRUS POST-PANDEMIC – CHARACTERISTICS OF PATIENTS ADMITTED WITH RESPIRATORY SYNCYTIAL VIRUS

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Hospital Professor Doutor Fernando Fonseca.

Introduction and objectives: The COVID-19 pandemic made respiratory virus panels more accessible in hospital admissions for pa-

tients with respiratory symptoms. It appears that recently, there's been an increase in hospital admissions in patients with respiratory syncytial virus (RSV) in this context. RSV is a very transmissible virus, commonly associated with infections in children. We aim to characterize the adult population admitted to a secondary hospital with a positive RSV result in nasal exudate throughout a year.
Methods: We consulted the clinical files of adults with positive RSV result in polymerase chain reaction of nasal exudate between January and December 2022.
Results: 3091 patients were tested for RSV, 173 of which were positive.60.6% (n = 105) of positives needed admission (97 between October and November), for an average of 16.2 days (1-66). There was female predominance (60% of cases, n = 63), with an average age of 76.67 years (31-100), slightly higher in the female population (79.9 versus a 71.8 years). There was an increased incidence with age. We observed 45.7% of the admitted patients were over 80 years old. 95% of patients (n = 100) presented with symptoms, which we defined as at least two of: fever, cough, sputum, dyspnea, odynophagia, rhinorrhea, nasal obstruction; in 92% of cases (n = 97), respiratory failure was the reason for admission. Oxygen supplementation was needed in 94.2% (n = 99), 5% of which (n = 5) through high flow nasal cannulas. Secondary bacterial infection was considered in 50 (47.6%) patients in early stage (less than 48 hours after admission). 73 (69.5%) patients completed antibiotic therapy throughout their hospital stay. The most common drugs used were azithromycin (n = 48), amoxicillin/clavulanate (n = 37), ceftriaxone (n = 28) and piperacillin/tazobactam (n = 27). Medium duration of antibiotherapy was 8.1 days (5-25). In 9 cases (8.5%), patients presented positive *Streptococcus pneumoniae* urinary antigen (one of which with positive blood cultures) and 3 patients (2.9%) presented positive sputum culture (1 *H. influenzae* and 2 *H. parainfluenzae*). 2 patients (1.9%) presented viral co-infection (SARS-CoV-2 and Influenza B). Concerning support therapy, 22% (n = 24) underwent non-invasive ventilation and 3.8% (n = 4) underwent invasive mechanical ventilation. 70 patients (66.7%) were subjected to corticotherapy (66.7%). 9 patients (8.6%) were admitted to intensive care unit. We observed a mortality rate of 12.4% (n = 13). The most frequent comorbidities were essential hypertension (63.8%, n = 67), type 2 diabetes (32.3%, n = 34), atrial fibrillation (29.5%, n = 31), heart failure (28.5%, n = 30) and chronic obstructive pulmonary disease (18%, n = 19).
Conclusions: We intend to highlight respiratory syncytial virus' paper in hospital admissions, especial with its role on exacerbations of cardiopulmonary disease, as a precipitant factor in respiratory failure, especially in older ages and those with more cardiac and respiratory diseases.

Keywords: *Respiratory syncytial virus. Hospital admissions.*

PC 054. THE EVOLUTION OF PNEUMOCOCCAL DISEASE IN THE PRE AND POST PANDEMIC PERIOD – THE EXPERIENCE OF A TERTIARY HOSPITAL

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Introduction: Despite the global impact of the COVID-19 pandemic on the epidemiology of respiratory infections, *Streptococcus pneumoniae* (SP) infection remains one of the leading causes of death in the world potentially preventable through vaccination.
Objectives: Characterization of pneumococcal disease in the adult population admitted to a tertiary hospital in the pre- and post-pandemic period.
Methods: Retrospective analysis of the clinical files of patients aged 18 or over, hospitalized for SP infection at Prof. Doutor Fernando Fonseca (HFF) Hospital between 2016 and 2022. The epidemiological characterization of the hospitalized population in 2022 and its comparison with the 2019 counterpart was carried out, regarding the incidence and severity of the infection.
Results: Between 2016 and 2022, 591 SP infections were identified through culture isolation or urinary antigen detection (UAD). There was a progressive increase in the number of isolates until 2019, when it stabilized, having resumed in 2021 the previously presented growing trend. In 2022, 152 infections by this agent were identified (1.8 times higher than in 2019), which led to hospitalization in 98% of cases. Most hospitalized patients were older than 65 (median 68.5 years, Q1-3 55 and 82 years) and had at least one known comorbidity (80%) – respiratory, cardiovascular, renal, hepatic, neoplasic, diabetes or immunodeficiency. Only 15% of patients had records of previous pneumococcal vaccination. Pneumonia was the most common presentation (89%). In the subgroup of invasive pneumococcal disease (IPD, 24%) the occurrence of 5 cases of meningitis (3%) stands out. As for the severity of infections, 18% of hospitalized patients were admitted to an intensive care unit (ICU), most of them needing support from 2 or more organs (68%). The average hospital stay was 16.5 ± 22.5 days and in the ICU were 13.1 ± 14.3 days. The overall inpatient mortality rate was 20.4% and 35.7% in the ICU. All-cause mortality 3 months after admission was 27.6%. Apart from alcoholism (p = 0.03), none of the comorbidities alone appeared to significantly impact prognosis (p > 0.05). The presence of IPD did not, by itself, determine a higher level of care. Given the uncertainty of the vaccination status of several patients, it was not possible to assess the role of vaccination in preventing and limiting the severity of the disease. Compared to 2019, considering only patients with cultural isolation in this analysis, a higher mortality rate (p = 0.11) and ICU admission (p = 0.23) was observed in 2022, despite similar demographics and number of cases of IPD (p = 0.55).
Conclusions: The COVID-19 pandemic seems to have interrupted the increasing trend of pneumococcal infections observed until then. The subsequent increase in cases reflected the progressive lifting of previously imposed public health restrictions. However, the automation and amplification of laboratory processes, such as UAD, were responsible for the substantial increase in cases verified in 2022. Excluding diagnoses by UAD, compared to 2019, there was no statistically significant difference.
Pneumococcal disease continues to be responsible for a high number of hospitalizations and a high mortality rate.

Keywords: Streptococcus pneumoniae. *COVID-19. Antigen urine detection. Invasive pneumococcal disease.*

PC 055. FROM THE HEART TO THE LUNG: SEPTIC LUNG EMBOLIZATION OF INFECTIVE ENDOCARDITIS

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Introduction: Right-sided infective endocarditis (IE), represents only 10% of all cases of IE and is usually associated with risk factors, such as: injection drug use, presence of cardiac implantable devices and other intravascular devices (e.g.: peripheral or central venous catheter). IE as a result of minimally invasive procedures (e.g.: endoscopic procedures) is uncommon, with only a few cases been reported. Lung nodules as a form of presentation of IE is a rare finding, and more associated with right-sided endocarditis. Here we report a rare case of cavitated lung nodules associated with IE of the tricuspid valve after polypectomy performed during colonoscopy.

Case report: An 80 years-old male, with atrial fibrillation, lung hypertension of cardiac origin and colon polyps submitted to colonoscopy guided biopsy four weeks before, without health risk behaviors or any other significant background was admitted with symptoms of fever, notion of dyspnea and retrosternal chest pain with 15 days of evolution. On examination the patient had hypoxemic respiratory failure, without significant changes of lung sounds, but had a systolic heart murmur on tricuspid valve location, never described before. On chest radiograph, lung nodules could be seen on the upper and middle third, along side a consolidation of the lower 1/3 of the right lung. A diagnosis of community acquired pneumonia was made and the patient was started on empiric antibiotics (ceftriaxone and azithromycin). From the initial microbiological screening two blood cultures isolated Enterococcus faecalis, and the same agent was isolated on another 2 additional blood cultures. A revaluation chest radiograph was performed and it showed an increase in size of the lung nodules, so a high-resolution chest computerized tomography was done and it showed a parenchymatous consolidation of the upper right lobe with increased eccentric density, nodular lesions with internal cavitation, suggestive of septic embolization, more evident on the right lung. A transthoracic echocardiogram was performed and it showed a vegetation on the tricuspid valve, reinforcing the diagnosis or IE of the tricuspid valve with septic embolization to the lung, probably in the context of the polypectomy performed 4 weeks before. An antibiotic regimen was started based on microbiological sensitivity testing with ceftriaxone and ampicillin, with clinical and serological improvement and gradual resolution of the initial radiological findings.
Discussion: Lung nodules of acute presentation, as seen in septic embolization of IE are an uncommon finding. Right-sided IE associated to polypectomy performed during colonoscopy, is a rare occurrence, with few cases reported (about 25 cases as of 2019). This initial presentation of IE with radiological findings compatible with lung nodules, shows the importance of considering various differential diagnosis and a careful medical history.

***Keywords**: Lung nodules. Bacterial endocarditis. Post endoscopic procedures complications.*

PC 056. CHARACTERIZATION OF RESPIRATORY SYNCYTIAL VIRUS INFECTION IN A HOSPITAL

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Introduction: Respiratory syncytial virus is responsible for a large number of infections in adults. Most of these infections in adulthood are generally mild but can also cause severe disease, particularly in elderly patients, immunocompromised individuals, or those with cardiopulmonary comorbidities. In the post-COVID-19 pandemic context, it is essential to document the importance of respiratory infections that lead to Emergency Department visits and their impact on hospital mortality and morbidity, particularly in high-risk groups. Objective: The authors aim to retrospectively characterize the results of RSV testing in adults in hospital services.
Materials and Methods: The results of respiratory syncytial virus testing by PCR (Polymerase Chain Reaction) and FilmArray™ panel were analyzed during the period between October 2022 and May 2023, corresponding to the winter months, in adults at the Centro Hospitalar Lisboa Ocidental. For this study, clinical records of patients with positive results for respiratory syncytial virus were consulted, and demographic data and disease severity requiring hospital admission were evaluated.
Results: In the 8-month period between October 2022 and May 2023, 3,458 patients were tested for RSV. The average age of the sample was 70.1 years-old (mode 85 yo, median 75 yo); with a similar gender distribution, 54% (n = 1,893) being female. Of the study patients, 203 (5.9%) were positive for RSV, with an average age of 71.9 yo and 64% (n = 130) being female. When analyzing the results of patients positive for respiratory syncytial virus, it was found that 54% (n = 110) required hospitalization, with 6.9% (n = 14) needing admission to the Intensive Care Units. Regarding the demographics of patients hospitalized for RSV, the average age was 71.9 years-old (mode 86 yo, median 75 yo) and 64% (n = 71) were females. It should also be noted that in this sample, the percentage of deaths due to RSV infection was 3.4% (n = 7).
Conclusions: In this sample, the authors highlight a significant number of positive cases (5.9%) which shows the importance of this infection and its diagnosis. The authors also observed the number of patients with severe RSV infection was quite significant with 54% of patients requiring hospitalization, including 6.9% in the Intensive Care Units. The high percentage of patients requiring hospitalization may be due to the advanced age of the positive group (median age > 75 yo). Knowing that with the advancing age there is a greater number of comorbidities and immunosuppression, these figures alert us to the need for diagnosis and development of preventive therapies, namely vaccination.

***Keywords**: Respiratory syncytial virus. Hospitalization. Respiratory infection. Vaccine.*

PC 057. THE IMPACT OF THERAPY WITH RITUXIMAB ON SARS-CoV-2 INFECTION

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Introduction: Although vaccination against COVID-19 has drastically reduced the incidence of severe cases of the disease, there are still some populations in which the effects of vaccination have not proved to be as effective. This is the case of patients treated with rituximab, an anti-CD20 monoclonal antibody that has the effect of persistently depleting B cells, which in turn can negatively affect the production of antibodies against SARS-CoV-2.
Case report: A 62-year-old woman with previous history of follicular non-Hodgkin's lymphoma in remission under maintenance therapy with rituximab, with complete vaccination against COVID-19, presented fever, dry cough, myalgias, asthenia, anosmia and ageusia. Due to the presence of typical symptoms, a SARS-CoV-2 antigen test was carried out, which came back positive. About two weeks after the onset of the condition, she developed dyspnoea and pleuritic chest pain, prompting a visit to the Emergency Room. From the complementary evaluation, analytically, she presented lymphopenia, increased inflammatory markers, type 1 respiratory failure and hypogammaglobulinemia. Thoracic CT angiography identified areas of ground-glass densification scattered throughout the different lung lobes, with a preferential peripheral distribution, some of which with associated small consolidative components, coexisting with a slight thickening of the inter and intralobular septa at the level of these areas, aspects in a probable relation with COVID organizing pneumonitis, also emphasizing the absence of adenopathies in the affected segments and exclusion of central pulmonary thromboembolism. Taking these findings into account, it was decided to carry out a SARS-CoV-2 test, which was positive with a low cycle threshold (25.6) with a negative anti-SARS-CoV-2 IgG antibody test. These results were compatible with active SARS-CoV-2 infection. The patient was admitted and started on corticosteroid therapy, intravenous immunoglobulin and a course of remdesivir. She also underwent respiratory kinesitherapy and physical rehabilitation, registering clinical improvement during hospitalization with the possibility of

discharge medicated with corticotherapy in a slow weaning scheme. Under reassessment in an outpatient clinic she had favorable evolution and tolerated the recommended corticosteroid weaning scheme.
Discussion: This case demonstrates how despite full vaccination against COVID-19, some immunosuppressed patients can still develop severe or prolonged illness. It should be noted that therapy with intravenous immunoglobulin can be seen as a pillar in the treatment of severe cases of COVID-19 in patients treated with rituximab and who, therefore, are unlikely to acquire natural immunity with antiSARS-CoV-2 antibodies. In addition, it highlights how remdesivir therapy can be beneficial even if not administered in the early course of the disease in immunosuppressed patients who have evidence of active viral replication.

Keywords: *COVID-19. SARS-CoV-2. AntiSARS-CoV-2. Rituximab. Anti-CD20.*

PC 058. COVID-19 AND DRUG-INDUCED IMMUNOSUPPRESSION – A CLINICAL CASE

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Introduction: The natural history of SARS-CoV-2 infection largely depends on the immune response capacity of infected individuals. B-lymphocyte-depleting drugs, such as those used in the treatment of multiple sclerosis, can cause severe hypogammaglobulinemia with impact on the development of severe and/or prolonged COVID-19 cases. Epidemiological studies and viral genetic sequencing allow a better characterization of SARS-CoV-2 infections.
Case report: 25-year-old female patient, autonomous, with a history of multiple sclerosis treated with semestral ocrelizumab, hospitalized in July/2021 for SARS-CoV-2 pneumonia. During hospitalization, organizing pneumonia was assumed, and she was discharged under corticosteroid therapy with prednisolone. In a 4-month follow-up thoracic CT scan, ground-glass opacities of migratory nature were still identified, and a galactomannan antigen was isolated in bronchial secretions. After discussion in the setting of a multi-disciplinary Interstitial Lung Disease reunion, it was decided to suspend ocrelizumab, start itraconazole and increase the dose of prednisolone. She resorted to the ER in March/2022 due to worsening dyspnea, and a chest CT was done that again documented bilateral ground-glass opacities suggestive of SARS-CoV-2 pneumonia, with no hospitalization criteria. A new SARS-CoV-2 PCR test performed in nasopharyngeal exudate was positive, and genetic sequencing at INSA revealed a Delta variant with a replication level suggestive of active infection, in a period of Omicron variant dominance. She was hospitalized 1 month later due to worsening of the respiratory condition and new onset respiratory failure, when a new chest CT documented worsening of the previously identified lesions, initiating high-dose corticosteroid therapy and remdesivir. During hospitalization, hypogammaglobulinemia was detected, which was assumed to be induced by ocrelizumab, starting total immunoglobulin every 3 weeks. After discharge, and given sustained improvement, a switch from ocrelizumab (discontinued for 6 months at the time) to natalizumab was decided, having remained neurologically stable, with radiological improvement without recurrence of the respiratory symptoms.
Discussion: This case illustrates the need for investigation and differential diagnosis of prolonged COVID-19 conditions, especially studies aimed at cellular and/or humoral immunity in individuals with know risk factors. In this case, the resolution of the clinical case involved the treatment of iatrogenic hypogammaglobulinemia, identified after persistent symptoms and absence of improvement under targeted treatment.

Keywords: *COVID-19. Immunosuppression.*

PC 059. CRACK LUNG SYNDROME" – A DIAGNOSTIC HYPOTHESIS TO BE CONSIDERED

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Introduction: "Crack lung syndrome" is an acute pulmonary syndrome, manifested by diffuse alveolar damage and alveolar haemorrhage, with 48 hours onset after cocaine inhalation. Inhaled cocaine induces a variety of acute pulmonary complications – from pulmonary edema, alveolar hemorrhage, eosinophilic pneumonia, pneumothorax, thromboembolic complications, to partial respiratory failure. In the acute phase, it can be easily confused with other clinical entities due to the clinical and radiological non-specificity of the condition.
Case report: We present the clinical case of a 45-year-old man with a history of inhaled heroin use and active smoking (CT 30 UMA)s. Integrated in methadone program. He denied additional usual medication. He went to the Emergency Department due to chest pain, dyspnea and fever. The pain manifested itself at rest, intermittently, after cocaine inhalation with a week of evolution associated with progressive tiredness. New consumptions were determined, two days before coming to the ED with worsening dyspnea. On physical examination, he had fever and tachypnea; pulmonary auscultation showed bilateral pulmonary wheezing; arterial blood gases (FiO2 21%) revealed hypoxemic acute respiratory failure (pO2 45 mmHg, SpO2 86%). Respiratory viruses (COVID, influenza A and B, RSV) as well as S. pneumoniae urine antigens were negative. He had leukocytosis 15,800/mm^3 and increased CRP 23 mg/dl, as well as elevated troponins 4,591 ng/L. The electrocardiogram showed ST-segment elevation in V2 to V5 and QS wave. Transthoracic echocardiography revealed ischemic heart disease, compromised global systolic function and associated diastolic dysfunction. Chest CT scan revealed consolidative densifications with air bronchograms in both lungs, predominantly in the upper lobes, with peripheral ground-glass densifications and mediastinal adenopathies, the right paratracheal being the largest one (13 mm). A multifactorial partial respiratory failure was assumed in a probable context of chemical pneumonitis with bacterial superinfection and a picture of heart failure due to acute myocardial infarction. Due to worsening respiratory failure, he was admitted to the ICU with rapid evolution to invasive mechanical ventilation. During the first days, he had a cardiorespiratory arrest with acute heart failure, Killip class III, as a confounding factor contributing to the etiology of respiratory failure. Despite multiple cycles of antibiotic therapy, there was fever persistence, worsening of bilateral consolidations, increase in inflammatory parameters, with hemoptoic bronchial secretions without achieving weaning from ventilation. Bronchoalveolar lavage excluded diffuse alveolar hemorrhage, infection or other etiology. After resolution of the complications and due to permanent protective invasive mechanical ventilation, improvement of the respiratory failure was achieved and the patient was transferred to the ward.
Discussion: This case is particularly important because it broadens the spectrum of differential diagnoses for patients with acute hypoxemic respiratory failure and alveolar infiltrates. The pathophysiological mechanisms are varied. The temporal relationship between cocaine use, onset of hypoxemia and alveolar infiltrates suggests the diagnosis. In spite of not being the case of our patient,

in the absence of complications, treatment is supportive with oxygen and fluid therapy; symptoms and hypoxemia, resolve spontaneously.

***Keywords**: Crack lung. Alveolar infiltrates. Acute hypoxemic respiratory failure.*

PC 060. IF YOU CAN LOOK, SEE. IF YOU CAN SEE IT, NOTICE IT

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Introduction: Chest radiography is the most used imaging test, and several errors associated with its performance have been described. The most frequent include identification and placement of the patient (centered, not rotated, scapula deprojection, visualization of the lung apexes and diaphragm), image quality and removal of confusing objects (wires, electrodes, personal objects). Although less frequent, image inversion still stands out, which can lead to important misinterpretations.
Case report: 64-year-old woman, former smoker for 10 packs (stopped 5 years ago) and history of right breast cancer in 2009, underwent surgery, QRT and hormone therapy. She was followed in a pulmonology consultation due to persistent cough, having performed a chest CT, identifying a pulmonary nodule in the middle lobe (LM), increased uptake of the LM lesion and bilateral hilar on PET. Fiberoptic bronchoscopy, followed by EBUS (puncture of stations 4R and 7) did not allow confirmation of lung cancer. Due to the continued suspicion of neoplasia, she was proposed for VATS. A lobectomy of the LM was performed, complicated by extensive hemorrhage due to spontaneous rupture of the pulmonary artery, requiring a right pneumonectomy with a main bronchial sleeve on the left. Estimated blood loss of 6 liters. Postoperative period in the intensive care unit under invasive mechanical ventilation and hemorrhagic shock, with cardiovascular dysfunction (maximum noradrenaline doses up to 200 micrograms/min), neurological, hematological (> 40 units of blood products), hepatic (AST and ALT > 1,000) dysfunction and renal (kidney replacement technique). As intercurrences, he also presented single-lung pneumonia with septic shock. Slow, progressive improvement with multiorgan recovery, maintaining a persistent vegetative state with a Glasgow Coma Score of 6 without sedation or opiates. On the 30th day of hospitalization, due to suspected respiratory reinfection, a central venous catheter was placed in the right subclavian vein. In the post-procedure control X-ray, the image was inverted, making it difficult to identify the most fundamental alteration: emptying of the right pneumonectomy site due to dehiscence of the bronchial sleeve suture. Given the severity of the situation, without surgical indication, the patient died of respiratory failure with septic shock and multiorgan dysfunction.
Discussion: With this clinical case, we intend to highlight the importance of the correct performance and interpretation of chest X-rays, especially in critically ill patients who undergo untransportable exams, with a higher probability of error. These errors can impair the interpretation and delay the identification of other alterations, possibly more significant. It refers to the importance of the Swiss Cheese Model, where an attempt is made to explain the reasons for the failures, as a result of the combination of multiple errors in different structures (organizational, technical, communicational, human) and the best way to avoid them in the future.

***Keywords**: Chest X-ray. Inversion. Human error.*

PC 061. TUBERCULOSIS COMPLICATED WITH ARDS: ABOUT A CLINICAL CASE

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Introduction: Acute respiratory distress syndrome (ARDS) is common in Intensive Care Units (ICU), associated with high morbidity and mortality. The main causes include sepsis, pneumonia, aspiration, chest trauma, pancreatitis, among others.
Tuberculosis (TB) remains an important public health problem, especially in underdeveloped countries, and in relation to the HIV epidemic. TB can cause ARDS, usually in the context of disseminated TB. However, few cases are reported, with a prevalence of < 5%. Although TB is a treatable disease, it has high mortality in patients with severe pulmonary TB and respiratory failure, probably due to insufficient recognition of ARDS.
Case report: 42-year-old man, born in Guinea-Bissau, living in Portugal since April 2023. Civil construction worker, with personal history of hypertension and unspecified liver disease. He went to the Emergency Department due to weight loss, progressively worsening fatigue and cough with hemoptoic sputum. After etiological investigation, *Mycobacterium tuberculosis* was identified in the bronchoalveolar lavage (positive nucleic acid amplification test, negative direct exam), and a probable case of disseminated tuberculosis was admitted (awaiting the result of the culture exam): pulmonary and pleural affection (empyema, pulmonary nodules and cavitation on the right), central nervous system (parietal space-occupying lesion with edema and deviation of midline structures - probable tuberculoma) and probably hepatic (hyperbilirubinemia and elevation of transaminases, with no other identified cause). Serology for HIV infection negative. Due to difficult control of the pulmonary focus, he underwent empyemectomy and right pleural drainage in the operating room under general anesthesia, with isolation of multiresistant *Streptococcus oralis* and *Peptostreptococcus anaerobius* from the pleural fluid. As an intraoperative intercurrence, he presented an episode of vomica during mobilization, with consequent aspiration pneumonia on the left. In this context, there was respiratory worsening, with transfer to the ICU. Failure of initial high-flow oxygen therapy requiring invasive mechanical ventilation (IMV) due to severe ARDS (PF < 100) in a patient with disseminated TB and bacterial superinfection. He maintained anti-bacillary drugs (HZRE), started meropenem and linezolid, with slow clinical, laboratory and imaging improvement and significant pulmonary and pleural sequelae. Difficult ventilatory weaning, with difficulty in administering and controlling the bioavailability of anti-tuberculosis drugs – oral/enteral administration medication, in a patient with probable abdominal disease of tuberculosis, liver and kidney dysfunction and abdominal stasis.
Discussion: In Portugal, despite the reduction in the incidence of TB, the incidence in the immigrant population remains constant with a higher risk of HIV superinfection and increased morbidity and mortality. It is important to maintain a high clinical suspicion, especially due to the significant mortality associated with disseminated TB. TB in the ICU is uncommon but has important particularities such as the bioavailability of drugs and infection control.

***Keywords**: Tuberculosis. ARDS. Bacterial superinfection. Intensive care.*

PC 062. RISK FACTORS FOR MAJOR INTRAOPERATIVE BLEEDING IN LUNG CANCER

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Introduction: Lung cancer is the most prevalent cancer in the world and the leading cause of cancer-related death worldwide. Currently, surgical treatment mainly by VATS (Video-Assisted Thoracic Surgery) is considered as a preferred therapeutic option. This technique allows for a reduction in the duration of thoracic drainage and hospitalization, with improved recovery and results. As a limitation, in relation to thoracoscopy, it presents less visibility and limitation of the surgeon's movements, restricting the approach in the face of complications, namely vascular injury. The prevalence of major intraoperative complications is < 2%. Bleeding, especially if > 100 ml, has a prognostic value for worse short- and long-term survival.
Case report: 64-year-old woman, former smoker for 10 packs (stopped 5 years ago), with a history of right breast cancer in 2009, who underwent surgery, QRT and hormone therapy. She was followed in a pulmonology consultation due to persistent cough, having performed a chest CT, identifying a pulmonary nodule in the middle lobe (LM), increased uptake of the LM lesion and bilateral hilar on PET. Fiberoptic bronchoscopy, followed by EBUS (puncture of stations 4R and 7) did not allow confirmation of lung cancer. Due to the continued suspicion of neoplasia, she was proposed for VATS. A lobectomy of the LM was performed, complicated by extensive hemorrhage due to spontaneous rupture of the pulmonary artery, requiring a right pneumonectomy with a main bronchial sleeve on the left. Estimated blood loss of 6 liters. Postoperative period in the intensive care unit under invasive mechanical ventilation and hemorrhagic shock, with cardiovascular dysfunction (maximum noradrenaline doses up to 200 micrograms/min), neurological, hematological (> 40 units of blood products), hepatic (AST and ALT > 1,000) dysfunction and renal (kidney replacement technique). As intercurrences, he also presented single-lung pneumonia with septic shock. Slow, progressive improvement with multiorgan recovery, maintaining a persistent vegetative state with a Glasgow Coma Score of 6 without sedation or opiates. On the 30th day of hospitalization, he presented dehiscence of the suture of the bronchial sleeve with emptying of the pneumonectomy site and hemoptysis, and he died.
Discussion: Major bleeding complications are infrequent but have an important prognostic factor in the short and long term. Causes of intraoperative hemorrhage include hemorrhage from large vessels, bronchial arteries, vessel and bronchial stumps, lung parenchyma, lymph nodes, and chest wall. As risk factors we have anatomical variants, type of procedure, sex, stage of the neoplasia and histological type. Some studies report that performing prior CRT is related to major intraoperative complications; however, further studies are needed on the role of VATS after CRT.

Keywords: *Lobectomy. VATS. Hemorrhage. Radiotherapy.*

PC 063. SILICOSIS AND TUBERCULOSIS HOLDING HANDS – EFFICACY OF A WORKSHOP IN THE QUARRY INDUSTRY IN ALTO TÂMEGA REGION (NUTS3)

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Introduction: Following an outbreak of tuberculosis in a quarry in ACES Alto Tâmega e Barroso, a workshop entitled "Safety and Health in the Quarry Industry" was devised and promoted by Alto Tâmega e Barroso Public Health Unit, the Authority for Working Conditions and the Vila Pouca de Aguiar County. The main goal was to educate the businessmen and Safety and Health technicians of the quarry industry to the prevalence of silicosis and tuberculosis in this setting, the importance of preventive measures and an adequate screening and the potential complications and labor impact of these diseases.
Objectives: Assess the knowledge of Bussinessmen and Safety and Health Technicians in the quarry industry about silicosis, its relationship with tuberculosis and the efficacy of a workshop in the target audience.
Methods: Within the scope of the forementioned workshop, an online quiz (by QRcode) was applied, containing 12 questions about the epidemiology, clinical presentation, diagnosis and labor impact of silicosis, associated or not with tuberculosis. The percentage of correct answers was assessed before and after the workshop.
Results: There were a total of 94 participants in the workshop, 48 (51.06%) of which responded to the quiz previously (prequiz) and 24 (25.53%) after the workshop (post-quiz). Globally, we found 69.52% correct answers in the pre-quiz and 78.43% in the post-quiz. The participants showed a higher previous knowledge about silicosis (71.71% of right answers) than tuberculosis (66.44%). The labor impact was the topic with higher percentage of correct answers (pre: 92.10%; post: 97.5%), followed by the clinical presentation (pre: 71.61%; post: 82.36%), epidemiology (pre: 71.14%; post: 80.16%) and diagnosis (pre: 39.28%; post: 44.54%). Globally, an improvement of 8.91% of correct answers was observed, more pronounced in the questions referring to tuberculosis (9.98%) and the clinical presentation (10.76%) and epidemiology topics (10.61%).
Conclusions: This workshop showed and non-negligible impact on silicosis and tuberculosis literacy in the quarry industry leadership. This small study displayed the importance of this kind of initiatives. However, the impact on the field, namely the change in the preventive practices and global epidemiology of these diseases remains to be scrutinized.

Keywords: *Silicosis. Tuberculosis.*

PC 064. SUBEROSE, A REALITY OF NORTHERN PORTUGAL

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Introduction: Hypersensitivity Pneumonia (HP), or extrinsic allergic alveolitis, is a complex syndrome, mediated by immunological changes, with different symptoms at presentation as well as levels of intensity. Despite the low prevalence and incidence, different agents have already been described as causes and are related to the intensity of exposure, occupational activities, geographical areas... With the cork industry being one of the main employers in the northern region of Portugal, there is a clear predominance of suberosis in these localities.
Case report: Man, 40 years old, cork worker since October 2021, presenting with complaints of asthenia, dry cough, and dyspnea, which appeared a few months after starting to work as a cork worker. Without chronic medication, ex-smoker since 2008. Referred to the pulmonology consultation due to imaging changes detected in a Computed Tomography (CT) scan performed in the Emergency Service (ES). From the study conducted, Pulmonary Function Tests (PFT) showed evidence of mild restriction (Total Lung Capacity (TLC) of 78, Forced Vital Capacity (FVC) normal and a slightly reduced Diffusing Capacity of Carbon Monoxide (DLCO), 77). The CT was typical of HP, presenting the triple density sign and the Analytical Study (AS) showed no alterations in autoimmunity. Bronchoalveolar Lavage (BAL) with mild eosinophilic alveolitis (macrophages 85%, lymphocytes 5.8%, neutrophils 3.8% and eosinophils 1.6%). Woman, 51 years old, with hypertension, non-smoker, cork worker since 1996. She reported that when she changed to a direct handling cork job, she began experiencing dyspnea and productive cough with mucopurulent sputum. Chest X-ray and PFT without alterations. She underwent a chest CT scan that showed the triple density sign, ground-glass opacities, mosaic attenuation, and some scattered micronodules. AS with negative autoimmunity. BAL with lymphocytic alveolitis (63%), predominantly CD8 (CD4/CD8 ratio < 1). Both cases, had no history of drug intake that could match the

CT pattern and, therefore, considering the respiratory symptoms concomitant with the occupational activity where they were in daily contact with cork dust and molds, as well as typical CT alterations, the diagnosis of non-fibrotic Hypersensitivity Pneumonitis was assumed in multidisciplinary group, in accordance with the guidelines of the American Thoracic Society. Occupational disease was reported and a document was issued with the condition of avoiding contact with cork and recommendation for changing the workplace.
Discussion: Suberosis can be considered an occupational disease with a strong impact on a worker's respiratory status, due to the symptoms and fibrotic changes that causes. An urgent diagnosis is essential, based on exposure to a capable agent, characteristic semiology, and concordant imaging changes. The primary treatment is based on the avoidance of exposure and the use of personal protective equipment. Corticosteroid therapy may be a weapon in an acute phase, but if symptoms persist or are refractory to therapy, immunosuppressants such as Mycophenolate Mofetil (MMF) may be an alternative.

Keywords: *Suberosis. Cork. Hypersensitivity pneumonitis. Bronchoalveolar lavage.*

PC 065. THE IMPORTANCE OF EXPOSURE HISTORY IN THE DIAGNOSIS OF PNEUMOCONIOSES: A CASE REPORT

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Introduction: Caplan syndrome (CS) was first described in 1953 by A. Caplan. It is a rare entity, also known as rheumatoid pneumoconiosis, and is characterized by multiple well-defined pulmonary nodules, predominantly in the periphery of the lung parenchyma, on chest radiography in individuals with occupational exposure to inorganic dusts (most commonly coal) and concomitant diagnosis of rheumatoid arthritis (RA). The prevalence of CS in patients with pneumoconiosis is estimated to be 0.75-1.5%.
Case report: Male, 63 years old, Caucasian, autonomous, ex-smoker of 5 pack-years, with occupational exposure to silica as a rock hewer of cement and stone walls with a pneumatic hammer, without protection of the airway. Personal history of seronegative RA, hypertension, diabetes mellitus type 2, dyslipidemia and gastroesophageal reflux disease. He was referred to a pulmonology consultation due to pulmonary nodules described on chest X-ray and CT. Clinically, he presented dyspnea on slight exertion (mMRC2), occasional dry cough and unintentional weight loss (10 kg). Objective examination revealed "gusty fingers" and pulmonary auscultation with a bilaterally maintained and symmetrical vesicular murmur, without adventitious noises. Analytically, C3 and C4 were slightly increased, antinuclear antibody (ANA) was positive with a mottled pattern and rheumatoid factor was slightly increased (16.5), and the remaining autoimmunity study was negative. Respiratory functional study was normal. Chest radiography showed well-defined nodules, more evident in the middle and lower levels bilaterally, and some peribronchovascular interstitial densification. Subsequently, chest CT showed multiple calcified mediastinal lymph nodes laterotracheal, precarinal and in the pulmonary hilums, and multiple nodules scattered in the lung parenchyma, many of them calcified, more pronounced in the pulmonary apex (subpleural juxta-pleural), especially on the left, coexisting bilateral micronodularity predominantly subpleural. He underwent bronchofibroscopy under corticotherapy (prednisolone 20 mg/day), with immunophenotypic study of bronchoalveolar lavage with TCD8 lymphocytosis (71.13% lymphocytes, CD4/CD8 ratio = 0.2).
Discussion: The history of occupational exposure to silica, concomitantly with the clinical and characteristic imaging changes allowed to define the diagnosis of chronic simple silicosis which, in a patient with a previous diagnosis of RA, establishes a diagnosis of CS. This case highlights the importance of integrating careful anamnestic investigation, particularly the history of exposure, with typical radiological patterns in establishing the diagnosis of diffuse lung diseases. The exuberance of the imaging changes in a relatively young patient is also noteworthy. Given the well-established causal relationship between occupational exposure and the observed changes, it is important not to forget pneumoconioses, since they are potentially preventable diseases with the use of adequate protection and whose early diagnosis has an impact on prognosis.

Keywords: *Occupational exposure. Silica. Pulmonary nodules.*

PC 066. END-STAGE SILICOSIS AND LUNG TRANSPLANTATION: PRESENTING TWO CLINICAL CASES

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Introduction: Silicosis is a fibrotic and progressive occupational disease caused by the inhalation of free crystalline silicon dioxide, or silica. No specific treatment has yet been approved for the treatment of silicosis, which associates with high morbidity and mortality. End-stage silicosis is one of the accepted indications for lung transplantation, although there is still scarce scientific data published on this topic.
Case report: 45-year-old male, former smoker (50 pack-years), worked as a stone cutter in the marble industry, with no use of personal protective equipment, is followed in the Pulmonology Outpatient Clinic due to hypothesis of sarcoidosis versus silicosis with progressive massive fibrosis, with multiple courses of systemic corticosteroids since 2021. Additionally, he presents chronic hypoxemic respiratory failure under supplemental oxygen therapy, pulmonary hypertension (PASP 64 mmHg), atypical mycobacterial disease (treated in 2018), spontaneous pneumothorax in 11/2020, frequent supraventricular extrasystoles, hiatal hernia and depression. Laboratory tests: normal hemogram, ESR 41 mm, CRP 2.33 mg/dL, normal kidney function, electrolytes and liver enzymes, LDH 342 U/L, ACE 160 U/L, negative autoimmune study and viral serologies. Pulmonary function tests: very severe mixed ventilatory defect (FEV1/FVC 0.49; FEV1 34%; FVC 54%; TLC 63%) and severe reduction of DLCO (30%). Bronchoalveolar lavage: macrophages 46%, lymphocytes 48%; negative bacteriological, mycological and mycobacteriological exams. The patient was submitted to a surgical lung biopsy in 05/2023 and the histopathological exam confirmed the diagnosis of silicosis. Due to the progressive course of the disease, he is currently in evaluation for lung transplantation. 49-year-old male, never-smoker, worked as a dental prosthetic technician, was submitted to bilateral sequential lung transplantation in 06/2012 due to silicosis. He was initially treated with immunosuppressive therapy with tacrolimus and mycophenolate mofetil. He had a diagnosis of chronic graft rejection since 09/2020 after hospital admission due to pneumonia in the immunocompromised patient with the need for invasive mechanical ventilation. Additionally, the patient presented chronic hypercapnic respiratory failure under supplemental oxygen therapy and domiciliary noninvasive mechanical ventilation since 2020. He was treated with immunosuppressive therapy with everolimus 1 mg 12/12h, tacrolimus 1.5 mg 12/12h and prednisolone 5 mg/day. Laboratory tests: Hb 12 g/dL; Leucocytes 12,000/uL; ESR 14mm; creatinine 1.60 mg/dL; LDH 273U/L; negative autoimmune study and viral serologies. Pulmonary function tests: mixed ventilatory defect, with a predominance of bronchial obstruction (FEV1/FVC 0.49; FEV1 22%; FVC 35%; TLC 75%) and moderate reduction of

DLCO (53%). Due to chronic graft rejection and its progressive course, the patient was submitted to lung retransplantation at an international Pulmonary Transplantation Centre, but he died during the postoperative period.
Discussion: These cases highlight the role of lung transplantation in patients with end-stage silicosis. Selected patients with end-stage silicosis can benefit from lung transplantation, which is the only therapeutic alternative in end-stage silicosis, with an important clinical benefit compared to conservative management. Due to the high prevalence of intraoperative complications, there are still few patients with end-stage silicosis, globally, to have been submitted to lung transplantation. Lung retransplantation remains a rare procedure. The operative risk of lung retransplantation is superior to that of the initial transplantation and associates with a worse prognosis.

Keywords: *End-stage silicosis. Progressive massive fibrosis. Lung transplantation. Chronic graft rejection. Lung retransplantation.*

PC 067. RESEARCH: SMOKING CESSATION IN A PULMONOLOGY WARD

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Introduction: Tobacco is the main risk factor for the development of respiratory disease, namely Chronic Obstructive Pulmonary Disease (COPD) and lung cancer, it increases the risk of asthma and COPD exacerbations and is one of the leading preventable causes of death. The smoking cessation (SC) success rate at one year is about 3% without medical support, but can be increased to around 35% at 6 months when accompanied by therapeutic aid. Hospitalization is a pivotal moment for SC, since the direct consequences of smoking are more consciously perceived by the patient, and it is a period of mandatory abstinence. The present study aimed to assess the association between SC motivation in the context of hospitalization due to respiratory disease and its success when a smoking cessation protocol is applied.
Methods: A prospective interventive study was conducted in patients admitted to the Pulmonology Ward of Centro Hospitalar de Setúbal with current smoking habits. Demographic data, data on smoking habits, tobacco dependence (Fagerström test), SC motivation (Richmond test) and self-efficacy on a numerical scale (0-10) were collected. There was joint intervention by the medical and nursing team in this assessment and ongoing education on the benefits of CT. At discharge, patients were offered personalized pharmacological therapy and were followed up at 1 week post-discharge through a telephone consultation, and after 1 and 3 months in a consultation. SC was assessed through a questionnaire and the exhaled carbon monoxide value.
Results: Of the patients included in the study (n = 15), with a mean of 55 ± 32 pack-years, 86.7% (n = 13) maintained abstinence in the first week post-discharge, 73.3% (n = 11) after 1 month and 33.3% (n = 5) after 3 months. There was a 20.0% loss-to-follow-up rate (n = 3). A statistically significant association was found between the Richmond score and SC success at week 1 (p = 0.012), and between the self-efficacy scale and SC at the at week 1, month 1 and 3 (p = 0.002, p = 0.015 and p = 0.010, respectively) using the Mann-Whitney test. No correlation was found between the Richmond score and SC at 1st and 3rd months, nor between the degree of dependence, smoking burden, presence of withdrawal symptoms or educational level and SC success. Limitations of the study include the small sample size, the inability to objectively confirm abstinence at the telephone consultation, the short follow-up time, the absence of other specialities (such as psychology) in the multidisciplinary SC team.
Conclusions: Smoking abstinence should be a goal set for all patients. In this context, hospitalization represents an opportunistic moment of intervention for SC. This study presented data on the implementation of a smoking cessation protocol in an inpatient ward and showed that an intervention during hospitalization and subsequent follow-up in an outpatient setting contributed to an increase in the quitting rate at 3 months (33.3%), consistent with literature data. It demonstrates the importance of an early approach to inpatient SC, but also the need for coordination with primary health care for longer follow-up and maintenance of long-term results.

Keywords: *Smoking cessation. Smoking. Hospitalization.*

PC 068. CITISINICLINE IN SMOKING CESSATION – PRELIMINARY RESULTS

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Introduction: Currently, tobacco remains one of the major public health problems, having a considerable impact on the health status of the population. Despite all the measures adopted to end consumption, there is a high prevalence of smokers in Portugal. Quitting smoking thus becomes imperative and smoking cessation consultation is central to this process. Among the drug therapies available in the market, citisinicline has been demonstrating consistent results combined with speed and good tolerance.
Objectives: Preliminary analysis of the results obtained with cytisinicline.
Methods: Retrospective study, with consultation of clinical records, of patients enrolled in the hospital smoking cessation consultation (CCTB) and who were prescribed cytisinicilline. We proceeded to the comparison of the different scales used in the characterization of the patients, namely, the Fagerström test that measures the degree of tobacco dependence and the Richmond scale that evaluates the motivation for smoking cessation, with the results obtained and, consequently, the efficacy of the drug was analyzed.
Results: Cytisinicline was prescribed to 34 patients enrolled in the CCTB, and 64.7% (n = 22) purchased the drug. The mean age was 54.3 ± 7.5 years, 55.9% were men, and the mean number of cigarettes before treatment was 20.8 ± 9.7. Regarding the analysis of the Fagerström scale, the mean was 6.4 ± 2.1 points and there is a direct relationship between the increase in points and the increase in the average number of cigarettes smoked, which translates into a higher degree of tobacco dependence. In the analysis of the motivation to quit smoking, there is no impact of the degree of motivation with the result obtained (cessation/reduction of consumption), which can be explained by the subjectivity of the scale and by smoking dependence. After treatment, 50% of the patients were able to stop smoking and the remainder had a significant reduction in the number of daily cigarettes. Of the adverse effects reported, the most prevalent were nausea 11.8% (n = 4), weight gain 8.8% (n = 3), sleep disturbances 8.8% (n = 3), altered taste 5.8% (n = 2) and anxiety 2.9% (n = 1). One case of rash is also reported.
Conclusions: This preliminary analysis of the results obtained with cytisinicline allows us to conclude that it is an effective drug with few adverse effects reported. As this is a preliminary study, the long-term maintenance of cessation was not evaluated, which translates into a limitation of this study, given the importance of maintaining the follow-up of these patients.

Keywords: *Smoking cessation. Citisinicline.*

PC 069. ASSOCIATION BETWEEN RITUXIMAB AND TACROLIMUS IN THE TREATMENT OF REFRACTORY ANTISYNTHETASE SYNDROME WITH INTERSTITIAL LUNG DISEASE

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Introduction: Antisynthetase syndrome (ASyS) is an idiopathic inflammatory myopathy, defined by the association of myositis, interstitial lung disease (ILD), arthritis, Raynaud's phenomenon, mechanic's hands and the presence of anti-aminoacyl-tRNA-synthetase antibodies. ILD can occur at any time during the disease course and remains a major determinant of morbidity and mortality in ASyS, particularly in patients who present with an acute respiratory distress syndrome.
Case report: A 35-year-old previously healthy male presented to Rheumatology clinic with inflammatory arthralgia of hands, knees and feet. He had cracked skin on his fingertips, which he associated to his occupation. Blood tests had positive antinuclear antibodies (1/640) with positive anti-Jo1 and anti-Ro52 antibodies. He had no evidence of other organ involvement, including myositis or ILD. After 18 months of follow-up, without any specific therapy, he was admitted into hospital with fever and acute, progressively worsening dyspnea. Physical examination documented diminished breath sounds in both lung bases and proximal muscle weakness. Laboratory tests revealed leukocytosis, elevated inflammatory markers, raised muscle enzymes; arterial blood gases showed partial respiratory failure. Chest computed tomography (CT) documented bilateral pleural effusion, bilateral diffuse ground-glass opacities and foci of consolidation with air bronchogram. He started large-spectrum intravenous antibiotics and intravenous human immunoglobulin (2 g/kg), as infection could not be ruled out. After 4 days of treatment, fever persisted despite negative culture exams, and respiratory failure progressed with need for invasive ventilation. Intravenous methylprednisolone (1 g/day, 3 days), followed by prednisolone 1 mg/kg/day, and intravenous cyclophosphamide (1 g/m^2 monthly, for 6 months) were started, with good response. Nearly one month after the third cyclophosphamide administration, under prednisolone 0.75/mg/kg/day, fever and myositis recurred. He was switched to rituximab (2 × 1 g, 2 weeks apart) in association with subcutaneous methotrexate 20 mg/week, with benefit. He kept follow-up in outpatient clinic, with prednisolone tapering and supplementary oxygen therapy suspension. Twenty-two weeks after rituximab administration, the patient was readmitted with a new ASyS flare, including fever, myositis and acute ILD with need for invasive ventilation (chest CT consistent with a non-specific interstitial pneumonia overlap organizing pneumonia; Figure 1B). He stopped methotrexate and due to disease severity and refractoriness, received intravenous methylprednisolone (1 g/day, 3 days), followed by oral prednisolone 1 mg/kg/day, and intravenous cyclophosphamide (6 fortnightly pulses at a fixed dose of 500 mg) combined with rituximab (2 × 1 g, 2 weeks apart). There was complete resolution of pulmonary infiltrates, with clinical and analytical improvement, and the patient was kept under maintenance therapy with rituximab (2 × 1 g, 2 weeks apart, every 6 months) and tacrolimus (0.075 mg/kg/day; target 210 ng/mL). Two years later, he stopped steroids and is asymptomatic, without new disease flares.
Discussion: Steroids remain the first-line therapy for inflammatory myopathies-associated ILD, but the addition of steroid-sparing agents is frequently needed. A multimodal immunosuppression therapy is often required, particularly in rapidly progressive ILD. Despite little experience in daily clinical practice, tacrolimus seems to be an emerging drug for treating refractory ILD and myositis in ASyS.

Keywords: *Antisynthetase syndrome. Interstitial lung disease. Tacrolimus. Rituximab.*

PC 070. ABEMACICLIB-INDUCED PNEUMONITIS: PRESENTING A CLINICAL CASE

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Introduction: Abemaciclib is a cyclindependent kinase 4 and kinase 6 (CDK 4 and CDK6) inhibitor approved for the treatment of hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative locally advanced or metastatic breast cancer in combination with an aromatase inhibitor or fulvestrant.
Case report: 63-year-old female, Caucasian, performance status ECOG 0, former-smoker (90 pack-years), retired telephonist, with the following diagnoses: COPD GOLD 3E, medicated with triple therapy (LABA/LAMA/ICS); previous squamous cell carcinoma of the left lung, stage IIIA, submitted to left upper lobe lobectomy in 09/2018 and, subsequently, concurrent chemotherapy and radiotherapy until 01/2019, maintaining follow-up with no signs of recurrence; active pulmonary tuberculosis, treated in 2021 for 6 months; breast cancer, submitted to mastectomy in 09/1999 and hormonotherapy with tamoxifen (one year), with lymph node recurrence in 2014, treated with palliative intent letrozole (completed in 12/2019). Due to lymph node progression of breast cancer, in 10/2022, she was medicated with fulvestrant and abemaciclib. In 03/2023, five months after the institution of this therapy, she started complaining of worsening dyspnea, and the chest computed tomography (CT) showed multifocal bilateral ground-glass opacities, more evident in the right upper lobe, right lower lobe and left lower lobe, with adjacent micronodular opacities and features of organizing pneumonia in the periphery of the middle lobe, suggesting drug-induced interstitial pneumonitis. Due to fever, increasing dyspnea, productive cough with purulent sputum and de novo consolidation with air bronchogram in the right lower lobe, the patient was hospitalized with the diagnoses of interstitial pneumonitis secondary to abemaciclib and right lower lobe bacterial pneumonia. Abemaciclib was stopped and the patient was medicated with optimized bronchodilator therapy, systemic corticosteroids (methylprednisolone 40 mg/day) and empirical antibiotics with amoxicillin/clavulanic acid and azithromycin. Due to hypercapnic respiratory failure with decompensated respiratory acidosis, she underwent a period of non-invasive ventilation (NIV) and supplemental oxygen. A bronchoscopy was performed, with no evidence of endobronchial lesions. Bronchoalveolar lavage (BAL) – cytology: 95% macrophages, 3% lymphocytes, 2% neutrophils, CD4/CD8 2; the microbiological exams were negative; the histopathological exam was negative for neoplastic cells. The patient presented a good clinical, laboratory and radiological evolution, and she was discharged from the hospital clinically improved, with no need for NIV or supplemental oxygen. She was medicated with systemic corticosteroids (prednisolone 40 mg/day), with an indication to suspend abemaciclib and maintain fulvestrant. Three months after being discharged, she maintained good clinical and radiological improvement, allowing a decrease of prednisolone to 30mg/day.
Discussion: Abemaciclib is associated with a 4.7-fold increase in drug-induced pneumonitis when compared with other antineoplastic drugs. Pulmonary toxicity is estimated at 1.7-3.3%, with a mortality of 0.3%. The most frequent chest CT findings are diffuse alveolar damage, organizing pneumonia, ground-glass opacities, and a non-specific interstitial pneumonia pattern. The risk factors associated with increased mortality are age (> 70 years), preexisting interstitial lung disease and performance status ECOG > 2. The management includes discontinuing the offending drug and instituting systemic corticosteroids.

Keywords: *Interstitial pneumonitis. Abemaciclib. Drug-induced lung toxicity.*

PC 071. WHO ARE THE INFORMAL CAREGIVERS OF PEOPLE WITH INTERSTITIAL LUNG DISEASE? WHAT ARE THEIR NEEDS?

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Introduction: People with interstitial lung disease (ILD) experience severe symptoms (e.g., dyspnoea, fatigue) and exercise intolerance, compromising daily physical activity and quality of life. As the severity of symptoms progresses, these people present more difficulties in performing their daily activities and become more dependent. Informal caregivers play a key role providing them support and assistance, especially at advanced stages. Nevertheless, knowledge about the characteristics of these informal caregivers and their support needs is lacking. This study aimed to characterise and identify the needs of informal caregivers of people with ILD.
Methods: An exploratory cross-sectional study was conducted. Informal caregivers were identified by participants with ILD of the iLiFE study (NCT04224233). An informal caregiver was considered as the person providing unpaid care to the patient. Information about the care provision, i.e., relationship with the patient and if the caregiver lived with him/her, number of people involved in the care and duration and type of care provided was collected. The carers' support needs were assessed with the Carers Support Needs Assessment Tool (CSNAT), which is a comprehensive, but brief and practical tool, comprising 14 questions that assess the need for more support. Seven questions are related with direct needs (the carer's own needs) and the other seven with indirect needs (related with the care provision). The CSNAT is scored as: 0-no, 1-little more, 2-quite a bit more and 3-very much more. For the purpose of this study, a need was considered if any score other than "no" was registered. Descriptive statistics were used to analyse data.
Results: Twenty-three informal caregivers (62 ± 16 years) were included. Most were women (56.5%), spouses (78.3%), had at least one comorbidity (65.2%), lived with the patient (91.3%), were the only ones involved in the care (65.2%) and provided permanent care (60.9%) with 73.9% providing care from more than 2 years. The main types of care provided included: accompaniment to medical appointments (78.3%), housework (73.9%), shopping (60.9%), transportation (56.5%), bureaucratic issues (43.5%) and personal care (39.1%). Most informal caregivers needed more support to: know what to expect in the future/who to contact if concerned about the relative (47.8%), understand the relative's disease (39.1%) and manage relative's symptoms/talk with their relatives about their disease (30.4%). Informal caregivers also wanted more support with dealing with their feelings and worries (43.4%) and for their financial/legal/labour problems (34.7%).
Conclusions: Informal caregivers of people with ILD seem to be mostly female, at advance age and providing care on their own for several years. Attention for providing information about the disease trajectory, strategies to manage it and emergency contacts, but also support for caregivers' direct needs (e.g., feelings and concerns) is needed in interventions to support this stakeholder group. These insights regarding the characteristics and needs of informal caregivers of people with ILD, may help tailoring interventions to support them, contributing to improve their well-being and care experience.

Keywords: *ILD. Care assessment. Needs. Informal caregivers.*

PC 072. ELECTRONIC CIGARETTES AND VAPING ASSOCIATED PULMONARY ILLNESS – A CASE STUDY

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Introduction: EVALI is an increasingly prevalent lung injury caused by electronic cigarette or vaping product use, once marketed as a safer alternative to traditional cigarettes.
Case report: A 51-year-old male active smoker with 36 pack-year smoking history, presented with dyspnea and relative hypoxemia 13 days after switching from conventional cigarettes to electronic cigarettes. Relevant past history includes exposure to welding fume (namely iron, zinc and copper), acute CHV 15 years prior, with presently undetectable viral charge, depressive disorder under sertraline and trazodone, arterial hypertension treated with perindopril and hypercholesterolemia treated with a statin. The patient also had a history of necrotizing pneumococcal pneumonia a year prior. In radiological reevaluation there was resolution of the pneumonic process previously visible in the left lung as well as paraseptal emphysema of apical predominance and patchy areas of ground glass in both superior lobes and superior segments of both inferior lobes, de novo. He had normal lung function tests. BAL was obtained, showing 91% of macrophages, 17% of which with black intracytoplasmic inclusions. Microbiology of bronchial aspirate was negative. Transbronchial pulmonary biopsy showed preservation of alveolar morphology and nonspecific inflammatory infiltrates with predominantly lymphoplasmacytic cells. A temporary diagnosis of EVALI (moderate level of confidence) was established in multidisciplinary meeting and the patient stopped using electronic cigarettes, maintaining sporadic conventional tobacco consumption (2-3 cigarettes per week). Clinical improvement was almost immediate and radiological improvement of ground glass infiltrates is visible in a CT scan 8 months of vaping cessation.
Discussion: Electronic cigarette use has been linked to a broad spectrum of pulmonary disease, including EVALI. A working definition of this entity includes respiratory failure with symptom onset within the last 90 days of electronic cigarette use, pulmonary infiltrates on imaging, the absence of infection, and no evidence of alternate causes of respiratory failure. The use of bronchoscopy with BAL and lung biopsy has no clear established role, but may be warranted on a case-by-case basis.

Keywords: *Interstitial lung disease. Tobacco. E-cigarette.*

PC 073. CHARACTERIZATION OF PATIENTS UNDER ANTIFIBROTIC TREATMENT FOR PROGRESSIVE PULMONARY FIBROSIS: THE EXPERIENCE OF A CENTER

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Introduction: Progressive Pulmonary Fibrosis (PPF) is defined as a fibrotic interstitial lung disease (F-ILD), not including Idiopathic Pulmonary Fibrosis (IPF), in patients who meet 2 criteria in the previous year: worsening of respiratory symptoms; functional decline (absolute decline in FVC 5% or DLCO 10%), or radiological evidence of fibrosis progression. Approximately 18-32% of F-ILD cases progress to PPF. The INBUILD study demonstrated the impact of nintedanib in reducing the annual decline in forced vital capacity (FVC).
Methods: This is a retrospective single-center study of all patients who initiated antifibrotic treatment for PPF from November 2020 to February 2023. The study includes descriptive analysis, sociodemographic characterization, diagnosis, chest CT patterns, treatment, and progression criteria. The evolution of pulmonary function, FVC before and after antifibrotic treatment, and survival analysis (Kaplan-Meier) were evaluated.
Results: Sixteen patients started antifibrotic treatment for PPF. The majority were on nintedanib (15; 94%), and 1 (6%) received off-label pirfenidone. The average age was 69 ± 10 years, with 50% being male. Smoking habits: 8 (50%) were non-smokers, 7 (44%) were ex-smokers, and 1 (6%) was an active smoker. The most prevalent F-ILD diagnoses

were Hypersensitivity Pneumonitis (10; 63%) and Systemic Sclerosis-related lung involvement (3; 19%). CT patterns showed definite/probable Usual Interstitial Pneumonia (UIP) in 5 (31%) cases, Non-specific Interstitial Pneumonia (NSIP) in 4 (25%) cases, indeterminate UIP in 1 (6%) case, and other patterns in 6 (38%) cases. Fourteen patients (88%) were on corticosteroids and/or immunosuppressants, with an average duration of 43 ± 26 months. Of the total, 13 patients (81%) met the criteria for symptomatic worsening, 9 patients (56%) showed radiological worsening, and 10 patients (63%) had a decline in pulmonary function (pre-treatment FVC: 1 missed value). At the start of antifibrotic treatment, the mean FVC was 64 ± 25%, and DLCO was 35 ± 16%. The average duration of antifibrotic treatment was 12 ± 8 months. Antifibrotic therapy needed to be discontinued in 1 (6%) case due to persistent vomiting. Graph 1 illustrates the evolution of FVC (%) before and after the start of antifibrotic treatment. The decline in FVC before (median -0.150L [-0.265; -0.050]) and after the treatment initiation (median -0.110L [-0.150; 0]) did not show a statistically significant difference (n = 10; p = 0.401). Three patients (19%) died during the study period. The median survival after F-ILD diagnosis was 76 months (95%CI 63-89), with no significant difference between different subtypes of F-ILD (log rank p = 0.399).
Conclusions: In the studied sample, the introduction of antifibrotic treatment did not show a significant impact on reducing functional decline at 12 months. However, the small number of patients with one-year results (n = 10) and the considerable functional impairment at baseline might have influenced the results. More studies are needed to identify the correct timing for initiating antifibrotic therapy in patients with PPF not related to IPF and to determine which patients may benefit most from its introduction.

***Keywords**: Progressive pulmonary fibrosis. Antifibrotic.*

PC 074. MORTALITY AND RESPIRATORY FUNCTIONAL EVOLUTION IN DIFFERENT DUBTYPES OF PROGRESSIVE PULMONARY FIBROSIS VERSUS IDIOPATHIC PULMONARY FIBROSIS: A REAL-LIFE STUDY

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Introduction: Progressive Pulmonary Fibrosis (PPF) represents a subgroup within the fibrotic interstitial lung disease (F-ILD) characterized by irreversible progression of pulmonary fibrosis, worsening symptoms, declining respiratory function, and early mortality, similar to Idiopathic Pulmonary Fibrosis (IPF). The INBUILD study demonstrated the impact of nintedanib in reducing the annual decline in forced vital capacity (FVC) in PPF, similar to studies in IPF.
Methods: This retrospective single-center study included all patients who initiated antifibrotic treatment for PPF and IPF from June 2016 to February 2023. Descriptive analysis of the groups was conducted, comparing the functional evolution over the 12 months before and after the initiation of antifibrotic treatment, including a subgroup analysis based on the underlying F-ILD. Survival analysis (Kaplan-Meier) was also performed.
Results: Out of 52 patients under antifibrotic treatment, 16 (31%) met the criteria for PPF, and the remaining (36, 69%) were diagnosed with IPF. The most prevalent PPF diagnoses were Hypersensitivity Pneumonitis (10; 63%) and Systemic Sclerosis-related lung involvement (3; 19%). Four (11.1%) IPF cases presented a combination of pulmonary fibrosis and emphysema (CPFE). Significant differences between the PPF and IPF groups were found in baseline characteristics, including age (p = 0.009), chest CT pattern (p < 0.001), type of prescribed antifibrotic (p = 0.004), duration of antifibrotic therapy (p = 0.017), and exposure to immunosuppressants (p < 0.001). A total of 6 (12%) patients discontinued antifibrotic treatment, mainly due to gastrointestinal complaints, with no statistical significance between groups (p = 0.426). At the start of antifibrotic treatment, the mean FVC (%) in the PPF group was significantly lower than in the IPF group (PPF: 63.6 ± 24.8%; IPF: 89.7 ± 23.2%; p = 0.001). The median relative decline in FVC was similar at 12 months of antifibrotic treatment between the two groups (PPF: -0.110 [-0.150; 0.000]L; IPF: 0.010 [-0.148; 0.235]L; p = 0.220). There were 3 (19%) deaths in the PPF group and 9 (25%) in the IPF group, with no statistical significance (p = 0.622). The median survival after F-ILD diagnosis was similar (log-rank p = 0.232), translating to 65.36 months (95%CI 51.31-79.40) for IPF and 75.98 months (95%CI 63.04-88.93) for PPF. No statistical differences were documented (log-rank p = 0.475) when stratified by F-ILD subtypes.
Conclusions: In our sample, PPF patients were significantly younger than IPF patients, mostly exhibited non-UIP CT patterns, and had more compromised lung function at baseline. PPF patients showed a similar mean decline in FVC and median survival time compared to IPF patients. We believe that further studies will be necessary to identify the correct timing for initiating antifibrotic therapy in non-IPF PPF patients to improve the impact on reducing functional decline and survival in these patients.

***Keywords**: Progressive pulmonary fibrosis. Idiopathic pulmonary fibrosis. Antifibrotic.*

PC 075. BONE MARROW TRANSPLANTATION IN LUNG DISEASE DUE TO SYSTEMIC SCLEROSIS – CLINICAL CASE

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Introduction: Systemic sclerosis is characterized by vascular dysfunction and progressive fibrosis of the skin and internal organs, and the diagnosis is supported by clinical and serological findings. It affects mostly females and its presentation is heterogeneous in organic involvement and prognosis. Pulmonary involvement is a frequent complication (80%), manifested by alveolitis, fibrosis and/or vascular disease with a risk of developing pulmonary hypertension. The frequently associated imaging patterns are those of non-specific interstitial pneumonia or usual interstitial pneumonia. Lung disease is usually progressive and worsens the prognosis, so early diagnosis and treatment are essential. When indicated, therapy includes immunomodulatory and/or antifibrotic agents.
Case report: We report a female patient, 25 years old, non-smoker, with asthma since childhood, under ICS+LABA therapy. She was diagnosed with progressive systemic sclerosis (PSSc) at the age of 12 (2010), on presentation with Raynaud's phenomenon, sclerodactyly, digital ulcers and positivity for ANA (1/640), ANA screening (194.8) and Ac. Anti-Ro52(SS-A) (319.8). Chest CT was performed in 2011, which identified a slight thickening of the interlobular septa, with no associated clinical or functional compromise. Until 2014, therapy with bosentan, azathioprine, pentoxifylline, iloprost and nifedipine was instituted. Due to worsening of pulmonary involvement, with associated bronchiolectasis, she was started on mycophenolate mofetil (MMF). In 2015, after 1 year of therapy with MMF, there was an increase in dyspnea on exertion and worsening of intra and interlobular thickening with a diffuse and peripheral distribution, along with foci of ground glass opacitites and traction bronchiolectasis with a discreet honeycomb pattern. There was concomitant functional deterioration, with a drop in FVC (58%) in 540 ml (15%) and in DLCO from 81% to 60%, which indicated failure of this immunosuppressive strategy. Cyclophosphamide was then started, having performed 4 cycles with a significant clinical response, which, however, regressed after interruption of this therapy. In 2017, the patient underwent an autologous hematopoietic stem cell transplant, a procedure that took place without major complications. In 2022, five years after the transplant, she had no respira-

tory complaints and didn't present hypoxemia or desaturation in the 6-minute walk test. Imagiological studies showed stability of the interstitial lung disease and there was a sustained functional improvement (FVC 86% and increase of 20% in the DLCO), along with an improvement in the skin and vascular complaints, therefore the patient is currently without therapy directed at PSSc.
Discussion: Autologous hematopoietic stem cell transplantation has gained importance in preventing disease progression in diffuse and rapidly progressive forms of systemic sclerosis. In this case it is shown the relevance of this therapy in controlling lung manifestations of this disease. The morbidity and mortality associated with the procedure are high, which conditions its use and obligates a rigorous selection of candidates. The young age, absence of comorbidities and early referral were factors in favor of the success of this therapy.

Keywords: *Systemic sclerosis. Interstitial lung disease. Bone marrow transplant.*

PC 076. EFFECTIVENESS OF INFLIXIMAB IN REFRACTORY SARCOIDOSIS: EXPLORING TREATMENT OUTCOMES AND RELAPSE FACTORS

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Introduction: Infliximab is a monoclonal antibody that binds and inactivates circulating TNF, which plays a significant role in the pathophysiology of sarcoidosis. Despite the lack of randomized clinical trials, infliximab is often considered a therapeutic option for refractory sarcoidosis. Our study aims to investigate the effectiveness of infliximab in patients with refractory sarcoidosis and explore possible factors related to sarcoidosis relapse after infliximab suspension.
Methods: We retrospectively identified sarcoidosis patients treated in the Thorax department - day hospital at Hospital Pulido Valente (Centro Hospitalar de Lisboa Norte). Infliximab treatment was initiated in patients who did not respond to first and second-line immunomodulators, as determined by a group of expert Pulmonologists. Patients were characterized based on organ involvement and duration of treatment. Clinical outcomes were defined as treatment success versus failure. We considered treatment success to be (A) a clinical improvement (FVC increase of 10% from the baseline at 52 weeks if pre-treatment FVC < 70%; improvement in 6MWT in SpO2 or mBORG) or (B) radiological improvement, for what concerns pulmonary disease, or (C) improvement of the main symptoms if another organ was involved.
Results: We identified 28 patients with refractory sarcoidosis. The proportion of treatment success was 85% in pulmonary, 100% in CNS, and 100% in cardiac disease. However, when observed at week 12 after the introduction of Infliximab, only 50% of pulmonary disease cases responded to treatment. The mean duration of treatment with infliximab was 42 months. Regarding relapse, no significant association was found between the duration of therapy with Infliximab and the rate of relapse when data were analyzed with the Mann-Whitney U test (-0.75). What appears to have predictive value for relapse is the extension of the disease. Using linear regression, we analyzed our data and observed a positive correlation between the number of organs affected by sarcoidosis and the probability of new worsening of the disease after the suspension of treatment with infliximab (+0.58 with a p-value of 0.047).
Conclusions: Infliximab is an effective therapy for refractory sarcoidosis, leading to clinical and radiological improvement and a reduction in corticosteroid dose. However, despite this clear evidence, there are still no recommendations regarding the best treatment strategy, especially concerning the duration of treatment. Our study shows that relapse is common after discontinuation of infliximab, particularly in patients with a larger organ involvement, suggesting a more cautious approach to infliximab suspension in these cases. Further studies involving larger groups of patients are needed to support these findings.

Keywords: *Sarcoidosis. Infliximab. Relapse.*

PC 077. SYSTEMIC AND LOCALIZED LUNG AMYLOIDOSIS – TWO CLINICAL CASES

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Introduction: Amyloidosis is characterized by the deposition of amyloid substance in one or more organs and soft tissues. Identification of apple-green birefringence after staining biopsy material with Congo red is pathognomonic. Pulmonary forms are rare and occur mainly due to deposition of systemic lambda light chain (LA) proteins and less frequently due to protection from kappa chains, transthyretin or secondary deposits (AA). In systemic amyloidosis, the protein is produced outside the thorax and is deposited in the lungs (interstitium, vasculature, lymph nodes, among other structures), often with diffuse distribution, whereas in localized forms production and deposition is parenchymal (nodules and cysts) or in the larynx and tracheobronchial tree.
Case reports: Female, 67 years old, non-smoker, retired as a wine warehouse worker, exposed to caustic soda + sodium hypochlorite vapors, not wearing personal protective equipment (PPE). Diagnosed in 2013 with systemic lupus erythematosus and Sjögren's syndrome. In 2015, she reported complaints of dry cough and dyspnea and underwent a chest CT that detected nodules in different lung lobes. A surgical biopsy was performed which revealed an amyloid tumor, concluding the diagnosis of secondary pulmonary amyloidosis. In 2020, due to the dimensional increase of the nodules, therapy with mycophenolate mofetil was started and therapy with azathioprine and hydroxychloroquine was suspended until then. Currently, there is clinical, imaging and functional stability. 85-year-old man, former smoker (120 pack years). Retired factory worker, reporting contact with chemicals including caustic soda, carbonates, sulfuric acid, citric acid and phosphoric acid without using PPE. History of monoclonal gammopathy of undetermined significance low-risk lambda IgG, COPD, chronic kidney disease and high blood pressure. The serum immunofixation showed a monoclonal IgG lambda component and the urinary immunofixation showed trace amounts of Bence Jones Lambda (18.8 mg/24h), without lytic skeletal lesions. The patient refused medullary invasive study. He reported dyspnea on minor exertion and performed a chest CT scan that revealed extensive multifocal bilateral pulmonary consolidations with air bronchogram without distortion of the bronchovascular architecture, associating multiple bilateral bronchocentric and peribronchovascular pulmonary nodules, with areas of confluence with multilobar consolidations and diffuse perilymphatic nodules. Respiratory functional tests revealed a severe reduction in DLCO (34%). The most likely diagnosis were a primary neoplastic lesion with diffuse intrapulmonary dissemination or sarcoidosis. The patient had positive rheumatoid factor and negative autoimmunity and angiotensin-converting enzyme studies. Abdominal fat biopsy was performed, in which test for amyloid substance was negative. The patient refused further invasive studies. He agreed to perform bronchoscopy with lung biopsy in the context of hospitalization due to acute respiratory failure and kidney injury, and a post-mortem diagnosis of pulmonary amyloidosis was concluded.
Discussion: We report two distinct cases of pulmonary amyloidosis. Pulmonary amyloidosis associated with Sjögren's syndrome often occurs with mild symptoms, with solitary or multiple nodules, with or without calcification and sometimes with concomitant cysts, which require monitoring, especially because of the risk of associated lymphoproliferative disease. Systemic forms of pulmonary

amyloidosis are often associated with diffuse involvement with relevant clinical impact in the absence of treatment.

Keywords: *Lung amyloidosis. Sjögren. Monoclonal gammopathy.*

PC 078. PROFILE OF PATIENTS WITH HYPERSENSITIVITY PNEUMONITIS WITH AUTOIMMUNE FEATURES – EXPERIENCE FROM A CENTRAL HOSPITAL

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Introduction: Hypersensitivity Pneumonitis with autoimmune features (HPAF) remains an undefined and controversial diagnosis, particularly the role of autoimmunity in the clinical course and prognosis of Hypersensitivity Pneumonitis (HP). A better understanding of this entity could have a relevant impact on the management and evolution of these patients.
Objectives: To characterize the patients who have their clinical follow up at the Pulmonary Interstitial Diseases Consultation of CHUSJ, with the diagnosis of HP with autoimmune features.
Methods: Retrospective analysis of the clinical files of patients who have been followed at the Pulmonary Interstitial Consultation of CHUSJ from a database made with multiple categories related to clinical evaluation, autoimmune profile, respiratory function, imaging and histology.
Results: The study included 49 patients with a mean age of 72 years, 57% of those were male. 33% of them were smokers or ex-smokers. 56% reported exposure to birds and 17% to fungi. The mean duration of symptoms was 15 months and 82% of patients reported dyspnea. Chest CT showed 73% reticulation, 55% traction bronchiectasis, 45% mosaic pattern, 18% honeycomb and 12% micronodules. BAL was performed in 94% of patients and lymphocytosis was observed in 66% of them. Analytically, all patients presented autoimmune alterations, the most prevalent being an increase in ANAs in 83.7% of patients, mostly with a mottled pattern. Lung biopsies were performed in 31% of patients using transbronchial cryobiopsies. Fibrotic PH was predominant, present in 69% of the cases. At diagnosis, 36% of patients had restrictive ventilatory changes, 25% obstructive ventilatory changes and 80% decreased diffusion capacity. Regarding therapy, 82% of patients underwent immunosuppression, 24% antifibrotic therapy and only 18% were monitored. 39% of patients met progression criteria and 18% died.
Conclusions: The impact of autoimmune features in the context of PH needs to be clarified given the possible implications for the prognosis of these patients. Although with overlapping characteristics, in this cohort there appears to be a higher proportion of patients with non-fibrotic disease and a lower proportion of patients with progression to fibrotic disease, considering the published series of patients with PH.

Keywords: *Interstitial lung disease. Hypersensitivity pneumonitis with autoimmune features (HPAF).*

PC 079. AN ATYPICAL COMPLICATION OF PULMONARY INFARCTATION – A CASE REPORT

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Introduction: Pulmonary infarction (PI) occurs as a consequence of occlusion of the distal pulmonary arteries, leading to tissue necrosis. Pulmonary thromboembolism (PTE) is an important cause of PE, and exclusion of other entities is necessary as therapy is directed at the underlying pathology. Risk factors for PE include smoking and infarct areas greater than 4 cm.
Case report: A 70-year-old male, smoker, with history of dilated cardiomyopathy, hypertension and dyslipidaemia. Referred to Pulmonology consultation to study a mediastinal mass. Chest CT: Voluminous polylobulated formation occupying the mediastinum at the level of the pre-tracheal retro-cava space, aortopulmonary window and carina, suggestive of a conglomerate of adenopathies with 7.1 × 6.6 × 8.2 cm. There was practically completed occlusion of the right pulmonary artery and compression with narrowing of the SVC. Flexible bronchoscopy: hyperemic mucosa at the level of the right main bronchus, bronchial biopsies: no neoplastic cells. Endobronchial echoendoscopy: adenopathic mass/conglomerate (Bulky) with continuity between G7 and G4R, without a cleavage plane. Aspiration puncture was performed. While waiting for the cytology result, he went to the ER for syncope and haemoptoic sputum. Examination showed collateral venous circulation in the right hemithorax region, jugular engorgement and cervical and facial flushing with dysphonia and headaches. Laboratory tests showed haemoglobin of 9, C-reactive protein of 6, D-dimers of 1,026 and troponin of 3.9. Chest CT: areas of consolidation and ground-glass densities in the peripheral zone of the anterior, posterior basal and apical segments of the right upper lobe, as well as in the periphery of the posterior and lateral segments of the right lower lobe, suggestive of pulmonary infarction. The patient was admitted with superior vena cava syndrome and pulmonary artery occlusion leading to pulmonary infarction and was admitted to the Pulmonology Department. Mediastinal radiotherapy 20 Gy in 5 fractions was performed with clinical improvement. Cytology was positive for Small Cell Carcinoma. He was referred to Pulmonary Oncology and started chemotherapy with carboplatin + etoposide. After the first cycle, he was hospitalised for respiratory infection and type I respiratory failure. Chest CT: three cavitated formations measuring 30, 29 and 25 mm each, with thickened walls and heterogeneous content with solid areas and no liquid level, fungal infection could not be excluded. As the patient was immunosuppressed, a bronchoscopy was performed to collect secretions and exclude opportunistic infections, namely fungal infections. The examination was unchanged and the microbiological test was negative. After discussion with a multidisciplinary team, the evolution of the previous pulmonary infarction was assumed. Imaging reassessment after three months identified only two of the three cavities, round in shape and thin-walled, without content, with favourable evolution.
Discussion: This is a case of PE due to occlusion of a central and peripheral pulmonary artery by extrinsic compression of malignant origin. This type of presentation is unusual, as is most often associated with pulmonary thromboembolism. The authors present this case for its uniqueness and favourable radiological evolution after targeted oncological therapy, as well as all the diagnostic work-up performed to exclude other aetiologies.

Keywords: *Pulmonary embolism. Pulmonary infarctation. Cavitation.*

PC 080. PULMONARY SCLEROSING PNEUMOCYTOMA

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Introduction: Pulmonary sclerosing pneumocytoma, traditionally called pulmonary sclerosing hemangioma, is a rare lung neoplasm. It usually presents as an asymptomatic solitary pulmonary nodule, being more frequent in females, especially in the fifth decade of life. Being a rare pathology, its natural history is not fully estab-

lished, however, it is considered that this tumor has a benign clinical course, with slow growth. The treatment involves surgical resection and the prognosis is excellent.
Case report: Female patient, 67 years old, writer. No smoking habits. Past medical history of hypothyroidism, medicated with levothyroxine. Referred to the Pulmonology Department in 2020, due to the presence of a 22 mm nodular formation in the middle lobe, on Thoracic Computed Tomography (CT), performed in the context of a post-fall. No associated respiratory symptoms. Positron Emission Tomography (PET) was performed, which revealed a suspicious nodular right lung lesion, in the middle lobe, with regular contours measuring 25 × 25 mm with SUVmax 4. A CT-guided transthoracic biopsy was proposed, which the patient refused, having undergone a lobectomy of the middle lobe, whose pathological anatomy allowed the diagnosis of a sclerosing pneumocytoma. Currently, the patient is being followed up in consultation, showing no evidence of recurrence.
Discussion: The authors present this case because it is a rare entity whose histological diagnosis can be challenging, but which should be considered when identifying a pulmonary nodule on imaging.

Keywords: *Pulmonary nodule. Neoplasia. Sclerosing pneumocytoma.*

PC 081. ADVERSE EFFECTS OF OSIMERTINIB

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Introduction: Osimertinib is the preferred therapeutic option in patients with metastatic non-small cell lung cancer with an EGFR mutation. It is a safe drug and the most frequent adverse effects are QT prolongation, diarrhea and lymphopenia.
Case report: 88-year-old woman, non-smoker, retired (seamstress), autonomous, with personal history of colitis and hypertension. Performance status 2. She was referred to Pulmonology Oncology Day Hospital due to a diagnosis of Lung Adenocarcinoma, PD L1 < 0-1%, EGFR + (deletion in exon 19) stage IVB - cT4N3M1c - pleura, bone, liver and contralateral lung on LSD. In a multidisciplinary reunion, it was decided to start osimertinib 80 mg/day and perform palliative RT on the right acetabular lesion and ischion, a treatment that was carried out for 1 week with a total dose of 20 Gy/5 fr. ECG after introduction of osimertinib did not demonstrate QT prolongation. During the 4th cycle of osimertinib, she was hospitalized due to acute pulmonary edema. During hospitalization, a transthoracic echocardiogram (EchoTT) was performed, which showed a left ventricle with an ejection fraction (EjF) of 28% due to diffuse hypokinesia, dilation of the left auricle with PSAP 52 mmHg. Heart failure was assumed with reduced Fej and despoiling therapy was started (furosemide and spironolactone). It was decided to discontinue osimertinib and she was referred to the Cardiooncology consultation, which, given the suspicion of heart failure with reduced FjE, equated iatrogenesis to osimertinib. In this consultation, Fej remained severely compromised 22%, so osimertinib was suspended. Reassessed in 1 month by Cardiooncology with clinical improvement, reduction of NTproBNP and echocardiogram showing Fej 32%. Dilated cardiomyopathy was diagnosed in a patient on osimertinib. Given the clinical, laboratory and ultrasound improvement, osimertinib was reintroduced with a dose reduction (40mg/day), awaiting an ultrasound evaluation after reintroduction of osimertinib.
Discussion: Studies show that cardiomyopathy associated with osimertinib is described in 2.6% of patients, of which 0.1% are fatal, being more frequent in elderly patients or patients with hypertension. This entity should be suspected in patients with a decrease of more than 10% in Fej or Fej < 50%. Therefore, it is important to perform, in addition to the ECG, an echocardiogram before and after the introduction of osimertinib to monitor Fej. In most cases, discontinuing osimertinib allows recovery of cardiac function, suggesting that cardiotoxicity is probably reversible, with most patients tolerating reintroduction of osimertinib with dose reduction.

Keywords: *Osimertinib. Cardiomyopathy.*

PC 082. A RARE CASE OF PRIMARY EPITHELIAL-MYOEPITHELIAL CARCINOMA OF THE LUNG

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Introduction: Primary epithelial/myoepithelial carcinomas of the lung are quite rare, accounting for only 0.1-0.2% of all lung tumors. It is a subtype of salivary gland tumor originating in the submucosal tracheobronchial glands, presenting in most cases as an endobronchial mass. Its diagnosis is based mainly on histopathology and immunohistochemistry.
Case report: Patient, male, 75 years old. Autonomous in activities of daily living. Retired welder. Former smoker (estimated tobacco load of 20 packs). With a history of arterial hypertension, type 2 diabetes mellitus and dyslipidemia. Medicated with indapamide 1.5 mg, amlodipine/valsartan 5/80 mg, empagliflozin/metformin 5/1,000 mg and rosuvastatin 10 mg. He went to the Family Doctor for constant right back pain that worsened with movement, denying other associated symptoms. In this context, he underwent complementary diagnostic tests for investigation, of which a computed tomography (CT) of the chest stands out, showing evidence of a "right suprahilar lesion measuring 3.6 × 2 cm, with regular contours, suspected of an eventual atypical lesion". Thus, he was referred to a Pulmonology consultation for an etiological study. On physical examination, he was eupneic on room air, with good peripheral saturation and with globally reduced vesicular murmur on pulmonary auscultation, with no adventitious sounds. Bronchoscopy revealed "in the right upper lobe bronchus, at B1, the presence of an endobronchial growth mass that obliterates it", whose cytology of both the brushing and the bronchial secretions was suspicious for neoplastic cells and whose biopsy of the mass later revealed that it was treated of an epithelial/myoepithelial carcinoma. For staging, PET-CT was performed with "anomalous hyperuptake (SUVmax 3.6) in a lung lesion in the right upper lobe, parahilar, measuring 4 × 2 cm; no other lesions that express hypermetabolism suggestive of malignancy were identified" and cranioencephalic CT with no evidence of metastasis Collaboration with Otorhinolaryngology was requested to evaluate the patient, and a CT of the neck was performed, thus excluding a primary tumor of the salivary glands with pulmonary metastasis. The case was later discussed in a multidisciplinary meeting of Pulmonology Oncology, deciding that it would be indicated for surgical treatment. Thus, he was referred to Thoracic Surgery, and is currently awaiting surgical intervention.
Discussion: Primary epithelial-myoepithelial carcinoma of the lung is considered a low-grade malignant neoplasm, with an apparently favorable prognosis (but taking into account its rarity with still few established data), especially when subjected to surgical resection. However, it can recur and metastasize. With this clinical case, we intend to highlight the importance of a multidisciplinary approach to the patient with the support of different Medical Specialties both in the diagnostic process and in the subsequent treatment. The role of fiberoptic bronchoscopy in obtaining the diagnosis is also highlighted.

Keywords: *Lung cancer. Epithelial/myoepithelial carcinoma. Multidisciplinarity.*

PC 083. ASPERGILLOSIS IN A PATIENT WITH PULMONARY ADENOCARCINOMA

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Introduction: In patients with respiratory complaints and constitutional syndrome, the possibility of a lung neoplasm should be considered. However, especially in patients with a long-standing clinical history, the existence of other concurrent diseases should be investigated.
Case report: We present the case of a 65-year-old man, a smoker (50 pack-years), with no regular medical follow-up or habitual medication. He was admitted due to a clinical presentation that had been evolving for 6 months, characterized by dyspnea at rest, cough, hemoptoic sputum, hoarseness, a 15% weight loss, asthenia, and anorexia. There was no respiratory failure. Thoracic CT scan revealed a voluminous cavitary lesion in the right parahilar region (44 × 42 mm), with thickened walls, fistulizing into the left main bronchus, extending cranially through the right thoracic operculum and contiguous with the mediastinum. Adjacent to this lesion, two other cavities of 42 × 28 mm and 12 × 10 mm were also identified. Serial sputum smears for acid-fast bacilli (AFB) were negative. Bronchoscopy revealed right vocal cord paresis, deformation of the tracheal trajectory, and destruction of the carina due to a large right-sided cavern with areas of necrosis. Bronchoalveolar lavage tested positive for *Aspergillus* spp DNA, while the rest of the investigations (AFB, mycobacteriology, bacteriology, and mycology; DNA for *Mycobacterium tuberculosis*, avium, intracellulare, and Nocardia) were negative. Cytology did not show evidence of atypical cells or suggestive changes of mycobacterial infection. Bronchial biopsy showed epithelial squamous metaplasia compatible with adenocarcinoma, associated with fragments showing necrotizing suppurative changes. Serum IgG for *Aspergillus* was > 80 U/mL. The patient was diagnosed with advanced adenocarcinoma with extensive destructive lung lesions, complicated by invasive aspergillosis. He started treatment with voriconazole 400 mg/day and was referred to Medical Oncology. However, his clinical course rapidly deteriorated, leading to death 21 days after diagnosis.
Discussion: In patients with lung cavitations, as seen in the context of neoplasms, the possibility of concomitant cavitary pulmonary aspergillosis should be considered. These clinical conditions can sometimes present with overlapping symptoms, such as cough (productive/hemoptoic), dyspnea, anorexia, and fatigue. Therefore, a high index of suspicion is essential in the evaluation and appropriate management of these patients to ensure timely and accurate diagnosis and treatment.

Keywords: *Adenocarcinoma. Aspergillosis. Cavitations. Bronchofibroscopy.*

PC 084. LUNG METASTASIS AND PROSTATE CANCER – AN UNUSUAL PRESENTATION

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Introduction: Pulmonary involvement by metastatic disease is common in multiple cancers, like colon and breast cancers. However, pulmonary metastasis from prostate cancer is less common and very rarely the diagnosis is made from the lung lesion. Differentiation between a primary lung cancer and secondary involvement is essential, as it implies different therapeutic strategies.
Case report: A 84-year-old male presented to the Emergency Department due to worsening condition of asthenia, cough with mucoid sputum, anorexia and weight loss of about 10 kg in the last 5 months. Chest CT scan documented multiple bilateral mediastinal and hilar lymphadenopathy at the thoracic level, hilar lesion with reduced caliber to the right of the upper and middle lobe bronchi associated with scattered micronodulation throughout the lung parenchyma with slight densification in ground glass and thickening of interlobular septa. He was referred to Outpatient Pulmonology and bronchofibroscopy was requested, which documented enlargement of spurs and scattered areas of mucosal infiltration on the right that were biopsied. In this time interval, the patient returned to the ER due to lower urinary symptoms and edema of the left lower limb, having been evaluated by Urology. An abdomino-pelvic CT scan showed a circumferentially thickened bladder wall, inseparable from the contours of the prostate and seminal vesicles, and lumboaortic and obturator lymph node enlargement, the largest on the left measuring 6 × 3 cm. Obtained anatomopathological result of bronchial biopsies compatible with metastatic prostate carcinoma, Gleason grade 10 (5+5). Case discussed in multidisciplinary meeting of thoracic tumors, having been proposed for chemotherapy.
Discussion: Pulmonary involvement by prostate cancer is uncommon and the cases in which the diagnosis is obtained through bronchial biopsies are rare. This case reinforces the importance of a holistic assessment of the patient and the integration of the various symptoms mentioned by the patient. The multidisciplinary discussion of these cases is essential to give the best guidance.

Keywords: *Metastasis. Lung. Prostate.*

PC 085. EWING'S SARCOMA OF THE PULMONARY VEIN: A RARE CASE.

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Introduction: Ewing's Sarcoma is a rare neuroectodermal tumor, which usually involves bone structures, being more frequent in children or young adults. Extraosseous Ewing's Sarcomas are even more uncommon, affecting the soft tissues of the chest wall, paravertebral region and gluteal muscles. Cases referring to Ewing's Sarcomas of the pulmonary vein are unheard of.
Case report: 23-year-old woman, with no known personal history, was admitted to the Gastroenterology Department due to Acute Pancreatitis. During the hospital stay, she developed headache associated with dizziness and change in vision complaints, having performed a cranioencephalic CT, which showed multiple expansive lesions. Given the possibility of brain metastases from an unknown primary tumor, thoracic-abdominal-pelvic CT was performed and it showed an extensive lobulated mass with gross calcifications in the right lower lobe, with involvement of the pulmonary vein, left auricle and right lower lobe bronchus, nodular areas suggestive of carcinomatous lymphangitis and juxtapleural nodular area in the ipsilateral lobe, adjacent to the vertebral body of T7. Bronchoscopy was performed, showing a clot at the level of the anterior segmental orifice of the right lower lobe bronchi. After aspiration of the clot, a bilobed swelling was visualised, which was biopsied. Transthoracic echocardiogram showed a mass of compact and of homogeneous consistency that entered the left atrium through the right superior pulmonary vein, which extended into its interior. Anatomopathological result of bronchial biopsies of undifferentiated small and round cell malignancy, and together with immunohistochemistry and the other data was in favor of Ewing's sarcoma of the right pulmonary vein, with intracardiac extension and lung and brain metastases.

Discussion: Although rare, Ewing's Sarcoma should be one of the differential diagnoses to be considered in chest masses, especially in young adults. Its differentiation from other lung tumors is difficult, since the symptoms and imaging are not specific, making it crucial to obtain biological samples from the tumor. Its diagnosis is based on immunohistochemistry, very suggestive in cases with histology with small and round cells.

Keywords: *Cancer. Sarcoma. Ewing. Lung.*

PC 086. SMALL CELL LUNG CANCER – A DIFFERENT CASE

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Introduction: SCLC is the most aggressive histological type of lung cancer and is strongly associated with smoking, being rare in non-smokers. Survival is low (< 10% at 5 years), even in limited disease.
Case report: Male, 79 years old, non-smoker, secondhand smoke exposure (SHS). History of hypertension, diabetes and hypocoagulated atrial fibrillation. Hospitalization in September/2020 due to COVID-pneumonia. Sent for consultation, asymptomatic, with excellent general condition. PET-CT showed a high metabolic-grade lesion on the right upper lobe (RUL). Bronchoscopy showed no lesions. Blind bronchial wash and brush (RUL) were compatible with small cell carcinoma (SCLC), which was confirmed by a transthoracic biopsy. Molecular study had insufficient DNA. Brain-MRI didn't show unequivocal metastasizing lesions. Therefore, a diagnosis of SCLC in stage IIIB (T3N2M0) was made. He underwent 5 cycles of chemotherapy with carboplatin and etoposide (ending in March/2021) and concomitant radiotherapy, with a 26% reduction in lesion size. It was decided not to perform prophylactic cranial irradiation due to the patient's age. In May/2022, there was evidence of local right parahilar recurrence on chest-CT; brain-MRI without evidence of metastasis. It was decided rechallenge a with carboplatin and etoposide, which was started in June/2022 (4 cycles). The chest-CT reassessment in September/2022 showed a stable disease and a similar brain-MRI result. Surveillance was maintained, and there was suspicion of local right parahilar recurrence in February/2023. PET-CT showed only local uptake and brain-MRI revealed no metastases. As this is a SCLC with atypical behaviour, a review of the initial biopsy slides was requested, which favoured neuroendocrine neoplasia, with scarce neoplastic representation and impossibility of performing Ki67, not allowing a safe discernment between atypical carcinoid and SCLC. For confirmation, a rebiopsy was performed by EBUS-radial (May/2023), confirming the diagnosis of SCLC. He was proposed for local RT, which was precluded because the maximal dose in the healthy lung was reached. A new rechallenge with carboplatin and etoposide was decided, and he is currently in the first cycle.
Discussion: We present a case of SCLC in a non-smoker, with a peripheral lung lesion and a survival of 2 years and 10 months, without metastasis. All these characteristics are atypical of SCLC, highlighting the importance of histological confirmation and multidisciplinary shared decisions, particularly in less typical cases such as the one presented. SHS and radon exposure are described as possible risk factors for SCLC in non-smokers. Survival in these patients is also poor overall, with a reported 2-year survival of ~17%. Some oncogenes and tumour suppressor genes have been implicated in the pathophysiology of SCLC, especially in non-smokers, and molecular characterization in this patient might have been important. The clinical characteristics and prognosis of patients with SCLC seem to differ between smokers and non-smokers. However, the data are scarce and contradictory, making it important to report sporadic cases in non-smokers, with a discussion of risk factors and survival, as in the case presented here.

Keywords: *Lung cancer. Small-cell lung cancer. Smoke. Survival.*

PC 087. LUNG CANCER: A RARE HISTOLOGICAL DIAGNOSIS

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Introduction: Lung cancer is the leading cause of cancer-related deaths worldwide, with an estimated 1.8 million deaths in 2020, making it the 4th leading cause of cancer in both sexes.
Case report: A 70-year-old Caucasian woman, autonomous, non-smoker. Pre-existing diagnoses: arterial hypertension and dyslipidemia, medicated with perindopril and pitavastatin; OSA under CPAP therapy. She presents with exertional dyspnea, wheezing, and rhinorrhea with a two-month evolution. Due to suspected asthma and rhinitis, she started therapy with inhaled fluticasone furoate/vilanterol, intranasal fluticasone furoate and bilastine, showing partial improvement of the symptoms. Initial studies revealed: hemoglobin 12.6 g/dL; normal thyroid function, D-Dimers and NT-proBNP; pulmonary function tests were unaltered; chest X-ray showed bilateral enlargement of the pulmonary hila; transthoracic echocardiography revealed slightly dilated left atrium and ventricle, ejection fraction 48%, PSAP 30 mmHg. She sought the Emergency Department due to worsened symptoms associated with left-sided pleuritic chest pain. Upon observation: arterial hypertension, normal heart rate, afebrile, eupneic, SpO2 93% (room air), decreased vesicular murmur in the lower third of the left hemithorax. Blood tests were normal. Chest CT revealed a left hilar lesion involving the bronchi, left postero-basal atelectatic consolidation with stenosis of the segmental bronchus, homolateral pleural effusion, areas of pleural thickening, multiple hilar and mediastinal adenopathies, and minimal posterior pericardial effusion. She was admitted to the Pulmonology Department for further investigation. Thoracic ultrasound and diagnostic thoracentesis were performed revealing: non-pure pleural effusion, adjacent lung atelectasis, and pleural thickening; 1,000 mL of serofibrinous fluid (exudate) was drained, and the cytological examination was negative for neoplastic cells. Fibrobronchoscopy showed decreased caliber of the left upper and lower bronchi due to widening of the spurs and mucosal edema with obliteration of the folds. Additional staging with thoracic, abdominal, and pelvic angio-CT revealed celiac and supraclavicular adenopathies. Microbiological and cytological examination of bronchoalveolar lavage was negative. Bronchial biopsies revealed bronchial infiltration by small B-cell non-Hodgkin's lymphoma (NHL), with morphological and immunohistochemical characteristics compatible with marginal zone B-cell lymphoma. After hospital discharge, she was referred to the Hematology Department. An osteomedullary biopsy showed no alterations. The diagnosis of marginal zone lymphoma of bronchus-associated lymphoid tissue (BALT) stage IVA was confirmed, and treatment with chlorambucil and rituximab was initiated. Talc pleurodesis was performed for symptomatic recurrent left pleural effusion with successful resolution.
Discussion: The mucosa-associated lymphoid tissue (MALT) lymphoma is a subtype of marginal zone B-cell NHL that occurs in 7-8% of cases. It most commonly affects the stomach (35%), ocular adnexa (13%), skin (9%), lung (9%), and salivary glands (8%). Primary pulmonary lymphomas are rare and account for 0.5-1% of primary lung neoplasms, with BALT lymphoma being the most common histological subtype (77-87%). Symptoms are typically nonspecific, such as dyspnea, cough and fatigue. It occurs in individuals over 60 years old and follows an indolent course with a favorable prognosis. First-line therapy for advanced disease is immunochemotherapy.

Keywords: *Lung cancer. Non-Hodgkin lymphoma. Malt lymphoma. Balt lymphoma.*

PC 088. NOT EVERYTHING IS AS IT SEEMS: CILIATED MUCONODULAR PAPILLARY TUMOR, A CAUSE OF PULMONARY MASS

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Introduction: Ciliated muconodular papillary tumor is a rare neoplasm characterized by papillary structures with ciliated, mucinous, and basal cells. It can occur in both smokers and non-smokers, typically affecting the lower lobes. Generally, it follows a benign course, requiring only partial surgical resection.
Case report: A 59-year-old man, former smoker (25 pack-years), was referred to the pulmonology consultation due to a two-year history of cough, dyspnea on moderate exertion, and severe fatigue. He also experienced recent self-limiting episodes of hemoptysis, anorexia, and weight loss. Chest computed tomography (CT) revealed a 45 mm consolidation in the right upper lobe (RUL) with increased 18FDG PET uptake (maximum SUV 2.5). There was no evidence of lymphadenopathy on CT or PET, and brain magnetic resonance imaging showed no space-occupying lesions. He underwent a transthoracic biopsy (TTB) guided by CT, and the pathology was consistent with lung adenocarcinoma (positive for CK7 and TTF1). Endobronchial ultrasound-guided bronchoscopy (EBUS) was performed, ruling out lymph node involvement, and staging the tumor as cT2b, N0, M0 (stage IIA), with PD-L1 expression at 0 to 1% and NGS showing no targetable therapeutic mutations. Following a multidisciplinary discussion, the patient underwent video-assisted thoracoscopic surgery with RUL lobectomy and lymph node dissection. The pathology confirmed a ciliated muconodular papillary tumor without lymph node involvement, and the review of the TTB specimen corroborated the surgical findings. The patient is currently under surveillance, having been reevaluated with a chest CT at three months, showing no signs of recurrence.
Discussion: Ciliated muconodular papillary tumor is often interpreted as a primary lung tumor due to its peripheral location, irregular borders, and potential slow growth. It is a rare tumor, which in itself poses challenges in identification. Certain morphological aspects, such as the formation of papillae and the presence of mucin-producing cells, may lead to confusion with an adenocarcinoma. However, the tumor highlighted in this case exhibits ciliated cells (indicative of benignity) and lacks nuclear atypia. Regardless of the surgical intervention, it has a low tendency to recur and does not metastasize. We present a case of a ciliated muconodular papillary tumor in the left upper lobe with evident diagnostic difficulty that was successfully treated with lobectomy.

***Keywords**: Ciliated muconodular papillary tumor. Transthoracic biopsy. Lung adenocarcinoma. Endobronchial Ultrasound-Guided Bronchoscopy. Video-Assisted Thoracoscopic Surgery. Lobectomy. Benign Tumor.*

PC 089. CANNONBALL METASTASES: A RARE PULMONARY PRESENTATION OF DIFFUSE LARGE B CELL LYMPHOMA

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Introduction: Diffuse large B cell lymphoma (DLBCL) is a type of non-Hodgkin lymphoma characterized by its aggressive presentation with extranodal involvement at diagnosis in about 40% of cases. Lung involvement is rare and a "cannonball" radiological pattern is an unusual form of initial presentation of DLBCL, with only a few cases previously reported.
Case report: A 78 years-old female, without any relevant medical background was admitted to the emergency department (ED) with a history of dry cough for the last year which has worsened on the previous three weeks. She also reported dyspnea to small efforts, vespertine fever with good response to antipyretic drugs and occasional hypersudation. An involuntary weight loss of ten kilograms in this time frame was reported and the patient had been already medicated with two cycles of empiric antibiotics in the last month, without improvement. On chest radiograph a "cannonball" pattern could be seen and the patient was admitted to the ward for investigation of probable neoplasic disease of unknown origin. An abdominal and pelvic computerized tomography scan was performed and cervical, axillar, hilar, mediastinal, mesenteric, retroperitoneal and peritoneal matted lymph nodes, low density hepatic and splenic nodules and several bilateral lung nodules as could be seen on initial chest radiograph. Positron emission tomography with fluorodeoxyglucose (PET-CT-FDG18) showed numerous lung nodules, right lung effusion and upper and lower diaphragmatic matted lymph nodes with hypermetabolic pattern. An excisional cervical lymph node biopsy was performed and a diagnosis of diffuse large B cell lymphoma, stage IV-B, was made. Chemotherapy was started with R-miniCHOP protocol and after the tenth day of treatment significant regression of lung lesions could be seen.
Discussion: Diffuse large B cell lymphoma is an aggressive type of non-Hodgkin's lymphoma, usually diagnosed already in advanced stages with extranodal involvement. Gastrointestinal involvement is the most common place of extranodal progression, but any other organ can be involved. Lung involvement is normally seen with ground-glass opacities or cavitated lesions, being a "cannonball" radiological pattern a much more atypical presentation of this haematological disease.

***Keywords**: Diffuse large B cell lymphoma. Pulmonary metastasis. Pulmonary nodules.*

PC 090. APPROACH TO HEPATIC METASTASIS FROM NEUROENDOCRINE LUNG TUMORS: WHAT ARE THE OPTIONS?

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Introduction: Neuroendocrine tumors are rare tumors with heterogeneous clinical presentation and prognosis. The liver is the most common site of metastasis. Hepatic metastasis of carcinoid tumors can lead to the development of carcinoid syndrome, as well as local complications such as biliary obstruction or hepatic insufficiency. There are various therapeutic strategies available based on the characteristics and extent of hepatic disease as well as the patient's clinical condition.
Case report: We present the case of a 90-year-old gentleman, immigrant, with an ECOG performance status of 2, non-smoker, and a history of cerebrovascular disease, dyslipidemia, and sleep apnea. He was diagnosed with a neuroendocrine lung tumor and underwent lung resection surgery in 1993. He experienced hepatic recurrence in 2012 and underwent subsequent surgical resection of the metastasis. Documented hepatic disease recurrence in 2019 led to the initiation of systemic therapy with octreotide. He returned to Portugal in 2022 and continued monthly octreotide treatment for diffuse hepatic metastasis, initially with stable imaging findings of the hepatic lesions. Since February 2023, he had multiple visits to the emergency department for symptoms of nausea, diarrhea, fever, dyspnea, wheezing, facial swelling, and generalized itching, prompting several courses of antibiotic and corticosteroid therapy. Analytically, he exhibited worsening cholestatic pattern and a sig-

nificant elevation in chromogranin A levels (1,218.8 ng/mL (0-100)). Concurrently, unfavorable imaging evolution of the hepatic lesions and a focus of peritoneal implant were documented. Given the probability of carcinoid syndrome secondary symptoms in the context of progressive hepatic oncological disease, an assessment of the feasibility of hepatic embolization by interventional radiology was requested. The patient underwent the first session of transarterial embolization in May 2023. Since then, he has experienced good symptomatic control, with no new episodes of fever or facial swelling. A decision was made not to proceed with another embolization session due to the patient's age, overall condition, and risk-benefit balance of the therapeutic strategy. He is currently maintained on octreotide treatment.
Discussion: This case underscores the fact that hepatic disease often determines the prognosis in patients with indolent neuroendocrine tumors. For patients who are eligible for resection of > 90% of metastases, without evidence of extrahepatic disease and with a performance status suitable for intervention, metastasectomy is considered first-line treatment, despite a high recurrence rate (50-95%), mainly within the first 3 years post-surgery. For patients who are not surgical candidates, targeted treatment options such as transarterial embolization, chemoembolization, or radioembolization exist, which can offer locoregional control and alleviate symptoms of carcinoid syndrome.

Keywords: *Neuroendocrine lung tumors. Carcinoid syndrome. Hepatic metastasis. Transarterial embolization.*

PC 091. PULMONARY TOXICITY TO OSIMERTINIB – A CLINICAL CASE REPORT

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Introduction: Osimertinib is an irreversible tyrosine kinase inhibitor (TKI) that targets the epidermal growth factor receptor (EGFR). It has an effect on the EGFR T790M mutation, which confers resistance to other TKIs. It is indicated for non-small cell lung cancer (NSCLC) as adjuvant treatment after complete tumor resection in stage IB to IIIA patients with exon 19 deletions or exon 21 substitution mutations of EGFR. It is also indicated as a first-line treatment for locally advanced or metastatic NSCLC with EGFR mutations (including T790M mutation). The ADAURA (adjuvant treatment for EGFR-mutated NSCLC with or without prior adjuvant chemotherapy), FLAURA (treatment of EGFR-mutated locally advanced or metastatic NSCLC without prior treatment), and AURA3 (treatment of locally advanced or metastatic NSCLC with T790M EGFR mutation progressing on or after EGFR TKI treatment) trials have demonstrated the efficacy and safety of osimertinib in these populations. Adverse reactions in the form of interstitial lung disease (ILD) were reported in 3.7% of patients in these studies, with a higher incidence observed in Japanese patients (10.4%) compared to non-Asians (2.8%).
Case report: We present the case of an 82-year-old Caucasian woman, non-smoker, with stage IVB (T4N3M1c) lung adenocarcinoma harboring a Leu858Arg mutation in EGFR exon 21. She was undergoing first-line treatment with osimertinib 80 mg/day. About 1 month after treatment initiation, she presented to our emergency department with severe dyspnea. Type 2 respiratory failure and a right pleural effusion with increased volume compared to the diagnosis date were identified, along with "extensive bilateral lung infiltrates, suggestive of either infectious/inflammatory lung disease or progression of potential carcinomatous lymphangitis." Osimertinib was discontinued, empirical antibiotic therapy was initiated, as well as non-invasive ventilation, and chest tube drainage of the pleural effusion was performed, resulting in progressive clinical improvement. Upon reintroduction of osimertinib, the patient experienced worsening dyspnea and respiratory failure, requiring increased oxygen supplementation. Due to suspicion of ILD induced by osimertinib, the drug was again discontinued, and corticosteroid therapy was initiated, leading to further clinical improvement.
Discussion: We present a representative case of a side effect of osimertinib – the development of ILD. According to initial trials, this adverse reaction typically occurs around 84 days after treatment initiation. However, some real-world studies suggest a median time to ILD development of 40 days, closer to the observed timeframe in this case. Furthermore, they also suggest that the incidence of ILD may not be as low as previously reported and could reach up to 18%, albeit with varying clinical severities. This case aims not only to illustrate this side effect but also to highlight its potentially higher incidence than previously assumed, emphasizing the importance of early identification. It's important to consider that the widespread use of this drug will likely lead to increased observation of similar cases in our clinical practice.

Keywords: *Non-small cell lung cancer. Lung adenocarcinoma. EGFR TKI. Osimertinib.*

PC 092. VOLUMINOUS MASS IN THE ANTERIOR MEDIASTINUM/LEFT HEMITHORAX – A CLINICAL CASE REPORT

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Introduction: Thoracic tumours can originate from various organs, and their diagnosis is not always straightforward due to the complex interplay of structures in this area. They can originate in the mediastinum with invasion of the adjacent lung or have a pulmonary origin with mediastinal invasion. While chest CT is essential for differentiation, the distinction is not always easy.
Case report: We present the case of a 49-year-old male with a history of resolved hepatitis C, hypertension, active smoking (with a smoking history of approximately 50 pack-years), and former illicit substance use (heroin). The patient presented to our emergency department with a 3-month history of progressively worsening chest pain, associated with a weight loss of 30 kg over the preceding 6 months and progressively worsening dyspnea. Chest CT revealed a voluminous, heterogeneous mass on the anterior aspect of the left hemithorax, measuring 12.3 × 12.4 cm, possibly originating from the anterior mediastinum and invading the left hemithorax. It was in contact with the thoracic aorta, invading the anterior and upper abdominal wall on the left, the left diaphragm, the upper pole of the spleen, with destruction of costal arcs, and compressing the heart and left pectoral muscles. The patient was admitted for further investigation and underwent 2 transthoracic biopsies. The second biopsy led to the diagnosis of a probable sarcomatoid carcinoma (of thymic vs. pulmonary origin). The patient was referred to the Respiratory Oncology clinic but was soon readmitted due to uncontrolled pain and ultimately passed away.
Discussion: Pulmonary sarcomatoid carcinoma (PSC) is a rare subtype of non-small cell lung cancer (NSCLC), accounting for 0.1-0.4% of these tumors. Its representation in the literature is primarily in case reports or small series. The 2021 World Health Organization

classification of lung tumors recognizes five subtypes of PSC: pleomorphic carcinoma (including giant cell carcinoma and spindle cell carcinoma subtypes), pulmonary blastoma, and carcinosarcoma. Histological diagnosis of this entity is challenging, especially in non-surgical samples. Recent advances in molecular studies have shown the origin of this tumor on the dedifferentiation of adenocarcinomas or squamous cell carcinomas, suggesting a potential role for immunotherapy or targeted therapies directed at mutations found in these tumors. However, there are no official recommendations regarding treatment, and the effectiveness of the TNM classification in these tumors is yet to be established. It is considered a highly aggressive tumor with poor prognosis and low survival rates due to its high invasiveness, recurrence, and chemo-radio-resistance. The median overall survival is 7-12 months, and 5-year overall survival rates are less than 25%.

Keywords: *Non-small cell lung cancer. Pulmonary sarcomatoid carcinoma.*

PC 093. PULMONARY CARCINOSARCOMA – A CLINICAL CASE

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Introduction: Lung sarcomatoid carcinoma (PSC) is a rare neoplasm, which contains a component with epithelial differentiation and another with mesenchymal differentiation. According to the World Health Organization classification, CSP includes 5 subtypes: Pleomorphic Carcinoma, Spindle Cell Carcinoma, Giant Cell Carcinoma, Pulmonary Blastoma and Carcinosarcoma (CS). Its pulmonary location is extremely rare, corresponding to 0.4% of all lung tumors.
Case report: Male, 73 years old, ex-smoker for 30 years (< 15 UMA), with no other relevant pathology. He went to a Pulmonology consultation due to weight loss (10 kg in one year), haemoptoic sputum and right chest pain for the last 6 months. On physical examination, there were decreased lung sounds in the right apex, with no other alterations. Chest CT: Extensive heterogeneous mass on right upper lobe, with contrast enhancement, suggestive of cavitated neoplasm. There is also apparent pleural infiltration. Centimeter and infracentimeter mediastinal adenopathies in the paratracheal region, intercavatracheal space, subcarinal and right hilum. Flexible bronchoscopy: Right upper lobe with infiltrated-looking mucosa, bronchial biopsies were performed. Reduction in the caliber of the anterior segment of the LSD, mucosa without alterations, distal bronchial biopsies were performed. Bronchial biopsies: inflammatory infiltrate of the chorion, no malignant cells. We performed endobronchial ultrasound (EBUS) including the use of a radial probe. Bronchial biopsies: bronchial mucosa infiltrated by neoplasm with glanduliform component (CK7+, TTF1-) and undifferentiated fusiform component (carcinossarcoma? Spindle cell carcinoma?); PD-L1 70%. Staging exams also revealed a single bone metastasis in the right iliac bone. After discussion in a multidisciplinary meeting, the hypothesis of pulmonary carcinosarcoma (T4N3M1) was done. The patient started therapy with pembrolizumab. He is awaiting a new thoracic CT to reevaluate response to therapy.
Discussion: Lung carcinosarcoma is a rare neoplasm, with a higher incidence in males and in smokers with high tobacco load. The initial histological diagnosis is difficult since both components in the sample need to be intercepted. It is an aggressive tumor with poor prognosis and poor response to chemotherapy. Tyrosine kinase inhibitors and specific immunotherapy have been used in individual cases with favourable response.

Keywords: *Lung sarcomatoid carcinoma. Lung carcinosarcoma. Immunotherapy. PD-L1.*

PC 094. IS SURGERY ALWAYS THE BEST OPTION?

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Introduction: Early-stage lung cancer is a challenge both in the form of presentation and in defining the best therapy. Treatment depends on factors such as the localisation of the lesions and the assessment of surgical eligibility. The latter option is currently considered standard treatment in stage I lung cancer. However, with the introduction of new ablative techniques, stereotactic radiotherapy (SBRT) has shown promising results in this field.
Case report: We present the case of a 71-year-old man, with a history of hypertension, dyslipidaemia, chronic obstructive pulmonary disease, smoker (50 MU), peripheral arterial disease and history of right-sided empyema in childhood, secondary to renal infection. In February 2021, he was referred to the pulmonology consultation due to the identification, on thoracic computed tomography scan (CT), of an irregular infracentimetric nodular image (6-7mm) in the anterior segment of the right upper lobe. After serial reassessments with CT, significant growth of the nodule (16 × 12 mm) was observed in September 2022. It also showed calcified mediastino-hilar adenomegaly, sequelae emphysematous and fibrotic parenchymal changes, and multiple calcified pleural plaques on the right side. Histological characterisation by transthoracic aspiration biopsy identified a squamous cell carcinoma (SCC) of the lung with PDL1 of 30%. Positron Emission Tomography-CT (PET-CT) staging showed hypermetabolism of the nodule, suggestive of malignancy, and mediastinal ganglionar (stations 4R and 7) and bilateral bronchohilar hypermetabolism, reflecting malignant or inflammatory aetiology. Due to the doubtful involvement of the pulmonary hilum, an echoendoscopy with transbronchial aspiration (EBUSTB-NA) was performed for mediastinal staging and was negative for neoplastic cells at stations 4L, 4R, 7, 10L, 10R. Cranioencephalic MRI did not identify secondary lesions. It was discussed in a multidisciplinary oncological pulmonology meeting, and as it was a stage I SCC, the therapeutic options to be evaluated were surgery or SBRT. A cardiorespiratory function assessment was conducted, with an echocardiogram showing no significant changes and a respiratory function test compatible with surgical resection up to lobectomy. The patient had a performance status of 0, and surgery was proposed. Proposed for right upper lobectomy with mediastinal lymph node dissection, he underwent a posterolateral thoracotomy that revealed pleuroparenchymal adhesions of the right lower lobe, diffuse increase in lung parenchymal thickness, without identification of the cissures. Dissection of the hilum was laborious due to exuberant calcified adenopathies involving the right upper lobe artery and bronchus. An attempt was made to construct a cissure, but mechanical sutures were not possible due to the anomalous consistency of the parenchyma. Manual sectioning of the parenchyma with electrocoagulation (monopolar electric knife) was performed, with manual raffia in 2/3 of the thickness and placement of mechanical loads in the remaining 1/3. The postoperative period was difficult because of space occupation by the remaining lung, but the patient was discharged without significant postoperative complications. Retrospectively, CT scans already described structural lung changes, which could have anticipated the difficulties within the surgery. Thus, although surgery was the standard treatment in this case, SBRT could have been an equally valid therapeutic approach with fewer risks for the patient.

Keywords: *Lung cancer. Squamous cell carcinoma. Stage i. Surgery. Stereotactic radiotherapy.*

PC 095. DISCERNING THROUGH THE FOG: POST-ACUTE SEQUELAE OF SARS-CoV-2 INFECTION OR SOMETHING MORE?

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Introduction: Getting a definitive diagnosis when dealing with respiratory diseases is challenging because of the inherent non-specificty of symptoms. Symptoms such as fatigue, cough and dyspnea are usually reported by patients with post-acute sequelae of SARS-CoV-2 infection or Long COVID, masking and delaying diagnosis of other diseases like lung cancer. Now, more than ever, clinical examination of every patient needs to account for the complexity and intrinsic mimicking of different respiratory diseases.
Case report: A 55 years-old, non-smoking, female, was admitted to the emergency department (ED) with dyspnea for small efforts (mMRC 3) and persistent dry cough after SARS-CoV-2 infection three months before. She also reported nocturnal paroxysmal dyspnea and pleuritic chest pain. No exposure or epidemiological risk factors were found. No other relevant medical history was found. The patient had a previous admission to the ED with the same symptoms, being diagnosed with Long COVID and discharged with bronchodilators for symptomatic control without improvement. On admission, she was afebrile, with tachypnea (RR: 28 bpm) and tachycardic (HR: 120 bpm), persistent dry cough and increased respiratory workload, SpO2 (FiO2 0.21): 92%. On lung auscultation, decreased respiratory sounds on the middle of the left hemitorax and bilateral wheezes. Arterial blood gas analysis with hypoxemic respiratory failure when adjust to age (FiO2 0.21; pO2 63.1 mmHg). Slight elevation of D-Dimers in blood work (523 ng/mL). On chest radiograph, left superior lobar atelectasis and multiple bilateral lung nodules. The patient was started on oxygen and intensified inhaler therapy, without improvement. A computerized tomography angiography of the chest (CTAChest) was done and it showed a lung nodule on the left upper lobe causing secondary atelectasis; bilateral multiple nodules with apical-caudal distribution and irregular thickening of interlobar septa compatible with lymphangitic carcinomatosis. The patient was admitted to the ward, videobronchoscopy was performed and a heterogeneous and friable lesion could be seen at LC1, causing obstruction of upper left lobe and lingula segments. Biopsies of this lesion were made and histopathological analysis was consistent with lung adenocarcinoma. Head CT revealed the presence of lesions compatible with metastasis (left temporo-occipital region, right frontal parietal region). A final diagnosis was made of PD-L1 negative, stage IVB lung adenocarcinoma, without actionable mutations for treatment. Follow-up was done in lung oncology consultation, where chemotherapy was started with carboplatin e pemetrexed, but after initial stabilization, the patient presented gradual deterioration of health, resulting on her death four months after diagnosis.
Discussion: The significant prevalence of patients with Long COVID brings more challenges to the diagnosis of other respiratory diseases inside this population. The nonspecific nature of signs and symptoms of most respiratory diseases demands an exhaustive investigation work to clarify the clinical riddle present in these cases. The masking of lung cancer diagnosis because of symptoms attributed to sequelae of COVID disease, as shown in this case, are an important advice and learning tool to everyone's clinical practice, where Long COVID should be a diagnosis of exclusion.

Keywords: *Post-acute sequelae of SARS-CoV-2. Long COVID. Lung adenocarcinoma.*

PC 096. FROM TUBERCULOUS SPONDYLOSDISCITIS TO LUNG ADENOCARCINOMA

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Introduction: New bone lesions in patients with no known history of neoplasia make the diagnosis of metastasis more complex. Knowing that metastatic bone lesions may present different imaging patterns independently of the primary tumor, the diagnosis may not be straightforward. The differential diagnosis between metastatic bone lesions and infectious changes such as spondylitis or spondylodiscitis arises mainly in situations where multifocal bone involvement is seen.
Case report: This was a 68-year-old, autonomous, healthy, non-smoking patient who was transferred to the Pulmonology Department from the Neurosurgery Department. The patient was referred from the Local Health Center to the Emergency Department due to CT of the cervical spine, following complaints of left cervicobrachialgia with about 3 weeks of evolution, showing voluminous confluent lytic lesions involving the vertebral bodies of C5, C6 and C7, with an exuberant soft tissue component, with endocanal and foraminal expression on the left, suggestive of lesions of a secondary metastatic nature. A pathological fracture due to partial collapse of D6 was also described. The patient had no other complaints such as dyspnea, fatigue or consumptive symptoms. A complementary study was carried out with CT of the body, highlighting countless pulmonary micronodularities scattered throughout the pulmonary lobes, also suggestive of secondary disease. A complementary study of the cervical lesions with MRI revealed aspects related to spondylodiscitis with osteomyelitis and somatic collapse, giving rise to the diagnostic hypothesis of tuberculous spondylodiscitis. She was started on empirical therapy with Isoniazid, Rifampicin, Ethambutol and Pyrazinamide and was evaluated by Neurosurgery and underwent C5-C6-C7 corpectomy with spinal decompression, and an infiltrative and destructive lesion of the vertebral bodies was observed intraoperatively with areas of caseous exudate, consistent with tuberculosis lesions. Due to lung lesions suggestive of malignancy, bronchofibroscopy and bronchial biopsies were performed. After cytology of bronchoalveolar lavage and bronchial secretions positive for neoplastic cells, favoring adenocarcinoma and concomitant negative results of the direct and PCR tests of the same lavage, bronchial secretions, bronchial and bone biopsy and intraoperative pus, suspicion of tuberculosis was raised and therapy with HRZE was suspended, after 9 days of treatment. Subsequently, the anatomopathological examination of the cervical bone biopsy describes bone tissue with infiltration by adenocarcinoma of glandular and papillary pattern, with positivity for CK 7, TTF 1 and negativity for CK 20, CDX2, PAX8, CA125, WT1, GATA3 and thyroglobulin. Suggestive of metastasis from adenocarcinoma of pulmonary origin. After completing the investigation and clarifying the diagnosis, she was discharged from hospital with adjustment of analgesic therapy and referred to the Pulmonary Oncology consultation.

Keywords: *Metastasis. Spondylodiscitis. Adenocarcinoma. Tuberculosis.*

PC 097. THORACIC HEMANGIOMA: A CASE REPORT

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Introduction: Hemangiomas are benign vascular lesions, most commonly found in the skin or liver. Their presence in the thoracic region, especially in the thoracic wall, is rare, with very few cases described in the literature. Most cases have been reported in young

patients, with variable clinical presentations and a favourable prognosis.
Case report: A 61-year-old female patient with no significant personal history (including no personal or family history of oncological pathology) and an active smoker (with an estimated tobacco load of 45 pack-years) underwent a chest computed tomography (CT) scan in the context of a smoking cessation attempt. The patient did not present any symptoms or abnormalities on physical examination. The chest CT scan showed the presence of centrilobular emphysema predominantly in the upper lobes and a nodular lesion with an apparent pleural base, approximately 3 cm in diameter, located at the transition between the upper and lower left lobes. There were no visible hilar or mediastinal lymph nodes or other significant findings on the examination. Following this, the patient was referred to the Oncological Pulmonology Consultation, where the study of this lesion was initiated, including pulmonary function testing and transthoracic fine-needle aspiration biopsy. Pulmonary function testing was within normal limits, and the anatomopathological examination of the biopsy showed the presence of a benign vascular lesion with fragments of striated muscle tissue consistent with thoracic wall tissue, with no representation of lung parenchyma - these findings were compatible with Thoracic Hemangioma. The case was discussed in the Oncology Group Meeting, and given the characteristics of the lesion, the patient was proposed for its excision by Thoracic Surgery and is currently awaiting surgery.
Discussion: Although rare, thoracic hemangiomas should be considered in the differential diagnosis of neoformative lesions in the thoracic region. Their preoperative diagnosis is challenging, given their rarity and the fact that clinical and radiological findings are nonspecific, making biopsy and histopathological examination essential. With this case, we aim to raise awareness about this pathology, which despite its rarity, should be taken into account in the differential diagnoses of thoracic neoformative lesions.

Keywords: *Neoplasm. Hemangioma. Thoracic hemangioma.*

PC 098. SMALL CELL CARCINOMA AND ADENOCARCINOMA OF THE LUNG – A RARE INAUGURAL COMBINED PRESENTATION

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Hospital Professor Doutor Fernando Fonseca.

Introduction: The combined different histological types of primary lung carcinoma is a rare diagnosis. It has an incidence of 0.26 to 1.33%, with squamous cell carcinoma being the most frequent combined histologic type and the association of small cell carcinoma with adenocarcinoma very rare.
Case report: Female patient, 66 years old, autonomous, non-smoker. She presented at the Emergency Department with dyspnea, productive cough, asthenia, anorexia and unquantified weight loss over 3 months. Chest radiography showed total hypotransparency on the right pulmonary field with contralateral mediastinal shift compatible with right pleural effusion. Diagnostic thoracentesis documented a pleural effusion with exudate characteristics with lymphocytic predominance (86.5%), whose cytology was positive for neoplastic cells. Immunohistochemical study identified BerEP4 and TTF1 expression compatible with primary lung adenocarcinoma and PD-L1 expression of 1%. Subsequently, thoracic computed tomography (CT) with intravenous contrast was performed, identifying: a 9 × 5 cm mass in the right pulmonary hilum, mediastinal adenomegaly, the largest right paratracheal of 40 mm without cleavage plane with the right pulmonary artery and superior vena cava involving the right lower lobar bronchus and conditioning pneumonia. The patient also had right supraclavicular adenomegaly of 30 mm, right pleural effusion and pericardial effusion. Cranioencephalic CT excluded signs of secondary disease. Bronchofibroscopy identified a tumor mass occluding the right upper lobar bronchus and intermediate bronchus whose biopsies were compatible with small cell carcinoma, with immunohistochemical profile positive for CAM5.2, TTF-1 and CD56, Ki67 80% and negative for CD45. An initial diagnosis of primary lung neoplasm with combined histologies of small cell lung carcinoma (SCLC) and adenocarcinoma (ADC) was assumed. After discussion in a multidisciplinary team meeting, a therapeutic approach was chosen with chemotherapy and first-line immunotherapy with cisplatin, etoposide and atezolizumab (to be started in the second cycle). The patient underwent one cycle of chemotherapy showing the typical response of a CPPC with significant reduction of the lesion and right lung expansion. However, during hospitalization, the patient developed nosocomial pneumonia and segmental thromboembolism of the left lower lobe and died despite the measures instituted.
Discussion: The present case demonstrates the inaugural combined diagnosis of small cell lung carcinoma and adenocarcinoma in a non-smoking patient, which is a rare presentation of lung cancer. This diagnosis is associated with a worse prognosis and an increased challenge in the choice of therapy. Despite the initial therapeutic response, the patient died of complications associated with the oncological disease and therapy.

Keywords: *Adenocarcinoma. Small cell carcinoma. Combined small cell carcinoma.*

PC 099. GALACTORRHEA AS THE FIRST MANIFESTATION OF LUNG ADENOCARCINOMA – A CASE REPORT

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Introduction: Lung cancer is the second most prevalent malignant neoplasm and the most lethal worldwide. The paraneoplastic syndrome is relatively rare, appearing more frequently associated with small cell lung cancer and adenocarcinoma histology. Little is known about its prognostic implications, namely, influence on the course of the disease or response to therapy, but it is known that it is not directly caused by the primary neoplasm itself or by its metastases, but rather by the immune-inflammatory, degenerative and vascular complex associated with them.
Case report: The authors present the case of a 52-year-old woman with a personal history of cholecystectomy in the past, non-smoker, without respiratory symptoms and who presented with a 2-month history of bilateral galactorrhea, amenorrhea, weight loss (7 kg - 15% of normal body weight) and asthenia. From the investigation carried out, normal FSH and serial prolactin levels where obtained, normal mammography, normal brain CT scan and chest CT scan revealing irregular condensation in the anterior segment of the upper lobe of the right lung, with a small calcification in its center, ground glass opacity area and bronchiectasis, involving the anterior segmental bronchus and emitting spicules that reached the anterior costal pleura. Fiberoptic bronchoscopy was performed and no endobronchial lesions were identified with cytological study of bronchial aspirate and complete cultural examinations all negative. Finally, PET-CT was performed, which showed an increase in metabolism in the anterior slope of the LSD (SUVmax 4) with approximately 3.6 cm of longest axis. In multidisciplinary meeting we have decided to propose a surgical approach (diagnostic and therapeutic) since it was a young patient who had imaging findings suggestive of lung adenocarcinoma in a location difficult to approach by less invasive methods. The patient underwent right upper lobectomy with mediastinal and hilar lymph node dissection with a histological result consistent with lung adenocarcinoma PD-L1 < 1% and EGFR positive (mutation L858R). Post-surgical staging was IB (pT2a N1 Mx)

so she also underwent adjuvant QT with Carboplatin + Pemetrexed for a total of 4 cycles. Currently, with 1.5 years of follow-up, she remains without evidence of local or metastatic disease, clinically asymptomatic and with normalization of the menstrual cycle and without galactorrhea.
Discussion: This clinical case shows an extremely rare presentation of lung cancer, galactorrhea and amenorrhea, demonstrating how the level of suspicion for this disease should be low, avoiding delays in diagnosis with a huge impact on the prognosis and evolution of this entity.

***Keywords**: Paraneoplastic syndrome. Lung cancer. Galactorrhea.*

PC 100. THORACIC ENDOMETRIOSIS SYNDROME: THE CHALLENGE OF A CASE OF RECURRING CATAMENIAL PNEUMOTHORAX

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Introduction: Thoracic endometriosis syndrome (TES) consists of the presence of endometrial tissue in the airways, pleura or lung parenchyma. It is a rare clinical entity and is associated with the occurrence of catamenial pneumothorax (73%), hemothorax (14%), hemoptysis (7%) and pulmonary nodules (6%) in women of reproductive age, usually being associated with pelvic endometriosis (50-84%) and infertility.
Case report: A 42-year-old female, smoker (smoking load: 16 pack-years), with no previously known medical diagnoses, obstetric index 0000, presented the first episode of right-sided spontaneous pneumothorax in 07/2022, with the need for pleural drainage, followed by a second episode of right-sided spontaneous pneumothorax in 09/2022. She was submitted to thoracoscopic surgery, talc pleurodesis, parietal pleurectomy and segmentectomy, with no visible structural changes. The chest computed tomography (CT) from 07/2022 and 09/2022 presented right-sided pneumothorax, mild paraseptal emphysema in the right apex and a small amount of pleural fluid on the dependent region of the right hemithorax. The histopathological examination of the surgical resection specimen showed: lung parenchyma with emphysematous features and bullae, fibrotic areas with thickened-walls blood vessels and anthracotic pigmentation, thickened pleura with fibrosis, and no signs of specific inflammation or malignancy, which was consistent with subpleural bullous emphysema. Laboratory tests: normal serum level of alpha-1 antitrypsin (160 mg/dL) and normal immunoglobulins, with no relevant changes. The patient presented recurring right-sided pneumothoraces in 09/2022 and 01/2023, after the pleurectomy, and a temporal relationship between the pneumothoraces and menstruation was detected, supporting the hypothesis of catamenial pneumothoraces, although there were no signs of pleural or diaphragmatic endometrial lesions or defects at the time of the thoracoscopic surgery. She started complaining of abdominal pain and right-sided chest and shoulder pain worsening shortly afterward the menstrual phase. She performed an abdominal-pelvic magnetic resonance (MRI) (11/2022) depicting: right-sided diaphragmatic defects with herniary expressions, consistent with endometrial lesions; thickening of the uterine torus and sacrouterine ligaments, especially on the right side, consistent with deep pelvic endometriosis; focal adenomyosis on the right fundic region of the uterus; and a small angiomyolipoma in the left kidney. The patient was referred to Obstetrics/Gynecology and she was medicated with combined hormonal contraceptives (dienogest 2 mg + ethinylestradiol 0.03 mg), which she is currently taking continuously.
Discussion: In this case, the clinical presentation of thoracic endometriosis, with recurring catamenial pneumothoraces, preceded the clinical expression of pelvic endometriosis. It is also of note the absence of signs of pleural or diaphragmatic endometrial lesions at the time of the thoracoscopic surgery, which were only identified in the subsequent abdominal-pelvic MRI. Due to its nonspecific signs and symptoms, the diagnosis of TES is complex and often delayed. Clinically, TES associates with thoracic pain, dyspnea, cough, hemoptysis and shoulder pain, occurring in women of reproductive age in the menstrual phase. The initial treatment consists of medical therapy, with hormonal treatment to suppress ovarian estrogen secretion. When medical treatment fails, surgical treatment is suggested and includes chemical pleurodesis, removal of ectopic endometrial tissue (through wedge resection or limited segmentectomy), closing diaphragmatic defects, abrading of pleural surfaces, and pleurectomy.

***Keywords**: Thoracic endometriosis syndrome. Catamenial pneumothorax. Thoracoscopic surgery. Pleurectomy.*

PC 101. AN UNLIKELY PLEURAL INCIDENTALOMA

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Introduction: Breast cancer has a higher recurrence rate in the first year, most occurring in the first 3 years after surgery, being particularly rare after 20 years of radical mastectomy.
Case report: 68-year-old woman, former smoker of 15 packs/year, with a history of bilateral invasive ductal carcinoma of the breast diagnosed in 2003, for which she underwent bilateral radical mastectomy, chemotherapy, radiotherapy, and hormone therapy (until 2008). No previous history of occupational exposure. She went to the emergency department, referred by her family doctor, after electively had a chest X-ray performed, which showed hypotransparency in the entire left lung field. No complaints valued by the patient. On admission, SpO2 97% (FiO2 - 21%), highlighting only semiology of left pleural effusion. The analytical and gasometric evaluation showed no changes. Chest CT confirmed the presence of a large left pleural effusion with pleural thickening with a nodular appearance (7-8 mm thick), nodular densification of the mediastinal pleura with a more nodular area (20 × 15 mm) in the anterior mediastinum on the right with atelectasis on the left lower lobe and lower segment of the lingula. In this context, she underwent thoracocentesis with output of 1,150 ml of serofibrinous fluid, compatible with exudate. The anatomopathological result of the pleural fluid was negative for the presence of neoplastic cells. Due to pleural thickening, the patient was proposed for pleural biopsy, having performed, due to greater accessibility and ease of performance, blind pleural biopsies, which proved to be insufficient for diagnosis. In this context, she performed a CT-guided pleural biopsy, which confirmed the presence of cells with nuclear pleomorphism, and with staining in the immunohistochemical study compatible with breast carcinoma metastasis. The patient was referred to a Medical Oncology consultation, with confirmation of breast cancer recurrence, having initiated targeted medical treatment with chemotherapy.
Discussion: Surveillance of cancer recurrence by chest imaging is not recommended in asymptomatic patients after curative treatment of breast cancer. This case depicts an incidental diagnosis of pleural recurrence of breast cancer, uncommon after 20 years post-mastectomy, which was diagnosed incidentally after elective chest X-ray. CT-guided pleural biopsy is a minimally invasive, fast and a cost-effective diagnostic technique compared to thoracoscopy, with a higher diagnostic rate than blind pleural biopsies, having been essential in this case for the diagnostic identification of recurrence and timely therapy.

Keywords: *Incidental diagnosis. Metastases. Ct-guided pleural biopsy.*

PC 102. PLEURAL INVOLVEMENT BY MAST CELL LEUKEMIA: RARE CASE CONFIRMED BY THORACOSCOPY

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Introduction: Mast cell leukemia is a rare and aggressive form of myeloproliferative syndrome that is characterized by aberrant mast cell proliferation and represents less than 1% of all mastocytosis. The diagnosis implies leukemic infiltration of the bone marrow with the presence of > 20% atypical mast cells in the bone marrow. Its clinical manifestation is variable, according to the organs involved, often the liver, GI tract, spleen and peritoneum.
Case report: We present the case of a 65-year-old man with a recent diagnosis of mast cell leukemia, supported by a bone marrow biopsy that revealed the presence of fusiform mast cells with CD25 expression that represented 20% of cellularity. He went to the emergency room due to progressive subacute dyspnea with radiographic and ultrasound confirmation of a large left pleural effusion, not septate. He had undergone a successful pleural evacuation a week before, whose liquid had characteristics of lymphocytic exudate, with a protein ratio of 0.76, an LDH ratio of 1.1 and a cellularity of 1,020 cells/uL with a lymphocyte predominance of 86%. Immunophenotyping of pleural fluid was not enlightening regarding the etiology, although it detected 0.06% of mast cells, with aberrant expression of CD25. The case was discussed and proposed for thoracoscopy, in which some areas of parietal pleural thickening were observed with a gray/dark color, without nodules per se and an extensive pleuro-pulmonary adhesion that it was not possible to release. Histology of pleural forceps biopsies identified aberrant mast cell proliferation and aggregates with granular cytoplasm. He underwent pleurodesis with talc, without recurrence of the effusion so far (2 months).
Discussion: Pleural involvement by mast cell leukemia is rare, with very rare cases described in the literature. Bearing in mind that immunophenotyping in pleural fluid may not fully clarify this type of situation, pleuroscopy should be considered. An early approach to pleural effusion in this disease with a poor prognosis may lead to some gain in the quality of life of these patients.

Keywords: *Pleural effusion. Mast cell leukemia. Mastocytosis.*

PC 103. PARANEOPLASIC NEUROLOGICAL SYNDROME CAUSED BY ANTI-MA2 ANTIBODY AND EPITHELIOID MESOTHELIOMA – REPORT OF A RARE CLINICAL CASE

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Introduction: Paraneoplastic syndromes are signs or symptoms that are caused by lesions in regions beyond the primary tumor or metastases and may afflict different organs and systems. In paraneoplastic neurological syndromes (PNS), the symptoms are usually caused by an immune-mediated lesion due to the presence of antibodies against neural antigens expressed by the tumor. The most common clinical manifestations include limbic encephalitis and cerebellar and brainstem syndromes. The neurological symptoms often precede the oncological diagnosis, and the PNS are rarely associated with malignant mesothelioma.
Case report: A 66-year-old woman, non-smoker, who worked in the textile industry and had a history of intervened bilateral carpal tunnel syndrome and left hypoacusis, presented to the ER in October 2022 with a 2-week history of imbalance, feeling like she walked with her feet wide apart, paresthesia, loss of muscle strength, dysarthria and dysphagia. She also reported a 5month history of self-limited episodes of dizziness for which she was prescribed betahistine, with no significant improvement. She also reported a loss of 10 kg during this period. On neurological examination, there was mild dysarthria, grade 4 tetraparesis, dysmetria on the finger-to-nose and heel-to-knee tests and wide based gait. The initial blood tests and cranial CT were normal. The cranial MRI identified a schwannoma of the VIII left cranial nerve that shaped the adjacent cerebellar parenchyma, which Neurosurgery considered to not justify the clinical manifestations. The anti-neuronal antibody study was positive for anti-Ma2(Ta), and further thoracic, abdominal and pelvic CT showed lobulated thickening of the left pleura, associated with moderate pleural effusion, which has suggestive of a neoformative process. Considering the most probable diagnosis of PNS, she completed 5 days of intravenous immunoglobulin, with no improvement. She was referred to a Pulmonology consultation to study the suspicious pleural lesion. After two inconclusive blind pleural biopsies, she underwent medical thoracoscopy, which allowed visualization of nodular lesions distributed by the anterior, posterior and diaphragmatic costal pleura. Histopathological results of pleural biopsies were compatible with epithelioid mesothelioma, with expression of CK7, calretinin and podoplanin and loss of expression of BAP1. The disease was staged as cT2NxM0 and, because there were no surgical conditions, she was proposed for first-line palliative treatment with carboplatin and pemetrexed, which she completed for three cycles. Due to disease progression, according to RECIST criteria, she switched to second-line treatment with nivolumab. Despite the treatments, the neurological symptoms progressively worsened, and other causes for these symptoms were excluded. Treatment was discontinued after the second cycle due to evolution to ECOG of 4. Currently she is under supportive treatment with the help of the palliative care team.
Discussion: Anti-Ma2 antibodies are associated with testicular, pulmonary and breast tumors, and cases associated with malignant mesothelioma are very rare. These autoantibodies are associated with poor prognosis because of the poor clinical response to currently available treatment options. Treatment of the underlying neoplasm is the most effective alternative in most cases, which highlights the importance of recognizing this entity.

Keywords: *Epithelioid mesothelioma. Paraneoplastic syndrome. Anti-Ma2 antibody.*

PC 104. WHEN A PNEUMOTHORAX DOESN'T COMES ALONE: A CASE SERIES

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Introduction: Endometriosis is defined by the presence of endometrial glands outside the uterine cavity. Thoracic involvement is the most frequent extra-pelvic location. Its pathogenesis is explained by Sampson's theory: retrograde movement of menstrual endometrium through the fallopian tube, which migrates through diaphragmatic defects, leading to self-transplantation of tissue/cells into the thoracic cavity. Metastatic dissemination of endometrial tissue via the venous or lymphatic system to the lungs is another proposed mechanism.
Case reports: The patient is a 32-year-old woman with a history of Chron's disease, SAPHO syndrome and ectopic pregnancy with left salpingectomy on 07/2022. On 09/2022, she went to the emergency

department (ER) for right thoracalgia, compatible with pneumothorax and underwent chest drainage (TD). She had an ipsilateral recurrence in 03/2023, with a new DT placement. Imaging in November showed "millimetric parenchymal bubbles" in the right lung apex. While awaiting surgical intervention, she had a 3rd recurrence of ipsilateral pneumothorax, also requiring DT. She subsequently underwent right exploratory videoassisted thoracoscopy, with apical wedge resection of the right upper lobe due to a sequelae area with a bullous aspect, pleurectomy and splinting. Several diaphragmatic fenestrations were observed. Anatomopathologically, "irregular emphysema with bubbles and inflammatory infiltrate" was identified. The second case depicts a 25-year-old woman, smoker, with a history of several visits to the ER for menometrorrhagia and dysmenorrhea. On 8/7/2020 she was seen in the ER for left thoracalgia, compatible with a small apical pneumothorax chamber on radiography, without indication for chest drainage (TD), having resolved spontaneously. Imaging showed "slight biapical emphysema and fibrotic, retractable, symmetrical changes". 20 days later, she came to the ER for the same reason, with pneumothorax on the left, which also resolved spontaneously. She was surgically approached with atypical lung resection of LSE bullae and mechanical pleurodesis by VATS, with no intraoperative findings suggestive of thoracic endometriosis. Pathologic evaluation showed nonspecific fibrotic changes. About 10 days after the intervention, she had a recurrence of ipsilateral pneumothorax, with imaging evidence of "apical emphysematous changes". None of the cases had alpha 1 antitrypsin deficiency. Retrospectively, the anamnesis allowed a temporal relationship to be established between the cases of pneumothorax and the menstrual phase of the patients. The diagnosis of thoracic endometriosis syndrome was thus assumed, due to the presence of clinical manifestations of thoracic involvement (recurrent catamenial pneumothorax), but without histological confirmation. Both women started contraceptives and have remained without recurrence to date.
Discussion: The management of patients with thoracic endometriosis should be multidisciplinary: pulmonologists, thoracic surgeons, gynecologists. This includes treatment of its form of presentation, followed by secondary prevention of recurrence with surgery: segmentectomy, blebectomy, resection of endometrial implants, diaphragmatic repair, pleurodesis, embolization. Hormonal suppression is also essential to treat the underlying cause. Gonadotropin-releasing hormone (GnRH) analogs are usually chosen and should be maintained for 6-12 months. Because they act by temporarily inducing menopause, the temporary inability to become pregnant and the risk of osteoporosis should be considered. During follow-up, possible recurrences, residual disease and adverse effects should be thoroughly assessed.

Keywords: *Thoracic endometriose. Recurrent pneumothorax. Catamenial pneumothorax.*

PC 105. PLEURODESIS – TEN-YEAR EXPERIENCE

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Introduction: Talc pleurodesis via slurry is a common and effective invasive procedure used for management of recurrent pleural effusion (PE) or selected cases of pneumothorax, representing an important treatment option in patients with recurrent malignant PE.
Objectives: Analysis of all talc pleurodesis via slurry scheduled over ten years in a Peripheral Hospital in Portugal. The main goal is to describe the indications, median time of chest tube, complications inherent to the procedure.
Methods: Retrospective study using hospital records (Glintt®) for patients scheduled for talc slurry pleurodesis via chest tube between 2012 and 2022. The following parameters were evaluated: sex, age, smoking history, occupational exposure, time to discharge, elective admission, diagnosis, indication for procedure, laterality, pleural fluid (PF) characteristics, pathology diagnosis product, pleural catheter duration, efficacy of the procedure, complications and mortality.
Results: Of the 72 patients scheduled for pleurodesis, 54% were women, median age 67.72 ± 14 years, the majority never-smokers (59.72%) with no occupational exposure (87.5%). In the total of 67 pleurodesis via slurry, 63 (87.5%) were due to malignant recurrent pleural effusion (lung cancer in 33.33%, breast cancer in 19.44%) and 4 cases (5.56%) of pneumothorax; 56 exudates according to Light's criteria (pleurodesis was scheduled in only 2 patients with recurrent transudate PE, both with hepatic cirrhosis), 88.89% sterile; pathology diagnosis was established by pleural fluid cytology half of the patients. The median pleural drainage time was 10.5 days, 2.67 days after the procedure. Three-month efficiency of pleurodesis was 73.01% of malignant PE and 75% of pneumothorax, with recurrence rate 26.39% (n = 19, 16 patients with malignant PE and 3 patients with pneumothorax, multiple myeloma and hepatic cirrhosis, respectively), most commonly within 3 months. No mortality was directly associated with the procedure, however, 30-day mortality rate was 31.94%.
Conclusions: The data collected indicate that pleurodesis is a rather uncommon procedure in our center, carried out mainly in severely-ill, symptomatic patients with recurrent malignant pleural effusion. We highlight, in this population, the importance of a Multidisciplinary decision, as well as articulation between Pulmonology and other Medical and Surgical Specialties.

Keywords: *Pleura. Pleural effusion. Pleurodesis. Pleural techniques.*

PC 106. AN ISOCALOTHORAX CLINICAL CASE (ENTERIC FEEDING HYDROPNEUMOTHORAX)

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Introduction: Nutrition is a very important factor in critical patient care. Enteral feeding is preferred over parenteral feeding. In order to achieve enteral feeding, sometimes the placement of a nasogastric tube is need. Even though it's a routinely used technique, it is not without risks, with na estimated adverse event rate of 0.3-8%, and a mortality rate of about 0.3%. The most common tracheopulmonary complication, which corresponds to 60% of adverse events is the pneumothorax.
Case report: We present the case of an 85-year-old man, dependent in activities of daily living, and clinical history of dementia with behavior changes, amnestic deficit, and liquid consistency dysphagia. He had regular follow up with palliative care for a right leg chronic ulcer due to obstructive peripheral artery disease, for which he refused amputation. He was admitted to the hospital for dyspnea and acute respiratory failure and a diagnosis of COVID-19 pneumonia with secondary bacterial infection was made. He was admitted under oxygen supplementation and antibiotic therapy. Due to prostration, there was need for nasogastric tube placement for feeding and medication. In the subsequent hours, worsening of respiratory failure was observed, with escalation of oxygen therapy from 3 liters/min through nasal cannula to venturi mask with FiO2 60% over 24 hours and enteral feeding intolerance, with an apparent gastric stasis of about 1,000 ml over 24 hours. Give this clinical decline, he repeated thorax X-ray which showed hydropneumothorax with nasogastric tube in an atypical position, headed towards the right lung. After a chest drain was inserted, air and enteral feeding solution was aspirated. A CT scan was ordered. CT showed right hydro-

pneumothorax, the chest drain in situ and peri-esophageal fat densification with gas in the adjacent pleura, suggestive of esophageal perforation with esophago-pleural fistula. The case was discussed with thoracic surgery, and it was considered in the team discussion that there was no indication for any other clinical measures. The patient had an unfavorable evolution and comfort was privileged.
Discussion: With this case, we aim to alert to the iatrogenic risk of a very common procedure, which is used every day and often with an underappreciated risk. The patients at higher risk for adverse events are also those in which the placement of a nasogastric tube is often most needed: elderly patients or those with altered state of consciousness. It is, therefore, in these patients in which the placement of these devices should be most careful and those in which we should be more alert in order to detect complications sooner.

Keywords: *Nasogastric tube. Iatrogenic risk. Nutrition.*

PC 107. PLEURAL EFFUSION AS A RARE PRESENTATION OF A SYSTEMIC DISEASE: CASE REPORT

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Introduction: Whipple's disease is a rare infectious disease caused by the Gram-positive bacterium *Tropheryma whipplei*. It is more frequent in middle-aged Caucasian men. The clinical spectrum is variable, but it is classically characterized by multisystem involvement, with joint and gastrointestinal symptoms. Pleuropulmonary involvement is rare. When timely diagnosed and treated the prognosis is good, with significant symptomatic improvement. We present a case report of Whipple's disease presenting with pleural effusion.
Case report: 48 year-old male patient, born in Romania, construction worker. Smoking history of 80 pack-years and an alcohol intake of 70 g/day. He had no known medical history, regular medication use or recent travels. He presented to the emergency room with anorexia, a 10 kg weight loss and dyspnea on exertion for the last three months. On examination he had diminished breath sounds in the lower two-thirds of both hemithoraces. Blood tests showed normocytic and normochromic anemia (Hb 9.2 g/L), mild elevation of inflammatory markers (CPR 5.2 mg/dL and ESR 91 mm), and positive ANA 1/160. Chest Xray revealed extensive bilateral pleural effusion. The full-body CT scan showed multiple mesenteric lymphadenopathies, with no other relevant findings. Thoracentesis was performed, draining 1,800 mL of serohematic fluid compatible with an exudate with a monocyte predominance. Microbiological examination, including PCR for *Mycobacterium tuberculosis*, was negative, and the histopathological analysis showed no neoplastic cells. To investigate occult neoplasia, upper gastrointestinal endoscopy and colonoscopy were conducted, revealing esophagitis and erosive gastritis. Gastric and duodenal biopsies showed active chronic duodenitis with bacilli colonies in the cytoplasm of macrophages, positive for periodic acid-Schiff staining. PCR testing identified *Tropheryma whipplei* DNA, leading to the diagnosis of Whipple's disease. The patient was started on a two-week course of ceftriaxone followed by one year of cotrimoxazole 960 mg twice daily, resulting in the complete resolution of symptoms and pleural effusion.
Discussion: Whipple's disease is an extremely rare cause of pleural effusion, with very few reported cases. Although PCR for *Tropheryma whipplei* DNA in pleural fluid was not performed, the rapid resolution of the effusion with targeted antibiotic therapy strongly suggests its etiology. The authors suggest considering this etiology in the differential diagnosis of pleural effusion, especially in male patients with concurrent constitutional, joint, and gastrointestinal symptoms.

Keywords: *Pleural effusion. Whipple's disease.*

PC 108. REFRACTORY POST-PERICARDIOTOMY SYNDROME – A PECULIAR CAUSE FOR PLEURAL EFFUSION

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Introduction: Post-pericardiotomy syndrome is a form of pleuropericardial injury that occurs after cardiac surgery. The underlying ethiopathogenic mechanisms are not fully understood, but it seems to be precipitated by an initial trauma to the mesothelial cells of the pericardium or pleura, such as cardiac surgery, which triggers the release of antigens and stimulates an immune response with deposition of immune complexes in the pericardium, pleura and lungs. There is usually a good response to anti-inflammatory therapy.
Case report: A 70-year-old male patient with previous history of arterial hypertension and peripheral arterial disease presents with presented to the emergency room with sharp chest pain and was diagnosed with type A aortic dissection, being later submitted to cardiac surgery with implantation of a tubular prosthesis in the aorta with immediate postoperative period without major intercurrences. Four weeks after the intervention, he presented with fever and pleuritic chest pain, with no other associated symptoms, namely cough, expectoration, or dyspnea. Laboratory tests showed a significant increase in inflammatory parameters, without an increase in troponin or NT-proBNP. On the electrocardiogram, there were no alterations suggestive of acute coronary syndrome or acute pericarditis. Mechanical complications of the surgery were excluded by thoracic angio-CT, identifying the presence of pericardial effusion and left massive pleural effusion, which led to the performance of thoracentesis with drainage of 1,500 mL of serofibrinous fluid. The cytochemical examination was suggestive of exudate according to Light's criteria with a predominance of mononuclear cells. A complementary assessment was carried out, which excluded infectious complications, and neoplastic or rheumatological/vasculitic processes. Therefore, based on the clinical situation described appearing 4 weeks after cardiac intervention, the most likely diagnosis was post-pericardiotomy syndrome, which led to treatment with a course of anti-inflammatory drugs (ibuprofen and colchicine) with clear improvement and subsequent hospital discharge. About a week later, still under anti-inflammatory therapy, the patient returned to the emergency room with a recrudescence of the clinical picture. The diagnosis of refractory post-pericardiotomy syndrome was assumed and steroid therapy with prednisolone was started as a 2nd line treatment option, with total resolution of the symptoms and abrupt decline in inflammatory markers and resolution of effusion on subsequent outpatient reassessment.
Discussion: Classically considered rare, the prevalence of post-pericardiotomy syndrome is uncertain with disparate incidence descriptions depending on the surgical intervention. Although it has a low mortality, with rare cases in which it evolves to cardiac tamponade, it is associated with significant morbidity with an impact on the use of health care, length of hospital stay and associated costs. The present case illustrates the need to consider this etiology in the differential diagnosis of pleural effusion in patients who have recently undergone cardiac surgery. Also noteworthy is the fact that anti-inflammatory therapy may prove insufficient, requiring steroid therapy to achieve resolution of the clinical picture, due to the inherent autoimmune component.

Keywords: *Post-pericardiotomy syndrome. Pleural effusion. Thoracocentesis.*

PC 109. INFECTIOUS PLEURAL EFFUSIONS: CHARACTERIZATION AND CLINICAL APPROACH

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Introduction: Infectious pleural effusions are one of the leading causes admission to the Pulmonology department.
Methods and objectives: Aiming to characterize this pathology clinical approach we analyzed the processes of the patient admitted for pleural effusion and empyema, throughout a period of 2 years. After a manual revision of the processes, all the empyema and complicated infectious pleural effusion were selected.
Results: A valid sample of 41 inpatients with complicated infectious pleural effusion (n = 18; 44%) and empyema (n = 23; 56%) was obtained. Additional data regarding patient characterization, pleural fluid, and microbiological results were analyzed, highlighting that pleural effusion in oncology patients occurred after thoracic surgery and a predominance of neutrophils in all pleural fluid samples where differential cell count was possible. About one-fourth of the patients (n = 10) needed more than one chest drain for the following reasons: unintentional exteriorization (n = 3, 30%), obstruction (n = 5, 50%), and recurrence/aggravation of the effusion (n = 2, 20%). In 10% of the patients, intrapleural fibrinolysis was performed using alteplase (the only drug available in the hospital). The patients remained hospitalized for an average of 21 days, with 17 days of antibiotic therapy, completing the remaining antibiotic treatment at home (totaling 21 days). The preferred empirical antibiotic therapy was piperacillin/tazobactam (n = 12; 29%), followed by ceftriaxone in combination with clindamycin (n = 11; 27%). In 13 patients (32%), it was necessary to escalate antibiotic therapy due to clinical worsening/lack of response to empirical treatment, but it was possible to de-escalate after microbiological isolation in 7 patients (17%). Three deaths were verified, with a mortality rate of 7.3%. The infectious pleural effusions present themselves as a major clinical challenge, frequently ending in prolonged hospitalization periods and the need of multiple chest tubes. The results reveal that the risk factors, demographic characteristics and patients' clinical presentation are in accordance with the published bibliography. The microbiological isolation were also as expected, allowing a proper choice of antibiotics, accordingly to the recommendations. An average of 32% of the patients needed some adjustment in antibiotic therapy, either due to worsening or lack of response to the empirical therapy, which highlights the importance of a close clinical approach to guarantee an appropriate and effective therapy.
Conclusions: The observed inpatients' mortality rate aligns with previous reports, but also emphasizes the continuous need to optimize care and therapeutics to reduce complications and improve these pathologies' prognosis.

Keywords: *Infectious pleural effusions. Clinical approach.*

PC 110. BIRT-HOGG-DUBÉ SYNDROME: 2 CLINICAL CASES REVEALED BY SPONTANEOUS PNEUMOTHORACES AND... BY THE FACE

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Introduction: Birt-Hogg-Dubé (BHD) syndrome is a rare autosomal dominant genodermatosis caused by a mutation on the gene that codes folliculin (FLCN). BHD manifests as cutaneous fibrofolliculomas, renal tumors, pulmonary cysts, and recurrent spontaneous pneumothorax. Diagnosis confirmation is made by genetic testing. Herein, we report 2 cases of BHD.
Case report: 46 year-old woman, ex-smoker, that was on follow by a Pneumology doctor for lung cysts detected on Thoracic CT scan, mostly on lung basis, and history of recurrent pneumothoraces (4); the first at 29 years of age. She reported dry cough, mainly during sports practice. She was submitted to 2 surgical pleurodesis with bullectomy at 39 and 46 years old. Histology of resected bullae revealed empty cavitated lesions covered with simple squamous epithelium with no inflammatory features, therefore excluding pulmonary lymphangioleiomyomatosis and lymphocytic interstitial pneumonia. Family history was significant for a son who had a spontaneous pneumomediastinum. Physical examination revealed 2 cutaneous lesions on the face compatible with fibrofoliculomas and no other alterations. Autoimmunity studies were negative as well as HIV infection screening. Lung function studies were within normal and there were no lesions on renal CT scan. Genetic studies detected an heterozygous missense variant c.50G>C (p.Arg17Pro) on FLCN gene, reported on the literature as associated with BHD. Currently, the patient is on imaging surveillance and her son was referred for pneumology evaluation and genetic counseling. 59 year-old man with a 25 pack-year smoking history, who was admitted to the hospital for primary spontaneous pneumothorax. His medical history was significant for dyslipidemia, chronic gastritis, alcohol abuse and cirrhosis. He had no known previous respiratory illness and no relevant family history. Physical exam was notorious for extensive facial fibrofolliculomas on the malar, nasogenian and nasal regions. Thoracic CT scan showed centrilobular, parasseptal and bullous emphysema – lung bullae with 60 mm of major diameter. A chest tube was placed with complete resolution of pneumothorax. The patient was referred for VATS surgical pleurodesis. Anatomopathological studies reveled collagenous pleuritis and bullous emphysema. The genetic analysis identified variant c.573_574delinsT p.(Lys192Argfs*31) on FLCN gene. Although this variant is not yet report on ClinVar database, it originates a stop codon which results in a truncated protein that should be considered pathogenic. Patient was referred for genetic counseling. Renal echography showed no lesions.
Discussion: We only diagnose what we know: clinical evidence of fibrofolliculomas and recurrent pneumothorax should raise suspicion of BHD. This diagnosis allows appropriate genetic counselling and careful imaging follow-up for on time detection of renal tumours.

Keywords: *Birt-Hogg-Dubé syndrome. Pneumothorax. Vats. Fibrofolliculomas.*

PC 111. OSA AND NEUROMUSCULAR DISEASE – A RELATIONSHIP FAR FROM LINEAR

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Introduction: Obesity, male gender and advanced age are among the risk factors most associated with Obstructive Sleep Apnea Syndrome (OSA). However, many others can contribute to the diagnosis – namely craniofacial changes or neuromuscular diseases (NM). In this sense, Charcot Marie Tooth Disease (DCMT), including a vast group of peripheral neuropathies, may creates changes that facilitate the development and perpetuation of OSA. Clinical Case:
Case reports: Case 1) Man, 63 years old, non-smoker, retired from the textile industry due to disability, diagnosed with DCMT since adolescence, referred to the Sleep Respiratory Disease (SRD) consultation because of complaints suggestive of OSA. As comorbidities to highlight: Arterial Hypertension, DM2 and Dyslipidemia – controlled with medical therapy. With normal body mass index (BMI) and no changes in the objective examination, he performed Respiratory Function Tests (PFR), Arterial Gasometry (GSA), HRCT-Thorax and Polysomnography (PSG) – showing reduced inspiratory muscle strength and changes compatible with severe OSA (RDI 78 events/h). The patient was proposed for respiratory (RR) and motor rehabilita-

tion, Cough assist and initiation of Noninvasive Ventilation (BiPAP-ST mode) at night – measures to which he adhered. Throughout the follow-up, there was worsening of the limitation of the strength of the respiratory muscles (inspiratory and expiratory), with greater difficulty in the management of secretions, frequent respiratory infections and the need for pressure adjustment and increased performance of Cough assist. The patient remains in an RR program 2 times a week and, with regard to OSA, without complaints. Case 2) Man, 40 years old, non-smoker, unemployed, with diagnoses of epilepsy and axonal DCMT (since childhood), also referred to PRS consultation because of suspected OSA. On objective examination: important obesity (BMI 32) and changes resulting from its underlying disease, with cavus foots and marked atrophy of the lower limbs (LLs). He performed PFR, which were normal (namely in the evaluation of respiratory muscle strength), and PSG, which was diagnostic of severe OSA (RDI 59 events/h). Weight loss and sleep hygiene measures were recommended, and the patient started CPAP 6-16cmH20, with good adaptation. He did not accepted referral to RR or motor. Despite the recommendations, he presented successive weight gain, conditioning his accentuation of the usual tiredness. Associatedly, with aggravation of muscle weakness at the level of the LLs, with important functional repercussions. In an attempt to exclude impairment of respiratory muscle strength, the entire study was repeated, but it remained normal. Under AutoCPAP, and with good adaptation, the patient was discharged from the PRS consultation, maintaining follow-up in an attending physician.
Discussion: The 2 clinical cases are presented for reflection on the multitude of factors that can contribute to the diagnosis of OSA and the need of its joint management. Neuromuscular disease can contribute to SRD by direct affection of respiratory muscles and/or indirectly causing other types of conditions, namely weakness of peripheral muscles and physical deconditioning, with the associated difficulties in weight management and its repercussions at the respiratory level.

***Keywords**: OSA. Neuromuscular disease. Charcot Marie tooth disease. Risk factors.*

PC 112. SOMNOLYZER IN POLYSOMNOGRAPHY ANALYSIS: CONTRIBUTIONS TO ITS APPLICATION AND OPTIMIZATION

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Introduction: Polysomnography is the gold standard for the assessment of sleep disorders, but despite being fundamental, its level of complexity often makes it difficult to apply to all individuals with suspected sleep disorders The development of automatic analysis software generated through artificial intelligence algorithms has emerged as a fundamental tool in an attempt to maximize the performance of these tests, minimizing the time spent manually scoring. It is important to assess the applicability of these analysis algorithms and their reliability taking into account the quality of the signals recorded in polysomnography. The aim of this study is to compare the manual analysis of polysomnography with the automatic analysis of Sleepware G3 v. 4.1 software and the automatic analysis Sleepware G3 v.4.1 software with Somnolyzer in all the parameters evaluated.
Methods: A case study was conducted on the evaluation of a random sample of 20 polysomnographies performed at the sleep laboratory of Hospital da Luz de Setúbal between June and September 2022. The individuals evaluated in this sample had a mean age of 52.1 years [21-78], 60% female and 40% male. A comparison was made between the 3 analyses for all sleep assessment variables, respiratory events, oxygen saturation, limb movements and quality of the recorded signals, based on the guidelines of the American Academy of Sleep Medicine and the SPSS statistical analysis software.
Results: In terms of results, the correlation between the manual analysis and the automatic analysis of the Sleepware G3 v.4.1 software with Somnolyzer was positive and significant in most situations for a significance level of (0.01). Exceptions were the correlations for the variables sleep stage N1% with a value of (0.408), which was only significant at a significance level of (0.1), sleep stage N3% with a value of (0.327), which was not significant and the central hypopnea index with a negative correlation value (-0.067). The correlation between the manual analysis and the automatic analysis of the Sleepware G3 v.4.1 software presents lower results than the previous situation, with many cases where statistical significance is only guaranteed for the highest significance level (0.1), and there are also more cases where the correlation is not considered significant such as Sleep onset; duration stage Wake (min), sleep stage N1%, sleep stage N3%, duration sleep stage N3 (min) and micro-awakenings index.
Conclusions: This study shows that the automatic analysis Sleepware G3 v.4.1 software with Somnolyzer has a strong applicability and reliability in the different parameters evaluated, compared to the automatic analysis of Sleepware G3 v.4.1 software, enhancing the manual analysis allowing a faster revision of these exams. However, since this correlation depends directly on the quality of the recorded signal, this point should also be taken into account, which can lead to some discrepancies when the recording presents some signal artifact, so a manual analysis is essential to ensure a correct final evaluation.

***Keywords**: Polysomnography. Manual analysis. Automatic analysis. Somnolyzer.*

PC 113. POSITIONAL SLEEP THERAPY WITH NIGHT SHIFT® DEVICE: RE-EVALUATION AT 5 YEARS

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Introduction: Obstructive sleep apnea syndrome (OSAS) is the most common sleep breathing disorder. About 56% of the OSAS population, mainly with mild-to-moderate OSAS, have positional obstructive sleep apnea (POSA), commonly defined as twice the number of breathing events in the supine position (SP) compared to the number of events in the non-supine position (NSP). Positional therapy (PT) aims to prevent SP in sleep.
Objectives: To evaluate the adherence and efficacy of the Night shift® (NS) device after 5 years from the beginning of treatment with this device, in patients diagnosed with POSA in polysomnographic study level II (PSSII).
Methods: Retrospective study of patients who started PT in 2018 with NS, provided at no cost by the home respiratory care company Vivisol, at Vila Franca de Xira Hospital, as part of a study to evaluate the efficacy and tolerance of PT. A questionnaire was conducted by telephone, and those who still remained on NS were submitted to a new PSSII. Statistical analysis with Microsoft-Excel.
Results: Sample of 12 patients, predominantly male (8/66.7%), mean age 58.5 years old, mean weight 80.8 kg and mean BMI 27.2 kg/m^2. Most frequently reported symptoms that prompted the first PSSII: daytime sleepiness (6/50%), snoring (4/33.3%), witnessed apneas (3/33.3%) and non-restorative sleep (3/33.3%). The initial PSSII showed a mean total apnea-hypopnea index (AHI) of 11.5/h, 27.4 in SP and 5.0 in NSP. Most patients (9/75%) discontinued PT with NS: 1 patient (8.3%) after 1 week of use, 3 (25%) after 3 months, 2 (16.7%) after 1 year and 3 (25%) after 2 years. Main reasons for discontinuing PT were: no improvement in initial symptoms

(4/33.3%), device failure (3/25%) and discomfort associated with its use, due to the triggering vibration (2/16.7%). Only 3 patients (25%) continued to use the NS daily, reporting a good adaptation, with resolution of the symptoms that motivated its use. This subsample, consisting of 2 men and 1 woman, was proposed for repeat PSSII in 2023 under NS. They had a mean Epworth Scale score of 7/24, mean weight 70.3 kg and mean BMI 25.5 kg/m^2. Positional apneas could not be assessed because they never adapted SP during the study. There was a mean total AHI of 31.4/h, a mean of 22.7 obstructive apneas and 154 obstructive hypopneas, and snoring in 45.8% of the time, with a diagnosis of severe OSAS in the 3 patients despite PT.
Conclusions: This sample shows poor adherence to PT with NS, with persistence of OSAS symptoms and discomfort caused by the equipment as the main reasons. In the subgroup of patients who continued to use NS, the device was effective in treating POSA, as they never adopted SP during PSSII/2023. However, a worsening of AHI was observed, emphasizing the importance of maintaining longitudinal follow-up of these patients, and the possibility that POSA may progress to OSAS without positional worsening, with subsequent need for treatment adjustment.

Keywords: *Obstructive apnea. Positional therapy. Night shift.*

PC 114. ADVANTAGE OF PSG II FOR OBJECTIVE ASSESSMENT OF SLEEP QUALITY

Maria Gomes

Clinica do Sono Dra. Maria José Guimarães.

Introduction: Sleep can be described as an essential biological state for memory consolidation, temperature regulation, energy conservation and energy metabolism in the brain. The procedures involved in sleep perception are still unclear. What has been observed is that there are discrepancies between neurophysiological data and the perception of sleep by the individuals themselves, both without complaints and in different sleep pathologies. The perception of sleep is a complex concept that involves processes and aspects that can influence the individual's interpretation of the sleep-wake cycle. In this study, the term perception refers to the subjective data felt by the patients through the application.
Objectives: To compare the perception of sleep in individuals submitted to type II home polysomnography (PSG II) and to assess whether there is a difference in the perception of sleep described in the questionnaire and the results received. PSG II aims to evaluate the physiological parameters of sleep at the patient's home. The exam is carried out using sensors that accommodate brain electrical activity, muscle and heart activity, eye movements, oxygenation, resonance and body position. It has the advantage of ensuring that the patient has a night similar to others, and therefore reproduces the reality of each one. From a technical-scientific point of view, there are factors at home that were not controlled, without supervision by a sleep technician.
Methods: Prospective study carried out with the Nox A1s equipment, in 7 adults, of both genders, aged between 31 and 65 years, with complaints suggestive of poor sleep quality, between March and July. All individuals filled out a test after the examination (questionnaire prepared by the sleep clinic), which allowed the collection of subjective data on sleep latency, number of awakenings, total sleep time and general notion of sleep quality, to later comparison with the values collected in PSG II. A comparison was made between objective and subjective results. Excluding individuals who do not know the number of hours slept, 75% have the perception that they slept less time, since the average hours of sleep was 7h24min and the average that individuals thought they had slept was 3h20min. There were awakenings for no apparent reason in all subjects.
Results: The number of individuals who stated that their sleep was the same as usual was, in percentage, the same as those who reported that it was worse than usual, which may translate into some advantage in using PSG II for symptomatic individuals.
Conclusions: Judging by the results of the study, so far, more than half of the patients who reported having poor sleep quality have a wrong perception of the number of hours slept. PSG II studies can be considered as a useful tool to obtain, in a more objective way, the real representativeness of the quality and quantity of each individual's sleep. Limitations: the reduced number of patients and the fact that they did not complete the questionnaire correctly proved to be limitations in the data obtained.

Keywords: *Sleep. Polysomnography. Interaction. Perception.*

PC 115. CENTRAL SLEEP APNEA AFTER INITIATION OF VENTILATORY SUPPORT IN A NEUROMUSCULAR PATIENT: WHEN TREATMENT IS THE PROBLEM AND THE SOLUTION

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Introduction: Central Sleep Apnea (CSA) is present in less than 1% of the general population and encompasses a range of conditions characterized by altered respiratory drive or decreased ventilatory capacity in the absence of airway obstruction. Neuromuscular diseases may be associated with CSA due to underlying hypoventilation related to the disease. Positive airway pressure is the treatment used in the presence of ACS and hypoventilation syndrome.
Case report: Male, 53 years old, with a history of Amyotrophic Lateral Sclerosis (ALS) for 3 years, without regular follow-up due to his own refusal. He presented at the emergency department with worsening dyspnea and orthopnea over the past 15 days. On examination, he showed cachexia with overall muscle atrophy, reduced muscle strength, dysarthria, and hypophonic speech, despite preserved cognition. He was tachypneic and using accessory respiratory muscles. Analyses showed mild hypoxemia (pO2 67 mmHg) and hypercapnia (pCO2 78 mmHg), without respiratory acidemia. Non-invasive ventilation (NIV) was initiated with Bi-level Positive Airway Pressure (BiPAP-ST). However, the patient experienced altered consciousness with fluctuations in wakefulness and periods suggestive of central apneas, despite overall improvement in blood gas levels and the absence of focal neurological deficits. Assumed likely non-hypocapnic central apnea in the context of adaptation to NIV in a patient with baseline hypoventilation syndrome. The patient showed progressive clinical improvement and blood gas stabilization. At the time of discharge, he was undergoing nocturnal and daytime NIV for periods, not requiring oxygen therapy, with pH 7.43, without hypoxemia (pO2 80 mmHg) or hypercapnia (pCO2 42 mmHg). During the first 11 days of NIV use, the patient maintained an Apnea-Hypopnea Index (AHI) > 15 events per hour, with a decreasing profile of the number of events. After 15 days of treatment, there was stabilization of the respiratory drive with AHI < 5 events per hour (ventilator reading image available in the appendix).
Discussion: In central apneas, the use of positive pressure is not always sufficient to completely eliminate all apnea events. Particularly in patients with impaired respiratory drive, such as those with neuromuscular disorders, adaptation to NIV may not always be easy and stabilization of the respiratory drive is usually a lengthy process. In the present case, although central apneas appeared after starting NIV, the patient showed favorable clinical evolution with the maintenance of treatment and there was a clinically significant reduction in apnea events after only 15 days. Thus, treating patients with hypoventilation syndromes and central apneas remains a significant challenge in medical practice and

requires frequent monitoring coupled with clinical judgment to optimize treatment response.

Keywords: *Central sleep apnea. Non-invasive ventilation. Hypoventilation. Neuromuscular disease.*

PC 116. MANDIBULAR ADVANCEMENT DEVICES – THE EXPERIENCE OF A TERTIARY HOSPITAL

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Introduction: Mandibular advancement devices (MAD) have been gaining recognition in the treatment of obstructive sleep apnea over the last few years. Although CPAP is the gold-standard for the treatment of this pathology and is more effective in reducing the frequency of obstructive events, some patients do not adapt to this treatment, and in some cases MAD is a viable option.
Objectives: The objectives of this study are to characterize patients with MAD being followed up in a Pulmonology - Sleep Apnea consultation and to evaluate the effectiveness of this treatment in correcting obstructive events (AHI).
Methods: A descriptive retrospective study was carried out, based on the analysis of the clinical files of patients followed in a Pneumology – Sleep Apnea consultation under treatment with MAD. Data were collected to characterize patients (gender, age, BMI) and disease (AHI value, postural/non-postural OSAS) and information on previous treatments performed and data on treatment with MAD (adherence and AHI value).
Results: The clinical files of 22 patients were analyzed. Of the study sample, 16 patients (73%) were male. The mean age of the patients was 568 years and the mean BMI was 272 (5 normal weight patients, 13 overweight patients and 4 obese patients). The mean AHI at diagnosis was 16 7 (10 patients (45.5%) with mild OSAS, 10 patients with moderate OSAS (45.5%) and 2 patients (9%) with severe OSAS). In this sample, 12 patients (55%) had OSAS with a postural component. In 11 patients (50%) another treatment had already been tried before the MAD, namely postural measures in 1 patient (4.5%) and therapy with positive air pressure in 10 patients (45.5%). Of the 22 patients, 21 performed a new sleep study under MAD and there was a reduction in the AHI value in 16 patients (76.2%) and an increase in the AHI value in 5 patients (23.8%). The average AHI value in sleep studies performed with DAM was 9 7 (AHI < 5 in 9 patients (42.9%); mild OSAS in 7 patients (33.3%) and moderate OSAS in 5 patients (23.8%)). Regarding adherence to treatment, the majority (81.8%) of patients reported using the DAM every night and throughout the night.
Conclusions: In this sample, it was found that the institution of DAM led to a reduction in the AHI value in most patients. In 28.8% of cases there was an increase in the AHI value, which suggests that this therapy may not be effective in patients with certain characteristics.

Keywords: *MAD. OSAS.*

PC 117. OBSTRUCTIVE SLEEP APNEA AND ASTHMA IN STEP 5: PREVALENCE AND ASSOCIATION WITH COMORBIDITIES, QUALITY OF LIFE, AND ASTHMA CONTROL

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Introduction: Asthma and obstructive sleep apnea (OSA) are respiratory disorders with a high prevalence and often coexist in the same patient. Although these two conditions are distinct, some studies suggest there may be a bidirectional relationship between them, especially in patients with severe asthma, as they often share risk factors such as obesity, gastroesophageal reflux (GERD), and rhinosinusitis. This study aims to evaluate the prevalence of OSA in patients with asthma in Step 5 of the Global Initiative of Asthma (GINA) and the relationship between its severity and asthma control.
Methods: Retrospective analysis of patients with asthma in Step 5 followed in the Pulmonology clinic. Validated questionnaires were used to assess asthma control (mini-ACT), quality of life (mini-AQLQ), and daytime sleepiness (Epworth scale). Patients were divided into 2 groups - those with a confirmed diagnosis of OSA by polysomnography and those without an OSA diagnosis (excluded by polysomnography or without suggestive clinical symptoms).
Results: 44 patients were included, 79.5% (n = 35) female, with a mean age of 54.3 ± 3.2 years. 63.6% (n = 28) of patients were under biological therapy, and the median body mass index (BMI) was 28 kg/m^2 (IQR 20-36). Approximately 41.0% (n = 18/44) had undergone polysomnography (Level I, II, or III) for sleep evaluation, and of these, 77.8% had OSA - [57.1% (n = 8) mild OSA, 21.4% (n = 3) moderate OSA, and 21.4% (n = 3) severe OSA]. Regarding the population with asthma+OSA (n = 14), all patients were overweight, and 78.6% had BMI 30 kg/m^2, with the median BMI of these patients (32.5 kg/m^2, IQR 28-27) being statistically higher than those without OSA diagnosis (n = 30) (27 kg/m^2, IQR 21-33) (p < 0.001). There was no statistically significant association between OSA and rhinosinusitis (p = 0.076) or OSA and GERD (P = 0.737). The mean score of the AQLQ questionnaire in patients with OSA (58 ± 21) was statistically lower than in patients without an OSA diagnosis (74 ± 22) (p = 0.03). The mean score of the ACT questionnaire in patients with OSA was 17 ± 6, while in patients without an OSA diagnosis, it was 20 ± 5. There was no statistically significant difference in asthma symptom control (p = 0.10) and daytime sleepiness (p = 0.98) between the groups with an OSA diagnosis and those without an OSA diagnosis.
Conclusions: The prevalence of OSA in patients with asthma in Step 5 of GINA was high (31.8%) and in line with the literature. Obesity was the only comorbidity statistically associated with the coexistence of asthma and OSA. The quality of life of patients with asthma+OSA was statistically inferior to those without an OSA diagnosis. Despite the small sample size, these results validate the need to screen for the presence of OSA symptoms in patients with asthma, especially in Step 5, who are overweight and have an impact on their quality of life.

Keywords: *Asthma. Obstructive sleep apnea.*

PC 118. CONFOUNDERS IN THE DIAGNOSIS OF PARASOMNIA: A CASE REPORT

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Introduction: REM sleep behaviour disorder (RBSD) is a unique parasomnia characterised by loss of atonia characteristic of REM sleep and vivid dream-like behaviours, of uncertain prevalence that represents a clinical challenge. Its prevalence increases with ageing, and it can occur in the absence of neurological pathologies (idiopathic) or in association with neurodegenerative disorders, being a strong predictor of synucleinopathies such as Parkinson's and Lewy body dementia, or even related to certain drugs. The association with Alzheimer's disease (AD) is uncertain.
Case report: A 65-year-old woman with a history of scareroid fever, depressive syndrome and early AD was referred by Neurology to the sleep pathology consultation. She presented with complaints of snoring, vivid dreams, sensation of discomfort in the lower limbs at

rest, requiring movement of the limbs to relieve this symptom, nocturnal restlessness and somniloquy, which had been progressively worsening for 2 years. The stop-bang scale scored 1. In addition to her usual medication, she was also medicated with venlafaxine and pramipexole. RBSD and restless legs syndrome (RLS) were initially hypothesised. The blood study revealed normal ferritin (105.8) and polysomnography level 1 (PSG1) showed long initial and terminal insomnia; many micro-awakenings in all sleep stages (WASO = 3 h), with a micro-awakenings index = 29.1, many associated with PLMS (PLMS index = 63.6), including during waking hours; low sleep efficiency (58.5%); overall RDI was 10.1 events/h and ODI 11.2. In addition, atonia was absent for almost the entire REM sleep time, with behavioural manifestations such as moaning and some upper limb movements. Thus, the diagnoses of mild obstructive sleep apnoea syndrome (OSAS), mostly due to hypopnoea and without significant associated desaturation or micro-awakenings; SPI; and RBSD were admitted. Clonazepam 0.5 mg was started, with improvement in complaints of nocturnal agitation and insomnia. Referred for neurology sleep consultation. Awaiting PET-FDG and 24-hour EEG.
Discussion: RBSD is occasionally reported in association with other neurodegenerative disorders that do not fall under synucleinopathies, such as Alzheimer's disease. Its presence may indicate a comorbid -synucleinopathy. PSG1 in this case is essential to confirm the diagnosis and rule out possible differential diagnoses such as pseudo-RBSD associated with OSAS, also present in this case. A 24-hour EEG is essential to rule out nocturnal epilepsy (particularly frontal or extratemporal lobe epilepsy), a differential diagnosis of RBSD.

Keywords: *Alzheimer. RBSD. RLS. SAOS. Polysomnography.*

PC 119. IS THERE A RELATION BETWEEN FENO SERIAL MEASUREMENT AND SYMPTOMS CONTROL OF ASTHMA IN PATIENTS UNDER OMALIZUMAB?

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Introduction: It has been shown that patients with severe asthma with higher FeNO levels that initiate Omalizumab have a greater benefit in exacerbations reduction but some studies do not support this evidence. Therefore, its utility in monitoring these patients is still uncertain.
Objectives: The purpose of this study was to analyse the relation between the serial evaluation of FeNO with the symptomatic control of asthma.
Methods: We selected six non-smoking patients with severe asthma under Omalizumab to perform a serial home analysis of FeNO with a portable device (Vivatmo), twice a week, during a period of two months. All patients were taking the biological therapy every four weeks and each FeNO measurement was followed by an evaluation of the peak expiratory flow (PEF) and the filling of Asthma Control Test (ACT) and Control of Allergic Rhinitis and Asthma Test (CARAT).
Results: The majority of patients was female (66.7%). Half of the patients were taking 150 mg every four weeks and the other half 300 mg. Only one patient had worsening symptoms but were not followed by an increase in FeNO levels. We found correlation between ACT and CARAT in 15 of the 17 evaluation moments performed, but no correlation was found between FeNO with PEF, ACT or CARAT.
Conclusions: No correlation between FeNO serial measurement and asthma symptoms control was found. More studies with larger samples are needed to evaluate the role of FeNO in asthmatic patients under biological therapy.

Keywords: *FENO. Omalizumab. Asthma. Symptoms control.*

PC 120. OMALIZUMAB IN CLINICAL PRACTICE: EXPERIENCE OF A PERIPHERAL HOSPITAL

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Introduction: Severe asthma is a form of asthma that is uncontrolled despite good adherence to high doses of ICS-LABA, possible risk factors have been identified and treated, or in which there is a clinical worsening when trying to reduce the dose of ICS-LABA. Approximately 3-10% of asthmatics have severe asthma. Severe asthma is associated with a higher risk of hospitalization and accounts for the majority of asthma hospitalizations.
Methods: Descriptive and comparative analysis of patients in the Severe Asthma consultation at a peripheral hospital under biological therapy with omalizumab. To carry out this analysis, the clinical files of the patients were consulted.
Objectives: To characterize patients in the Severe Asthma consultation under biological therapy with omalizumab. To compare the clinical status and asthma control of these patients in the 12 months before starting omalizumab therapy (G1) vs. in the 12 months after the introduction of omalizumab (G2). Variables evaluated: gender, age, diagnosis, CARAT questionnaire, exacerbations, hospitalizations, and initial dose of omalizumab.
Results: The sample consisted of 15 patients, 13 (86.67%) female and 2 (13.33%) males, between 28 and 86 years, with an average age of 52.13 years. All patients studied had a diagnosis of severe allergic asthma. Grass allergy (66.67%) and dust mite allergy (33.33%) were the most frequent etiologies. The CARAT questionnaire (n = 12 patients) varied between 4/30 and 25/30, with a mean value of 12.25/30 in G1 and between 13/30 and 30/30, with a mean value of 20.75/30 in G2. Exacerbations varied between 2 and 5 with a mean value of 3.4 in G1 and between 0 and 1 with a mean value of 0.27 in G2. 73.33% of patients in G1 and 0% of patients in G2 had 2 exacerbations. In G1 and G2, the percentage of patients with 1 hospitalization was 6.67%. The most used initial doses of omalizumab were: 300 mg and 600 mg, in 40% and 26.67% of patients, respectively.
Conclusions: Omalizumab is an anti-IgE monoclonal antibody administered to patients with severe allergic asthma (Step 5), uncontrolled despite optimized therapy, which has demonstrated significant efficacy in controlling asthma and, consecutively, in reducing exacerbations and hospitalizations for severe asthma, as seen in this sample of patients.

Keywords: *Severe allergic asthma. Omalizumab. Exacerbations.*

PC 121. SEVERE ASTHMA AND COVID-19, EXPERIENCE OF A REFERENCE CENTER

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Introduction: The World Health Organization declared COVID-19 a pandemic on March 11, 2020, 1,150 days later, on May 5, 2023, this infection was no longer considered a global health emergency. Among the 765 million confirmed cases and the nearly 7 million reported deaths, its expression and manifestation among certain pathologies, such as severe asthma, aroused great scientific interest. Some comorbidities such as obesity, cardiovascular disease and diabetes are considered independent risk factors for severe COVID-19. Nevertheless, severe asthma was not associated with an increased risk of infection or a worse prognosis.
Objectives: To analyze the cases of COVID-19, in patients with severe asthma, under biological therapy, in a national tertiary hospital.

Methods: Retrospective study of epidemiological characteristics, comorbidities, clinical, severity and treatment of SARS-CoV-2 infections observed in this group of patients, between March 2020 and May 2023. Records from the RSE vaccination platform were used to confirm the infection. Excel and SPSS, version 23 were used to the statistical analyses.
Results: Seventy-seven patients with severe asthma were studied, 77.9% (N 60) female, mean age 52.61 ± 14.23 years. The main comorbidities found in this group of patients were: rhinosinusitis 64.9% (N 50), bronchiectasis 37.7% (N 29), nasal polyposis 29.9% (N 23), obesity 26% (N 20), anxiety/depression 24.7% (N 19), GERD 16.9% (N 13) and non-insulin treated Diabetes Mellitus 14.3% (N 11). Of the patients included, 44.2% had no record of SARS-CoV-2 infection, 55.8% (N 43) had a record of a SARS-CoV-2 infection, and 11.6% (N 5) had a record of 2 infections by the same agent. 43 patients, 25.6% (N 11) went to the Emergency Department and 9.3% (N 4) required hospitalization. In 16.3% (N 7) the infection was associated with asthma exacerbation, 86% of these required a cycle of oral corticosteroids. Of the patients who had COVID 19 and within the studied comorbidities, obesity was the one that stood out (mean BMI 40.4 ± 7.37 kg/m^2). Obesity correlated with the existence of asthma exacerbation (p 0.01, rho 0.534), with the fact that the patient needed a course of oral corticosteroids (p < 0.01, rho 0.557) and with the need to go to the Emergency Department (p 0.01, rho 0.557). Another important result was that the more vaccine doses the patients had at the time of the infection, the less the need to resort to the hospital (p 0.03, rho -0.333) and the fewer asthma exacerbations (p 0.019, rho -0.377) were observed.
Conclusions: With this work, the authors highlight the importance of the protective effect of vaccination, as well as the importance of controlling asthma and comorbidities in this group of patients with severe respiratory disease undergoing biological treatment.

Keywords: *Severe asthma. COVID-19. Biological treatment.*

PC 122. ACUTE IDIOPATHIC HYPEREOSINOPHILIC SYNDROME – A RARE DIAGNOSIS

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Introduction: Hypereosinophilic syndromes are a group of diseases characterized by excess production of eosinophils causing infiltration and damage to multiple organs.
Case report: A 67-year-old woman, with a personal history of asthma, chronic rhinosinusitis, hypothyroidism and depression, went to the emergency department for dyspnea and productive cough with mucopurulent sputum that had been evolving for 2 weeks. Concomitantly, she also mentioned easy tiredness, anorexia and weight loss of 3-4 kg in a month. She went in a recent trip to Peru, mentioning gastroenteritis during travel. Upon admission to the emergency department, she was hemodynamically stable, polypneic, SpO2 89% without oxygen therapy, with marked wheezing on pulmonary auscultation. She performed blood gas analysis with partial respiratory failure (PaO2 53 mmHg), analytical evaluation that demonstrated leukocytosis 22,540/uL, with 13,000 eosinophils/uL, CRP 9.65 mg/dL and troponin elevation 2,052 pg/mL. Thoracic CT angiography showed extensive peribronchovascular infiltrate in the left upper lobe and areas of subpleural densification in the right upper lobe and in the upper segments of both lower lobes. Also, her electrocardiogram showed ST segment inversion in V2 and V3, transthoracic echocardiogram showed mild impairment of ejection fraction without other alterations, and additionally, cardiac scintigraphy was performed without ischemic alterations. The patient was admitted assuming probable eosinophilic pneumonia and eosinophilic myocarditis. The myelogram showed eosinophilic infiltration of 38% in all maturation stages. She performed videobronchofibroscopy with mucous secretions and yellowish plaques in the bronchial trees, whose histological result confirmed the presence of dense eosinophilic exudate. Bacteriological tests were negative. The seric autoimmune, allergological, bacterial, viral and fungal study was negative. In the parasitological study, she had positive serum levels for hydatid disease in low titer, however, it was excluded as a cause of eosinophilia after verifying the absence of hydatid cysts in the thoraco-abdomino-pelvic CT scan and negative parasitological exams of the feces. Pulmonary neoplasia was excluded by bronchial biopsies, as well as hematologic neoplasia by bone biopsy study. The patient completed corticosteroid therapy with clinical, analytical (reduction of troponin, and total remission of eosinophilia) and imaging improvements and was discharged on the 15th day of hospitalization without the need for oxygen therapy, maintaining corticosteroid therapy at weaning. There was evident radiological improvement after 8 weeks of therapy, with resolution of the perivascular infiltrates. On the last pulmonology appointment, she was asymptomatic. She maintains current follow-up in Pulmonology, Cardiology and Hematology consultations. After extensive exclusion of other causes, an idiopathic hypereosinophilic syndrome was assumed.
Discussion: This case portrays an unusual example of an acute hyperosinophilic syndrome, confirmed by bone biopsy, with medullary, pulmonary and cardiac involvement. It is an idiopathic hypereosinophilic syndrome, given that an extensive study of primary and secondary causes was carried out, and no cause was identified. Comorbidities such as asthma can mask the diagnosis of acute hypereosinophilic syndrome with pulmonary involvement, with emphasis in this case on the imaging pattern, which was also uncommon for eosinophilic pneumonia.

Keywords: *Idiopathic hypereosinophilic syndrome. Seric hypereosinophilia. Eosinophilic pneumonia. Eosinophilic myocarditis.*

PC 123. CONECTAR – COLLABORATIVE NETWORK FOR PATIENTS AND PUBLIC INVOLVEMENT IN CHRONIC RESPIRATORY DISEASES RESEARCH: IMPLEMENTATION STRATEGIES AND IMPACT

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Introduction: Patient and public involvement (PPI) is a powerful way to ensure that health research addresses the needs of patients and is key to developing innovative solutions impacting patients' lives. In Portugal, specific PPI initiatives for patients with chronic respiratory diseases (CRD) have yet to be established. We developed the ConectAR, a sustainable network of patients with CRD and their carers involved as co-researchers. We aimed to share our experience in building this network and present the impact after one year.
Methods: Since April 2022, patients with CRD and carers above 18 years were invited to join ConectAR using social media platforms (Facebook, Instagram) and through direct invitation by e-mail to patients who participated in previous research projects of the team. We conducted a workshop with 13 patients with CRD/carers and researchers to establish the communication strategy and recruitment and engagement tools. Based on the workshop's conclusions, communication between the coordination team and Conec-

tAR members is done in an informal environment and simple language through email, periodic presential and virtual meetings and activities for team building and science communication through the arts. During the workshop, we defined different activities to be implemented, and we organized the members into small working groups according to their motivation.
Results: Currently, the ConectAR network has 137 members (median age, min-max; 36, 18-72 y.o.): 73% patients, 12% carers and 15% interested citizens (including healthcare professionals, students of health sciences and members of patient organisations). The coordination team includes 3 asthma patients and 1 carer, along with researchers. So far, this network's outcomes include writing one mHealth research protocol, three papers with a summary in plain language (two published, one under review) and five abstracts in national and international conferences. The network translated to Portuguese the self-learning European Patient Ambassador Programme (EPAP) of the European Lung Foundation and was awarded two prizes for the best projects in asthma by a national society and one prize for the best abstract in patient-centred research by an international society.
Conclusions: The ConectAR network showed that it is feasible to involve patients with CRD and carers as co-researchers, considering their views since the start of the project and involving them in coordination, scientific and dissemination activities. We expect to incorporate the learnings from this project into developing recommendations for future PPI actions.

Keywords: *Patient and public involvement. Citizen science. Patient-centered health research. Asthma. Chronic respiratory diseases.*

PC 124. CHARACTERIZATION OF SEVERE ASTHMA IN MADEIRA ISLAND – THE EFFECTIVENESS OF BIOLOGICAL THERAPY

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Introduction: Severe asthma is a complex and heterogeneous disease and affects 3 to 10% of patients with asthma. At the Funchal Central Hospital, 44 patients were diagnosed with severe asthma. The aim of this study is to evaluate the efficacy of treatment with biologics in this population regarding the occurrence of exacerbations, FEV1 variation and eosinophilia as well as maintenance of oral corticosteroids.
Methods: A retrospective study of the clinical processes and collection of appropriate data were performed, before and during treatment with biologics.
Results: Of the 44 patients described, 29 are female, 33 are non-smokers and the average age is 58.6 years. Regarding comorbidities, there is a prevalence of dyslipidemia, obesity, depressive syndrome, arterial hypertension, obstructive sleep apnea syndrome and imaging alterations such as peribronchial thickening, bronchiectasis and emphysema. There are 31 patients under biological therapy for at least 12 months, with the remaining 13 starting biological therapy in the current year. Under Omalizumab there are 13 patients, of whom 8 have childhood-onset asthma. The T2 allergic phenotype is verified in 8 patients and the non-allergic phenotype in the others, with a maximum IgE value of 788.0 kU/L and a maximum peripheral eosinophilia of 400 cells/µL. An average reduction of 150 eosinophils in peripheral blood was recorded with the start of treatment. On average, the FEV1 value was 1.83 L (72.9%) before the introduction of biological therapy and over the course of it an increase of 720 mL (19.4%) was observed in two patients. The occurrence of an exacerbation was found in 9 patients, with 2 hospitalizations for COVID-19. In 2 patients, it has not yet been possible to suspend oral corticosteroid therapy. Following, 28 patients are on Mepolizumab, of whom 17 have adult-onset asthma and 2 patients with a previous diagnosis of chronic eosinophilic pneumonia. Nasal polyposis is observed in 4 patients and the allergic T2 phenotype in 16. There was a predominance of eosinophilia in this group, with a maximum number of 8,400 cells/µL. After the beginning of the biologic, there was a significant improvement in eosinophilia, on average with a reduction of 1,100 cells/µL. The mean previous value of FEV1 was 2.14 L (80.7%) and a gain of 510 mL (19.7%) was observed in two patients. An exacerbation occurred in 4 patients and 2 maintain oral corticosteroids. It is noteworthy that, in this group, there was a weight loss of 3.5 kg in 13 patients. In turn, 2 are under Benralizumab, both with previous treatment with Omalizumab, with no eosinophilia (500 cells/µL previously), new exacerbations or need for oral corticosteroid therapy. One patient, previously under Mepolizumab, started Dupilumab due to worsening of symptoms and recurrent nasal polyposis, with a reduction in peripheral eosinophilia from 4,500 to 500 cells/µL.
Conclusions: This study demonstrates that treatment with biologics improves individual patient outcomes with severe asthma. This analysis is limited by some patients not having blood count and respiratory functional tests after the beginning of therapy.

Keywords: *Severe asthma. Biologics. Eosinophilia. Corticosteroid therapy.*

PC 125. MEPOLIZUMAB ANAPHYLAXIS IN ASTHMATIC PATIENT

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Introduction: Specific monoclonal antibodies (mAbs) are therapeutic agents against severe asthma and can significantly reduce disease burden and asthma mortality. Several mAbs, including mepolizumab, have been approved as addon maintenance therapeutics for severe, inadequately controlled eosinophilic asthma. Knowledge of risks of hypersensitivity and lifethreatening anaphylaxis associated with different mAbs is critical for their appropriate and safe administration.
Case report: The authors present the case of a 42-year-old female with asthma, allergic rhinitis, and documented allergy to penicillin. As medication she was taking inhaled fluticasone furoate/vilanterol, 184/22µg and tiotropium bromide 2.5 µg once daily, with several cycles of oral corticosteroids in the last year and frequent use of salbutamol. Respiratory function test showed mild obstructive ventilatory impairment with positive bronchodilation test: forced expiratory volume in first second (FEV1) of 2.04L (72%), a forced vital capacity (FVC) of 3.12L, a FEV1/FVC ratio of 0.65 and a variability of FEV1 post-bronchodilator test of 35% (2.75 L). As the asthma was uncontrolled despite adherence with optimized high-dose ICS-LABA and LAMA therapy and treatment of contributory factors, it was considered as severe and a biologic treatment was proposed. Blood eosinophils count was 400/µL, compatible with an eosinophilic asthma, and so an anti-IL-5 was considered, in this case mepolizumab. The patient started mepolizumab in May 2023 with a dose of 100 mg subcutaneously. During the surveillance time she had a skin reaction with rash on the trunk, arms and face, which was resolved with oral cetirizine. Four weeks later the patient returned for the second administration. Due to the adverse reaction in the first administration, the second one was administered in a phased way. First, 30 mg were administered, followed by 30 minutes of surveillance without complications. The last 70 mg were administered afterwards and 20 minutes later symptoms of pruritus in the upper limbs and trunk started, for which cetirizine was administered. Twenty minutes later an anaphylactic reaction was observed: cough, wheeze and polipnea. Adrenaline, hidrocortisone and salbu-

tamol were administered, with only partial resolution of the symptoms. Blood pressure was 131/62 mmHg, pulse rate 104 beats/min and SpO2 100%. The emergency team was called and the patient was taken to the emergency room, where complete resolution of symptoms was achieved with intravenous adrenaline, clemastin and hydrocortisone and inhaled salbutamol and ipratropium bromide. The patient was discharged after two days.
Discussion: Several clinical trials have shown a high level of safety of mepolizumab and to the knowledge of the authors there are only two cases of anaphylaxis to mepolizumab described. The authors still don't know if the anaphylaxis was due to the drug itself or some excipient like polysorbate that is present not only in mepolizumab formulation but also in benralizumab and omalizumab formulations. Severe or uncontrolled asthma is known to be a high risk factor of morbidity and mortality in anaphylaxis patients, so, the authors want to highlight the importance of supervised administration of biological therapies in asthmatic patients, not only when started, but also during all the following administrations.

Keywords: *Asthma. Mepolizumab. Anaphilaxis.*

PC 126. FENO IN CLINICAL PRACTICE

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Introduction: Fractional exhaled nitric oxide (FENO) is a non-invasive method, useful in the airway Th2 inflammation evaluation. Objective: To determine if FENO is related with asthma control, serum eosinophilia, bronchial obstruction and methacholine hyperreactivity.
Methods: Retrospective analysis (using descriptive statistics, chi-square test – Pearson bivariate correlation - and logistic regression) of 391 patients followed in the Respiratory Medicine consultation – Hospital da Luz Lisboa, with suspected or confirmed allergic asthma, which have performed FENO evaluation, between 06/2022 and 06/2023. Atopic cases were documented based on prick test or IgE value. Three levels of FENO were considered (low < 25 ppb; middle 25-50 ppb; high > 50 ppb). Asthma control was measured by Asthma Control Test (ACT). A serum eosinophil count > 300/uL was considered as eosinophilia and the interpretation of the lung function test and methacholine challenge test followed the most recent guidelines. **Results:** Information regarding smoking habits, ongoing therapy, ACT, serum eosinophil count and lung function test was accessible in 151 of the 391 patients subjected to FENO evaluation. Methacholine challenge test was available in 23 of those patients. Mean age was 42.7 ± 15.6 years and the majority was female (n = 96; 63.6%). The majority were never smokers (n = 114; 75.5%) and were on inhaled and/or systemic corticoid therapy (n = 81; 53.6%) for at least 3 months. In this sample, there is statistical evidence to state that the level of FENO and the asthma control are related (R = 0.214; p < 0.01), whereby, of the total number of patients with ACT compatible with good control (52.3%), the majority (33.8%) had a low FENO level. There was also a positive and significant correlation between FENO value and methacholine challenge test results (sig. = 0.006 < 0.05), where the higher the FENO value, the superior the number of patients with positive methacholine challenge. There was also a trend towards serum eosinophilia when FENO was higher (sig. = 0.000 < 0.01). Bronchial obstruction did not differ between FENO levels. These results were independent of smoking habits and corticosteroid use.
Conclusions: FENO was associated with symptomatic control, bronchial hyperreactivity and serum eosinophilia, in this population sample. Although no association was found between the FENO value and bronchial obstruction, FENO is an early method for detecting airway inflammation, even in the absence of obstruction on spirometry, and therefore is a relevant method for monitoring and directing the institution of preventive and therapeutic measures.

Keywords: *Asthma. Spirometry. Methacholine. FENO. ACT. Eosinophils.*

PC 127. EXPERIENCE OF A PORTUGUESE TERTIARY HOSPITAL IN OLD ASTHMATIC PATIENTS UNDER BIOLOGICAL THERAPY

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Hospital Garcia de Orta.

Introduction: Asthma is a chronic respiratory condition and that affects millions of old adults. Several studies proven that biological therapy may be effective in the improvement of lung pulmonary function, asthma control and quality of life in asthmatic patients. In this study, we propose to evaluate lung pulmonary function, asthma control and quality of life before and after therapy with monoclonal antibody in pts > 65 years old.
Methods: Retrospective study including pts under biological therapy followed in a Severe Asthma Unit in a Portuguese tertiary hospital. Data collected from patients' clinical files included demographic characteristics, type and duration of biological monoclonal antibody (MA) therapy, lung pulmonary function (LPF), asthma control trough Asthma Control Test (ACT) and quality of life trough mini asthma quality of life questionnaire (Mini-AQLQ) before and at least 12 months after biological therapy. **Results:** 47 patients, 30 female, mean age 74 years old (min 65, max 91). 21 under mepolizumab, 17 omalizumab, 8 benralizumab and 1 reslizumab. LPF was assessed at baseline and after biological treatment. There was an increase of FEV1 in all pts after 12 months of treatment and with all the MA. Regarding asthma control, the mean value of ACT score before treatment was 14.5 and 12 months after was 20.7 points. This difference was statistically significant (p-value 0.025). We also found an improvement in the patient's quality of life, measured by mini-AQLQ from 3.2 to 5.1 points, (p-value < 0.031).
Conclusions: Our data suggests that MA treatment can be an effective therapy in an older asthma population, improving LPF, asthma control and patients quality of life.

Keywords: *Asthma in the elderly. Biological. Quality of life.*

PC 128. TREATMENT WITH OMALIZUMAB DURING PREGNANCY: CASE REPORT

Serviço de Pneumologia, Hospital Professor Doutor Fernando Fonseca.

Mariana Maia e Silva, Rudi Fernandes, Manuel Osório, Cecília Pardal

Introduction: Asthma is one of the most common diseases in pregnant women and about one-third experience worsening symptoms during pregnancy. As uncontrolled asthma is associated with adverse effects for both the mother and the fetus, it is essential to optimize therapy to improve perinatal prognosis. Biological therapies play a crucial role in the treatment of severe asthma patients, however, evidence regarding their safety profile during pregnancy is insufficient and limited to case reports and observational studies. The use of omalizumab by pregnant women is generally discouraged. We present a case of a pregnant patient with severe asthma under omalizumab therapy.
Case report: 38-year-old woman, with a medical history of thyroidectomy for thyroid carcinoma, obesity and allergic rhinitis and a smoking history of 5 pack-years. The patient was diagnosed with

severe allergic asthma in 2013, with an initial IgE level of 196; positive skin sensitivity tests for *Dermatophagoides farinae*, having undergone 3 years of specific immunotherapy; pulmonary function study showed small airways obstruction and positive bronchodilator response. She began biological therapy with omalizumab in 2015, 450 mg every 4 weeks. There was an improvement in symptomatic control and pulmonary function. She became pregnant in 2019 with worsening of symptoms, needing an increase in inhaled maintenance therapy and one cycle of systemic corticosteroids. Considering that the risks of omalizumab discontinuation would outweigh its maintenance, she continued the treatment throughout the pregnancy. She delivered a healthy newborn at 41 weeks via cesarean section without complications and there was no worsening of symptoms.
Discussion: Adequate treatment of severe asthma during pregnancy is crucial to minimize complications. The EXPECT study, a prospective observational study published in 2019, evaluated the perinatal prognosis in pregnant asthmatic women treated with omalizumab, and no increased risk of congenital malformations, preterm birth, or other complications was observed. However, this was a non-randomized study with a small sample size. Scientific evidence regarding other biological therapies is even scarcer, hence the importance of exchanging experiences among clinicians and conducting further studies to establish appropriate and safe therapeutic strategies in this population.

Keywords: *Severe asthma. Biologic therapy. Omalizumab. Pregnancy.*

PC 129. PRESCRIPTION PATTERN OF BIOLOGIC TREATMENT IN SEVERE ASTHMA WITH TYPE 2 INFLAMMATION

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Centro Hospitalar Universitário Cova da Beira.

Introduction: The efficacy of biological drugs used in the treatment of severe asthma with a Th2 phenotype has been widely studied, and the choice between them must be weighed on a case-by-case basis. This work intends to review the prescribing patterns of biologics approved for the treatment of severe asthma, with the exception of omalizumab, as it is essentially indicated for allergic asthma.
Methods: All asthma patients medicated with anti-IL-5/IL-5-R and anti-IL4 drugs at the hospital centre between 2017 and 2023 were included. Variables that may have influenced their prescription were studied.
Results: 34 patients with asthma, mostly female (n = 21, 61.8%) were included. Age ranged between 23 and 83 years, with no statistically significant differences between drugs (p = 0.087), although patients receiving dupilumab tended to be younger. The main reason for prescription due to another disease was observed in 14.7% of the cases (1 case of eosinophilic granulomatosis with polyangiitis under mepolizumab, 2 cases of chronic rhinosinusitis with nasal polyposis and 2 cases of allergic dermatitis under dupilumab). These were excluded from the following analysis. There were 18 prescriptions for mepolizumab (62.1%), 8 for benralizumab (27.6%), and 3 for dupilumab (10.3%), with nonallergic phenotype in 65.2%, 26.1% and 8.7% of cases, respectively (p = 0.665). There was no record of reslizumab prescription. In addition, 3 of the cases with mepolizumab and 1 with benralizumab had previous treatment with omalizumab and 1 case of dupilumab with mepolizumab (patient with severe nasal polyposis). About 58.6% of the patients had allergic rhinitis/rhinosinusitis, with no significant differences between the drugs, despite being present in only 37.5% of the cases with benralizumab, but 61.1% and 100.0% of the cases with mepolizumab and dupilumab, respectively. Furthermore, all patients medicated with dupilumab had nasal polyposis, contrary to what was observed with benralizumab, in which this pathology wasn't observed (p = 0.003). Regarding obesity, no significant differences were observed, although none of the patients under dupilumab had high BWI. Regarding the remaining comorbidities, mepolizumab was the only drug prescribed in cases of sleep apnea syndrome (n = 3); no patient had atopic dermatitis; and gastroesophageal reflux disease, autoimmune pathology and bronchiectasis were present in only 1 case each. Despite the absence of statistically significant differences, benralizumab was the biologic chosen for cases with higher eosinophil counts. The median of functional values did not vary significantly (FEV1/FVC: p = 0.367; FEV1: p = 0.269).
Conclusions: As expected, the presence of nasal polyposis significantly influenced the preference for dupilumab. On the other hand, benralizumab was the least often chosen drug in patients with nasal pathology (rhinitis/polyposis), but the most chosen in cases of high eosinophilia. The biggest limitation of this work was the sample size and the fact that it reflects the reality of only one hospital centre. In addition, all dupilumab prescriptions were made in 2023, which may represent a bias, given that this drug is more recently available in the hospital.

Keywords: *Personalized treatment. Severe asthma. Type 2 inflammation.*

PC 130. PRESCRIBING PATTERN CHANGES APPROVED BIOLOGICS IN SEVERE ASTHMA

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Introduction: The innovation observed in the last decade regarding asthma treatment has moved clinical practice towards personalized medicine. The therapeutic efficacy varies according to the disease phenotype and the context of each patient. The objective of this work is to study the pattern of biological therapeutic maintenance and reasons for discontinuation or switch.
Methods: All records of biological prescriptions indicated for the treatment of severe asthma at the hospital centre between January 2007 and May 2023 were reviewed, including all cases. Cases that didn't start therapy were excluded.
Results: A total of 79 patients were included, aged between 23 and 85 years, 57% (n = 45) female, medicated with omalizumab (n = 49, 62%), benralizumab (n = 7, 9%), mepolizumab (n = 18, 23%), dupilumab (n = 5, 6%) for any cause. A total of 13 patients (17%) discontinued treatment (2 of them with an initial prescription for a cause other than asthma) and 5 (6%) switched. The joint outcome of discontinuation and therapeutic switch was recorded between 3 and 204 months after the first dose, with a median of 13 months. Omalizumab was the biologic with the highest initial prescription for the treatment of severe asthma (n = 44), and the most frequently discontinued (n = 8, 18%) or switched (n = 4, 9%), particularly for anti-IL drugs -5/5R, especially mepolizumab (n = 3). With regard to cases of interruption of omalizumab, it was found that the majority showed functional improvement, but lack of disease control (n = 4, 9%). There was only one case of absence of clinical and functional improvement, in a patient who concomitantly had allergic bronchopulmonary aspergillosis. In the causes of switch, in addition to the lack of symptomatic/functional response, a hypersensitivity reaction was also recorded. Of the remaining drugs prescribed for the treatment of asthma, mepolizumab (n = 16) was the only one with records of therapeutic change. In fact, 3 cases with interruption were recorded (18%): no response in a smoker; hypersensitivity reaction; for refusal. Regarding the switch, there was only 1 case, in a patient with severe nasal polyposis in which it was decided to switch to dupilumab. A statistically significant difference was found between symptomatic control and treatment main-

tenance ($p < 0.001$). With regard to the presence of other comorbidities (obesity, gastroesophageal reflux, allergic rhinitis, atopic dermatitis, nasal polyposis, presence of other pulmonary pathologies), functional or analytical alterations, there were no statistically significant differences regarding the outcome.
Conclusions: The vast majority of patients with severe asthma who start biological treatment maintain it over time. In our sample, the switch to biological treatment was essentially motivated by the lack of symptomatic control of the disease, despite the fact that most patients showed functional improvement. The sample size is the major limitation, as it probably influenced the lack of significant results regarding some of the different variables under study. In addition, currently, there are no defined criteria to guide the therapeutic optimization with biological treatment modification in cases of responsive patients and more multicentric population-based studies are needed.

***Keywords**: Personalized treatment. Severe asthma. Biological treatment.*

PC 131. RESPIRATORY FUNCTIONAL IMPACT OF HALF A YEAR OF BIOLOGICAL THERAPY IN PATIENTS WITH SEVERE ASTHMA

Centro Hospitalar Universitário Cova da Beira.

Ana Craveiro, Daniel Rocha, Diana Sousa, Eunice Magalhães, Maria la Salete Valente, Maria Jesus Valente

Introduction: Severe asthma (FA) is a particularly challenging subtype of bronchial asthma, involving several drugs and in high doses. Nowadays, there are biological therapies that improve the quality of life of patients, with a safety profile much higher than that of corticosteroid therapy. In addition to the subjective gains they offer, they can greatly increase lung function.
Objectives: To evaluate the existence of changes in the value of FEV1 after 6 months of biological therapy in patients with severe asthma followed in a pulmonology service of a district hospital Portuguese.
Methods: Retrospective observational study including 55 patients with GA on biologic therapy for more than 6 months. Data were obtained through access to clinical files.
Results: Of the 55 patients, 60% were female and the mean age was 67.5 years (min 39, max 82). More than half lived in an urban context (62%) and 60% were not professionally active. 82% were non-smokers and 53% reported risky inhalation exposure. Almost half of the patients had a T2-Allergic inflammation phenotype (n = 27) and 1/3 had a T2-Eosinophilic phenotype (n = 16). 22% of patients had a non-T2 phenotype. Regarding the evolution of pulmonary function, the mean value of postbronchodilation FEV1 in respiratory function tests (PFR) was 67.8L to 77.9L after 6 months of biological therapy, with a statistically significant difference in means (p-value < 0.01).
Conclusions: According to the initial hypothesis and data from numerous investigations, the present study confirmed, with statistical significance, that biological drugs are associated with great benefits, namely in terms of pulmonary function.

***Keywords**: Severe asthma. Biological. FEV1. Functional impact.*

PC 132. EFFECTS OF DUPILUMAB ON LONG TERM PARENCHYMAL DISTORTION – CLINICAL CASE

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Centro Hospitalar Universitário de São João.

Introduction: Asthma with Th2-type inflammatory response and chronic rhinosinusitis with nasal polyposis (CRScNP) are frequently associated pathologies. Dupilumab, an anti-IL-4 receptor monoclonal antibody, is approved for the treatment of uncontrolled severe asthma with peripheral eosinophilia and/or increased FeNO and for the treatment of severe CRSwNP refractory to medical-surgical treatment.
Case report: Female, 52 years old, non-smoker, followed up in Immunoallergology due to Widal's Triad, medicated with ICS/LABA, montelukast and nasal corticosteroid therapy. Due to recurrent respiratory infections and imagiological alterations (pulmonary nodules, mediastinal/paratracheal/subcarinal lymphadenopathy, diffuse bronchiolectasis and complete atelectasis of the middle lobe and ULL), she began follow-up by Pulmonology. She underwent fiberoptic bronchoscopy (2012) which showed a cleft middle lobe bronchus, enlargement of the upper left lobe bronchus spur and a decrease in the caliber of the subsegmental bronchi. The immunological study of bronchoalveolar lavage revealed mild eosinophilic alveolitis and bronchial biopsies eosinophilic inflammatory alteration associated with peripheral eosinophilia. BAL microbiology without isolations and negative cytology for malignancy. Negative autoimmunity study. The transthoracic lung biopsy of a nodule in the IEL wasn't representative, so surveillance was chosen. It maintained clinical and imaging stability until 2020, when it presented worsening of nasal symptoms, with periods of frequent oral corticosteroid therapy, and respiratory with consequent adjustment of inhalation therapy for medium-high dose ICS. Imagiologically with more dense nodular lesions and bronchiectasis with marked bronchial impaction in the RIL. Also presented dimensional progression of the LLL nodule. She repeated bronchoscopy (February/2021) having purulent secretions coming from the LUL in addition to the previous structural changes. LBA Aspergillus DNA screening was positive but did not meet criteria for ABPA. Suspicion of non-tuberculous mycobacteriosis (by radiological presentation) was excluded due to the absence of isolations in the BAL. Biopsy of the nodule in the ILL (July/2021) showed marked eosinophilic inflammatory infiltrate, without vasculitis or granulomatous lesions. Since November/2021 with progressively worsening nasal complaints (anosmia, secondary serous otopathy, decreased hearing acuity) with the need for corticosteroid pulses, uncontrolled asthma and persistence of imaging changes, having started treatment with dupilumab in March/2022 (criteria for rhinosinusitis with chronic nasal polyposis refractory to medical-surgical treatment). Frank clinical improvement of nasal and respiratory symptoms in an evaluation 2 months after starting dupilumab, and in the evaluation at 12 months there were no nasal obstructive complaints, with recovery of smell and taste, without antibiotic therapy/oral corticosteroid therapy and with a significant improvement in exercise tolerance, having resumed work activity. Nasal CCT and montelukast were suspended. Imagiologically, significant improvement in middle lobe atelectasis, LUL insufflation for the first time in 10 years, cystic and cylindrical bronchiectasis. On the other hand, marked dimensional reduction of nodular densification and signs of bronchial impaction.
Discussion: The management of asthma with rhinitis and nasal polyposis can be complex. The emergence of dupilumab biological therapy allowed, in selected patients, to obtain marked symptomatic control. This case demonstrates that even at the level of bronchial impaction there can be a response, exemplified by the reversal of imaging changes with at least 10 years of evolution.

***Keywords**: Asthma. Atelectasis. Dupilumab. Chronic rhinosinusitis with nasal polyps.*

PC 133. LOCALIZED BRONCHIECTASIS

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Introduction: Localized bronchiectasis are more frequently associated with endobronchial obstruction caused by a foreign body or

tumor, the former being more frequent in children. In adults, aspiration occurs more frequently due to seizures, stroke or emergent orotracheal (tooth) intubation. Other causes are post-infectious, chronic aspiration or mycobacterial infection.
Case report: A 20-year-old woman, diagnosed with asthma with 5 years old, a social smoker, is admitted in Emergency Department with symptoms of dry cough, dyspnea and left pleuritic chest pain for two days. Examination with no relevant changes, blood tests with d-dimers of 1.24 mg/L and negative inflammatory parameters. A chest computed tomography angiography was performed and didn't show pulmonary thromboembolism, but showed varicose bronchiectasis in the right lower lobe, with an annular image in the segmental external basilar bronchus. In an outpatient evaluation in Pneumology consultation, the patient was asymptomatic, had history of influenza A infection at 10 years of age, alcohol consumption with binge drinking and absence of associated episodes of aspiration of foreign bodies or dyspnea. Flexible bronchoscopy (FB) was performed and revealed a foreign body (1.5 cm long pen nib), that was removed with foreign body tweezers, and with signs of inflammation at this level. Later, when questioned, she stated that by the age of 10 she had swallowed a pen nib, denying respiratory complaints or subsequent infections.
Discussion: BF is recommended in the diagnostic process of bronchiectasis when there is suspicion of bronchial obstruction, due to a foreign body or tumor, and should be routinely considered in cases of localized disease. The presence of a foreign body was suggested by the CT image, however, in the case of non-radiopaque objects, its presence may go unnoticed and foreign body aspiration is not always suggested by the anamnesis. Our case highlights the complementary importance of bronchoscopy in these cases.

Keywords: *Localized bronchiectasis. Foreign body. Finding.*

PC 134. FOLLICULAR BRONCHIOLITIS: A RARE CAUSE OF LADY WINDERMERE SYNDROME

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Introduction: Follicular bronchiolitis (FB) is a rare bronchiolar disorder characterized by the development of hyperplastic lymphoid follicles with germinal centers around the small airways, often with distortion of the bronchial tree architecture that cause partial bronchial and bronchiolar obstruction. FB is a pathological diagnosis and the exact cause is still unknown, but in most cases it is associated with rheumatic diseases and immunodeficiency, and is usually treated as part of the underlying disease.
Case report: A 48-years-old Woman, non-smoker, with no relevant past history or medication, was admitted with haemoptysis and progressive dyspnoea. She had mild hypoxemia and the remaining blood tests were normal. Bronchofibroscopy revealed slightly hematic secretions in both bronchial trees, no microorganisms isolated and cytopathology was negative. Chest CT showed diffuse ground glass, tree-in-bud and a few bronchiectasis. A surgical biopsy was performed and the histopathological diagnosis was FB. She started long-term treatment with oral corticosteroids with favorable clinical outcome. Five years later she was diagnosed with endometrium carcinoma, treated with surgery and adjuvant chemotherapy. Three years later she was re-admitted with haemoptysis, productive cough, pleuritic pain and fever. Chest radiography showed bilateral diffuse consolidation and CT angiography scan showed acute pulmonary embolism, several diffuse ground glass areas, undefined micronodulation and tree-in-bud pattern, bronchiectasis, an area of consolidation with air bronchogram in the middle lobe and small left pleural effusion. A PET/CT was performed, showing multiple nodular densifications with FDG-F18 enhancement, suspicious of lung metastasis; hypermetabolic pleural thickening compatible with pleural metastasis, suspicious of malignant left effusion and hypermetabolic adenopathies; no pelvic alterations suggestive of neoplastic disease in activity. Sputum analysis identified *Aspergillus fumigatus* and *Mycobacterium* avium and *Acinectobacter baumanii* complex, M. avium and A. fumigatus were isolated in bronchial aspirate and lavage. Haemoptysis were stopped and she was then started on anticoagulation for pulmonary embolism and antibiotics. CT-guided transthoracic lung biopsy ruled out metastatic cancer, and she was referred to the Tuberculosis Outpatient Unit. Two months after completing treatment for *M. avium*, she started again having haemoptysis and also loss of weight. *M. avium* was identified again in sputum samples. Chest CT showed exuberant bronchiectasis, mainly in the middle lobe and therefore Lady Windermere Syndrome was diagnosed. The identification of *M. avium* persisted and *Pseudomonas aeruginosa* was identified in the bronchial aspirate and lavage. Eradication attempts with antibiotics was ineffective; given the colonization with *P. aeruginosa* inhaled colistine was started. Currently the patient is stable although she maintains episodes of mild haemoptysis.
Conclusions: Primary idiopathic FB is rare, and treatment with systemic glucocorticoids has been reported to be successful in a few cases. However, in this case, corticoid-induced immunodepression predisposed to the occurrence of M. avium colonization and Aspergillus and *Acinectobacter* infection followed by middle lobe bronchiectasis - Lady Windermere Syndrome - and *Pseudomonas aeruginosa* colonization.

Keywords: *Haemoptysis. Follicular bronchiolitis. Bronchiectasis. Lady Windermere syndrome.*

PC 135. USE OF SIMEOX IN THE CLEARANCE AND MOBILIZATION OF MUCUS IN BRONCHIECTASIS – CLINICAL CASE

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Introduction: Airway clearance techniques facilitate bronchial hygiene in obstructive pulmonary disease, complicated by excessive secretion production and are widely recommended as part of the treatment of bronchiectasis. New techniques have recently been developed, such as Simeox® technology, by Physio-Assist. It consists of a medical device, which is indicated to help fluidify and transport mucus from the bronchioles of the deep lung to the large bronchi, so that they can be eliminated by coughing; generates a succession of very short air depressions, of constant volume and with a frequency similar to the vibrating cilia of the bronchial epithelium during the patient's relaxed expiration, spreading a vibrating pneumatic signal throughout the bronchial tree with direct action on viscosity and mobilization of the mucus.
Case report: 46-year-old male, weight: 80.5 kg, height: 1.76 m. Personal history of: hospitalization for 6 months for pneumonia at 6 months of age; severe obstructive ventilatory syndrome; cystic bronchiectasis. Medicated with triple therapy ICS/LBA/LAMA by Ellipta® and under a respiratory rehabilitation program since 2021, with two cycles of treatments per year. He had 2 exacerbations in 2022, requiring 1 episode of hospitalization. Started treatments with Simeox® on 30/05/2023, in a total of 15 sessions. mMRC: 2, CAT: 22, LCADL: 17, EuroQol: 70%. Previous BGA: pH – 7.386; pCO2 – 37.2 mmHg; pO2 – 65 mmHg; sO2 – 91.6%; HCO3- - 22.4 mmol/L. Throughout the treatments, the patient verbalized several times that he felt less mucus throughout the day and better aerobic capacity to carry out activities of daily living. At the end of the 15th session, the reassessment showed: mMRC: 1, CAT: 19, LCADL: 15, EuroQol: 80%. Final BGA: pH – 7.402; pCO2 – 38.6 mmHg; pO2 – 75.6 mmHg; sO2 – 94.7%; HCO3- - 28 mmol/L.

Discussion: Based on the scales completed by the patient (CAT, mMRC, LCADL and EuroQol) it is possible to verify that the treatments with Simeox® represented an added value in the perception that the patient had of health gains, with gains that had never been achieved before with the optimization of pharmacological and non-pharmacological therapy. Through the analysis of the blood gas values, it was possible to verify an improvement in the pO2 values (from 65 mmHg in the initial BGA, to 75.6 mmHg in the final) and in the sO2 values, from 91.6% in the initial BGA, to 94.7% in the final.

Keywords: *Bronchiectasis. Mobilization of mucus. Simeox®.*

PC 136. *PNEUMOCYSTIS JIROVECII* AND THE MYSTERY OF INFECTION IN THE IMMUNOCOMPETENT

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Introduction: *Pneumocystis jirovecii* (PJ) is an opportunistic fungus that can cause severe pneumonia in immunocompromised patients, especially those with HIV infection, transplant recipients, patients with tumors, or individuals under immunosuppressive therapy. PJ infection in immunocompetent individuals is uncommon; however, some cases have been reported, and it is assumed that the disease may occur through the reactivation of latent infection or person-to-person transmission.
Case report: A 77-year-old female patient, independent, with a history of hypertension (HTA), osteoporosis, and hysterectomy with ovarian tumor removal at the age of 71, worked as a seamstress from home. Referred to the Pulmonology clinic due to a productive cough with yellowish sputum, fatigue, and anorexia, which had been evolving for 2 years. Previously followed up in Allergology for rhinitis and chronic cough, with a poor response to the prescribed therapy: fluticasone nasal spray 27.5 µg twice daily, inhaled budesonide 200 µg twice daily, and montelukast 10 mg once daily. Allergy tests were negative, with a total IgE of 72.40 kU/L and no eosinophilia. Respiratory Function Tests and DLCO, were normal. A chest CT scan revealed a diffuse ground-glass opacities pattern, bronchial wall thickening with bronchiectasis in both lung fields, and some areas of tree-in-bud. The patient had a history of SARS-CoV-2 infection 8 months ago, but the symptoms did not worsen. On physical examination, appeared emaciated, weighing 50 kg, with a body mass index (BMI) of 19.1 kg/m^2, experiencing frequent bouts of coughing, but eupneic with oxygen saturation of 96%. Auscultation of the lungs revealed crackles and some wheezing sounds. A bronchofibroscopy with bronchoalveolar lavage (BAL) was performed, which identified *Pneumocystis jirovecii* infection through PCR. The BAL showed neutrophilia higher than 50%, consistent with suppurative infection. The laboratory tests include a normal hemogram and normal leucogram, elevated IgG and IgA levels with normal IgM, negative serologies for HIV, hepatitis B, and hepatitis C viruses, serum immunofixation without monoclonal bands, and normal total protein and albumin levels. The autoimmune study was also normal, including ANA, ENA, ANCA, anti-DNA, anti-CCP, and rheumatoid factor. Based on the patient's clinical history and imaging exams, there were no suspicions of rheumatological or oncological diseases. Started treatment with sulfamethoxazole and trimethoprim (SMX-TMP) at a dose adjusted to her weight, along with folic acid, for a duration of 21 days. During the SMX-TMP treatment, experienced some complications, including nausea, vomiting, and loss of appetite, but no hospitalization needed. Analytically mild hyponatremia, acute kidney injury that resolved in next follow-up. Post-treatment, the patient shows clinical improvement with less cough, better appetite, weight gain, less fatigue. CT scan after one month showed no significant improvement, possibly due to underlying chronic lung issue that is still under investigation.
Discussion: In this clinical case, no risk factors for immunosuppression and PJ infection were identified. Possible susceptibility factors include the patient's age and low weight, as well as the presence of bronchiectasis and chronic inhaled corticosteroid use. The performance of bronchoalveolar lavage (BAL) is essential even in patients without risk factors for the proper diagnosis and treatment of pneumocystosis.

Keywords: Pneumocystis jirovecii. *Pneumocystosis. Immunocompetent. Bronchiectasis.*

PC 137. THE ROLE OF AUGMENTATION THERAPY IN PATIENTS WITH ALPHA-1 ANTITRYPSIN DEFICIENCY

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Introduction: Alpha-1 antitrypsin (AAT), synthesized in hepatocytes, acts at the lungs by inhibiting the activity of several neutrophil-derived proteases. AAT deficiency is a prevalent genetic disease in Madeira Island, currently with more than 200 cases diagnosed. AAT augmentation therapy in these patients is fulcral and is recommended in individuals over 18-years-old with a diagnosis of Chronic Obstructive Pulmonary Disease, AAT < 57mg/dL, FEV1 between 30-70%, non-smokers or ex-smokers for more than 6 months, without selective IgA deficiency and with deficiency phenotypes or other combinations of alleles with rare variants. The aim of this study is to characterize patients who are under augmentation therapy (Prolastin®) and to assess the impact of this therapy on pulmonary function of these patients.
Methods: A retrospective analysis of clinical processes and collection of appropriate data, before and during augmentation therapy, were performed.
Results: At the Funchal Central Hospital, 16 patients are being treated with Prolastin®, of whom 8 (50%) are male and 9 (56.3%) are ex-smokers. The mean age is 58.6-years-old and the average AAT value is 27.4 mg/dL. Regarding the genotype of each individual, there are 7 patients with Pi*ZZ (43.8%), 2 Pi*SZ (12.5%), 2 Pi*ZQ0Santana (12.5%), 3 Pi*ZMMalton (18.7%) and 2 Pi*MMaltonMMalton (12.5%). Concerning the parenchymal alterations visualized on thoracic computed tomography, bronchiectasis are seen in 15 (93.8%) and emphysema, especially in the lower lobes, in 13 (81.3%) individuals. About respiratory function tests, obstruction (FEV1/FVC ratio < 0.7 according to GOLD criteria) is observed in all patients. In 2 patients, it was not possible to obtain the comparison of pulmonary function by spirometry, but in the remaining 14, the average FEV1 value was 1.61L (59.9%) and with the augmentation therapy, it changed to 1.38L (53.2%), with a loss of 230 mL in, approximately, 3 years. Chronic *Pseudomonas aeruginosa* infection is seen in 4 (25%) patients and 3 (18.8%) are on long-term oxygen therapy. It is noteworthy that one patient has severe asthma and is under treatment with biologics and another patient with Common Variable Immunodeficiency under immunoglobulin therapy. In turn, 4 (18.8%) patients, two Pi*ZZ, one Pi*SZ and one Pi*MMaltonMMalton present alterations in liver function tests, cirrhosis or fibrosis, and are followed concomitantly in the Gastroenterology consultation.
Conclusions: The presence of the Z, MMalton and Q0Santana alleles is related to greater severity of lung disease and the Z and MMalton alleles play a role in the development of liver disease. There was no decrease in lung function decline in patients on augmentation therapy. In this series, there is a decrease in the FEV1 value of, approximately, 76.7 mL/year with Prolastin®.

Keywords: *Alpha-1 antitrypsin. Genetic disease. Augmentation therapy. Pulmonary function.*

PC 138. FROM FUNCTION TO ACTION: PHYSICAL ACTIVITY AND LUNG FUNCTION IN ALPHA 1 ANTITRYPSIN DEFICIT

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Introduction: Alpha-1 antitrypsin deficiency (DAAT) is a common genetic disease in the European population. At the pulmonary level, there is an imbalance between proteases and antiproteases, leading to degradation of the extracellular matrix of the respiratory tract and lung parenchyma. Many develop pulmonary emphysema, with dyspnoea, cough and tiredness. The objective of this work is to evaluate how the physical activity of these patients varies according to their lung function.
Methods: Data from 23 patients who were undergoing AAT replacement therapy at Centro Hospitalar e Universitário de Coimbra were analyzed and asked to answer the MRC, EuroQol, St George Respiratory Questionnaire (SRGQ), IPAQ questionnaires and use a pedometer for 7 days. They were aged between 51 and 78 years and had an average BMI of 23.4 kg/m^2. Eight patients were under long-term oxygen therapy. With regard to lung function, they had an average FEV1 of 48% of predicted. The mean FEV1/FVC ratio was 40% and the mean DLCO 43%.
Results: In the 6-minute walk test, they walked an average of 370 meters, with a minimum of 60 m and a maximum of 562 m. As for the notion of dyspnea, assessed using the mMRC scale, most had grade 1-2 dyspnea. In the SGRQ the average was 52.88, in the EuroQol 10. In the evaluation by the IPAQ, 9 were considered active, 6 minimally active and 8 inactive. As for the pedometer data, the patients walked an average of 19,651 steps, a minimum of 255 and a maximum of 51,892, in 7 days. In the subgroup of patients under OLD, the average number of steps was 10,247 in 7 days. After dividing into 4 groups according to FEV1 levels, following the GOLD classification, there is an average of 31067 steps in group 1, 35,788 steps in group 2, 14,174 steps in group 3 and 8,159 steps in group 4, with all patients in group 4 were also considered inactive in the IPAQ. Patients with DLCO > 60% had an average of 36,618 steps, DLCO 40-60% an average of 21,662 steps and DLCO < 40% an average of 12,017 steps. Despite the small sample volume, there was a statistically significant relationship between FEV1 and DLCO values and the number of steps, as well as FEV1 with EuroQol and IPAQ. Severe AATAD is a disease with a high impact on the quality of life of these patients.
Conclusions: The patient's baseline lung function seems to be a predictor of the physical activity of these patients, so it can be used as a decision factor in the integration of rehabilitation programs.

Keywords: *Alpha-1 antitripsin deficit. Physical activity. Pulmonary function.*

PC 139. ANALYSIS OF INFLUENZA AND PNEUMOCOCCAL VACCINATION IN A SAMPLE OF PATIENTS WITH COPD

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Introduction: Chronic obstructive pulmonary disease (COPD) exacerbations are mostly triggered by respiratory infections, with a negative impact on lung function, disease progression and mortality. Influenza (IV) and pneumococcal (PV) vaccinations are associated with a reduction of the number of exacerbations and are recommended for patients with COPD.
Objectives: This study's goal was to assess whether age and COPD severity are associated with performing PV and annual IV.
Methods: We retrospectively analysed the clinical files of patients with COPD evaluated in a pulmonology consultation in a period of 8 months (September 2021 to April 2022), and demographic and clinical data was collected. Data analysis was performed using the SPSS software (IBMStatistics23). Independent t-test, chi-square and/or Fisher's exact test were used, as appropriate.
Results: A total sample of 65 patients was obtained, mostly male (n = 59; 90.8%), with a mean age of 74.7 ± 9.9 years (min. 48, max. 91). Fifty-five patients (94.6%) were aged 65 years. Fifteen were smokers (23.1%) and 42 former smokers (64.6%). Regarding the severity of airflow limitation, according to the classification proposed by GOLD - percentage of FEV1 after bronchodilation in relation to the predicted value - most patients (46.2%) were in grade 2 (FEV1 50 to 79%) and 38.5% in grade 3 (30 to 49%). Only 9.2% (n = 6) belonged to group 1 (80%) and 6.2% (n = 4) to group 4 (FEV1 < 30%). As for the assessment of symptoms and risk of exacerbations, nine patients (13.8%) belonged to group A, 34 (52.3%) to group B and 22 (33.8%) to group E. In the analysed sample, 61 patients (93.8%) performed IV annually. The percentage of patients with PV was lower, 84.4% (n = 54). The majority (n = 35, 64.8%) had a complete PV regimen: 34 patients had received the 13-valent pneumococcal conjugated vaccine (PCV13) and pneumococcal polysaccharide vaccine (PPSV23), the remaining patient also received the 20-valent pneumococcal conjugated vaccine (PCV20), in addition to the previous regimen. As for the recommendation of the vaccination, it was found that IV was mostly offered by Primary Health Care (PHC) (50.8%, n = 31). PV was recommended by PHC in 3 patients (4.9%), but mostly by Pulmonology (n = 51, 83.6%). There was a statistically significant difference in the mean age between vaccinated and unvaccinated patients, both for IV (p = 0.013), with a mean difference of -12.5 years in non-vaccinated patients, and for PV (p < 0.001), mean difference of -13.70 years. There was also a statistically significant association between age 65 years and vaccination, for both IV (p = 0.010) and PV (p = 0.042). There was no statistically significant association between the GOLD classification group, either spirometric or clinical, and vaccination.
Conclusions: It was found that the vast majority of patients with COPD followed in general pulmonology consultations are vaccinated against both influenza and pneumonia, particularly older patients. In contrast to IV, which is offered largely through PHC, PV was recommended mostly in the pulmonology consultations, suggesting that the importance of these vaccines in COPD patients should be reinforced with other specialties.

Keywords: *Chronic obstructive pulmonary disease. Influenza vaccination. Pneumococcal vaccination.*

PC 140. RISK PROFILES AND IMPACT OF MODERATE AND SEVERE EXACERBATIONS ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction: Exacerbations in chronic obstructive pulmonary disease (COPD) are associated with acute deterioration of health status and worsening of the patient's prognosis. Early identification of patients at high risk for future exacerbations is one of the strategies to prevent exacerbations and their consequences.
Objectives: To assess the impact of the exacerbation profile at diagnosis on the risk of all-cause mortality and cardiovascular death at 1 year in patients with COPD.

Methods: A retrospective, observational, longitudinal study that analyzed secondary data from a Local Health Unit in the north of Portugal. Patients aged 40 with a diagnosis of COPD between Jan 2013 and Dec 2018 were included. Moderate exacerbations were defined as outpatient consultations related to COPD in which there was prescription of respiratory antibiotics and/or oral corticosteroids, and severe exacerbations were defined as visits to the emergency room or hospitalization. Patients were grouped into five exacerbation categories based on their history in the 12 months prior to diagnosis: (A) 0 exacerbations; (B) 1 moderate exacerbation; (C) 2 moderate exacerbations; (D) 1 severe exacerbation and (E) 2 exacerbations, 1 severe exacerbation. The adjusted risk of new exacerbations, all-cause mortality and cardiovascular death 1 year after COPD diagnosis was determined with a 95% confidence interval (CI) for each exacerbation category, with category A as the reference.
Results: A total of 5,696 patients with COPD were included, most of whom were male (68%), with a median age (IQR) of 68 (18) years and 25% current smokers. About 60% of patients had moderate or severe exacerbations, before or on the date of diagnosis. The distribution of patients by exacerbation categories was: (A) 40.3%; (B) 16.4%; (C) 6.4%; (D) 31.8% and (E) 5.1%. In most patients, the diagnosis date coincided with the date of an exacerbation, in 99% and 98% of cases in categories D and E, respectively. Respiratory and cardiovascular comorbidities had an increasing trend between categories. The most common treatment in all categories was monotherapy with LABA/LAMA (32-74%), followed by the combination of ICS with LABA/LAMA (22-56%). The adjusted risk of moderate exacerbations at 1 year was higher in categories C (HR = 2.14; CI 1.64-2.79) and E (HR = 2.07; CI 1.51-2.85). In the case of severe exacerbations, the adjusted risk at 1 year was higher in categories D (HR = 4.33; CI 3.22-5.83) and E (HR = 3.84; CI 2.27-6.48). Category D had the highest risk of all-cause mortality (HR = 1.65; CI 1.21-2.18), followed by category D (HR = 1.42; CI 1.03-1.96). Regarding cardiovascular death, category E (HR = 1.65; CI 1.17-2.34) and C (HR = 1.53; CI 1.06-2.20) were the ones with the highest risk at 1 year.
Conclusions: This study indicates that the history of exacerbations at the time of COPD diagnosis impacts the risk of subsequent exacerbations, the risk of all-cause mortality and the cardiovascular risk at 1 year. Early diagnosis and treatment is essential to prevent new exacerbations and their consequences.

Keywords: *COPD moderate severe exacerbations.*

PC 141. COPD OUTCOMES OVER A PERIOD OF 6 YEARS AND THE ABCD(E) ASSESSMENT TOOL

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Introduction: The ABCD assessment tool combines the level of symptoms and the frequency of exacerbations. GOLD 2023 recognized the clinical relevance of exacerbations and merged the C and D groups into a single group E.
Objectives: Evaluate COPD outcomes after a period of 6 years and the relationship with the ABCD assessment tool.
Methods: Prospective cohort study. Patients with COPD followed in an outpatient setting were selected. The ABCD assessment tool was applied in the year of 2016. Outcomes such as hospitalizations, visits to the emergency department and death rate were assessed during the following 6 years.
Results: 86 patients were included, median age 66 years old, 91% males and 50% current smokers. The distribution of the ABCD assessment tool using mMRC was: A = 35, B = 17, C = 17, D = 17, and CAT: A = 19, B = 33, C = 7, D = 27. The grade of obstruction was: 1 = 9, 2 = 43, 3 = 26, 4 = 8. After the 6 year period 35% (n = 30) patient had died and 37.2% (n = 32; n = 25 from previous A/B groups) patients reassigned to the E group. The C and D groups presented with higher number of hospital admissions ($p < 0.001$, = 0.473) and visits to the emergency department ($p < 0.001$, = 0.388). There was no correlation with death rate ($p = 0.250$). There was no difference in the number of hospital admissions ($p = 0.420$) or visits to the emergency department ($p = 0.078$) between groups C and D. The B group, using mMRC, when compared to the A group, presented more hospital admissions ($p = 0.022$, = 0.324), this was not statistically significant when using CAT.
Conclusions: The ABCD GOLD groups correlated with hospital admissions and visits to the emergency department. There was no difference between the C and D groups in predicting outcomes, supporting the use of the new E GOLD group.

Keywords: *COPD. ABE assessment tool.*

PC 142. EVALUATION OF HOSPITAL READMISSION AND CARDIOVASCULAR OUTCOMES FOLLOWING ACUTE EXACERBATION OF COPD

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Introduction: Chronic obstructive pulmonary disease (COPD) is a frequent cause of global morbidity and mortality, with acute exacerbations (AECOPD) often leading to hospitalization. Readmissions have a significant impact on patient's quality of life and healthcare systems, estimated to range from 2.6% to 82.2% within 30 days. AECOPD has been associated with a significant increase in cardiovascular risk, contributing to the morbidity and mortality of this population. This study aims to identify and analyze readmissions with the goal of improving post-discharge patient management.
Methods: Retrospective observational study of AECOPD cases admitted to the pulmonology ward of a secondary hospital between 2017 and 2021. Patients with post-BD FEV1/FVC < 70% were excluded. Demographic characteristics, in-hospital mortality, readmissions at 30 and 90 days, and rehospitalization rates were evaluated.
Results: A total of 301 AECOPD hospitalization episodes were evaluated, with 137 excluded. The majority were male (78%), and the mean age was 66 ± 9.6 years. A mortality rate of 8.8% (n = 12) was observed. Of the remaining 125 admissions, 24% (n = 30) were readmitted to the hospital within 30 days, of which 20% (n = 25) resulted in rehospitalization, with a median duration of 17.5 days (P25 8.8, P75 25.0 days). At 90 days, 43.2% (n = 54) of patients were readmitted, with 30.4% (n = 38) requiring rehospitalization, and a median duration of 28.0 days (P25 12.8; P75 45.3 days). The most frequent causes of readmission are represented in graphs 1 and 2, with AECOPD being the most common in both groups, followed by pneumonia and heart failure. Additionally, 15.3% (n = 21) of patients experienced cardiovascular events within 30 days after AECOPD, with decompensated heart failure being the most common (11.7%, n = 16), along with cases of acute coronary syndrome, new-onset arrhythmia, and hypertensive urgency.
Conclusions: This retrospective observational study demonstrated a 30-day readmission rate of 24%, which increased to 43.2% at 90 days, consistent with findings from other studies. Moreover, cardiovascular events were observed in 15.3% of patients, underscoring the importance of a multidisciplinary approach in managing these patients. Identifying risk factors associated with higher readmission probability and tailoring discharge plans and follow-up on an individual basis are essential to reduce hospital readmission rates and improve clinical outcomes.

Keywords: *COPD. Readmission.*

PC 143. HIDDEN IN PLAIN SIGHT – A CASE OF LATE-DIAGNOSED BULLOUS EMPHYSEMA

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Introduction: Vanishing Lung Syndrome, also known as giant bullous emphysema, is a rare radiological entity characterized by the presence of emphysema in the form of one or more bullae that occupy more than one-third of a hemithorax and compress the remaining lung parenchyma or mediastinum. These bullae typically appear in the upper lobes. It represents a phenotypic subtype of chronic obstructive pulmonary disease about which little is known, and its clinical manifestations may include dyspnea, cough, decline in lung function, and spontaneous pneumothorax. Regarding the latter, special caution is needed when evaluating chest radiographs, as the bullae can mimic the presence of pneumothorax. However, chest tube placement should be avoided due to the risk of persistent air leak. Chest CT is essential for differentiation.
Case report: We present the case of a 60-year-old male referred to our clinic due to the detection of bullous emphysema on routine preoperative chest CT for orthopedic surgery. The patient's medical history included childhood asthma, active smoking with a smoking history of approximately 50 pack-years, and a past history of intravenous and inhaled illicit substance use, including heroin, cocaine, and cannabis, with more than 10 years of abstinence. He reported only mild and longstanding dyspnea (mMRC 1). The chest CT that led to the referral described "features of centrilobular and paraseptal emphysema with very significant air bullae causing marked compression and restriction of lung parenchyma, particularly on the right side, with the largest bulla located in the previous topography of the middle lobe, measuring about 15.3 x 10 cm in its largest axis." Upon reviewing available previous radiological images, an area of hyperlucency overlapping the mediastinum was observed, with a denser line corresponding to the bulla wall. Vascular markings were not absent due to superimposition of the image of the remaining right lung parenchyma. This image had been present for at least 3 years, but never detected.
Discussion: We present a rare case of vanishing lung syndrome. This entity should be present in our mind, as it can radiologically mimic pneumothorax, a much more common condition but with a completely different treatment approach. Although this condition has been associated with tobacco and cannabis use, as well as other drugs, there is a lack of substantial data to verify these associations. Most reported cases involve the upper lobes and clinically present with pneumothorax due to bulla rupture. In our case, the presentation was different, but it remained undiagnosed for several years. This also highlights the importance of obtaining chest radiographs in both anteroposterior and lateral views, as well as the importance of a systematic approach to radiographic interpretation to avoid overlooking subtle changes. Treatment options include surgery, endobronchial valve placement for lung volume reduction, or even lung transplantation.

Keywords: *Vanishing lung syndrome. Giant bullous emphysema. Pneumothorax.*

PC 144. ADHERENCE TO INHALER THERAPY: CAN WE TRUST OUR PATIENTS?

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Introduction: Given the additional complexity of inhaled therapy, treatment adherence tends to be lower in patients with asthma or COPD, with estimates ranging from 22% to 78%. Objective and subjective tools allow us to infer our patient's adherence to inhaled therapy. This study aimed to evaluate and compare adherence rates in patients with asthma and/or COPD, using a subjective tool, the test of adherence to inhalers (TAI) questionnaire (see annex), and an objective tool, the proportion of days covered (PDC).
Methods: For 12 months, we included participants with asthma, COPD, or asthma-COPD overlap, in the context of consultation or hospitalization who agreed to participate in the study and filled out the TAI questionnaire (N = 196 participants). Clinical and demographic information was collected. Descriptive and comparative statistics were performed using parametric tests. The TAI and PDC scores were statistically evaluated by correlation.
Results: The mean age was 66.17 ± 14.64 years and 51% were male. 104 participants (53.1%) had COPD, 74 (37.8%) had asthma, and 18 (9.2%) had asthma-COPD. Only 40 participants (20.4%) completed high school and/or university education. The mean TAI score was 48.41 ± 3.32, with no statistically significant differences between groups by sex, education, or context. There was a statistically significant mean score difference of 1.62 ± 0.67 between patients with COPD (mean of 48.85) and overlap (mean of 47.22) (p = 0.017). Adherence was classified as good in 118 (60.2%) participants, intermediate in 56 (28.6%), and poor in 22 (11.2%). Good adherence and intermediate adherence were observed in 67.3% and 25.0% of participants with COPD, in 56.8% and 29.7% with asthma, and only in 33.3% and 44.4% with overlap, respectively. The mean PDC was 76.38 ± 23.70, with no statistically significant differences between groups by sex, education, or context. There was a statistically significant mean difference in PDC of 11.95 ± 3.62 between patients with COPD (mean of 82.24) and asthma (mean of 70.28) (p = 0.001), and of 14.62 ± 5.46 between patients with COPD and overlap (mean of 67.61) (p = 0.008). Adherence was good in 108 (55.1%) of the participants and poor in 88 (44.9%). Good adherence was observed in 67.3% of participants with COPD, in 43.2% with asthma, and only in 33.3% with overlap. A linear, positive, and mild correlation existed between the TAI score and the PDC (r = 0.37; p = 0.000). The agreement in the classification of adherence between these two tools in all participants, in COPD, asthma, and overlap was 64.2%, 75.0%, 51.3%, and 55.5%, respectively.
Conclusions: The inhaled therapy adherence rate in our sample matches the available literature. Our study showed that both adherence to inhaled therapy and agreement between the 2 tools (TAI and PDC) were significantly higher in patients with COPD. The reliability of subjective tools, such as the TAI, appears to be higher in patients with COPD than in patients with asthma.

Keywords: *Treatment adherence. Test of adherence to inhalers. Proportion of days covered. COPD. Asthma.*

PC 145. TRIPLE THERAPY IN COPD EXACERBATIONS – A RETROSPECTIVE STUDY

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Introduction: Bronchodilators are the basic therapy for COPD. Long-acting bronchodilators should be used: anticholinergics (LAMA) and B2 agonists (LABA). According to the 2023 GOLD initiative, in symptomatic patients with a history of exacerbations and peripheral eosinophilia, triple therapy (the two bronchodilators, LAMA and LABA, and inhaled corticosteroids) is indicated, with the aim of improving symptoms and reducing exacerbations. Some studies have shown that the early introduction of triple therapy after an exacerbation reduces the risk of subsequent severe exacerbations.
Objectives: To evaluate the introduction of triple therapy and whether early/late onset has an impact on the reduction of subsequent exacerbations in patients from our clinical practice.

Results: We included 38 patients (26 women, median age 70 years) diagnosed with COPD under triple therapy (TT) for at least one year. The triple therapy initiated was in 24 patients on multiple devices (open), and in 9 patients was later adjusted for single device (closed). In the remaining 14 patients, open TT was introduced ad initio. Fifteen patients started triple therapy in the first 30 days after an exacerbation and 13 patients in a later date; 10 patients had no history of exacerbation. In the year following the start of TT, patients had, on average, one less exacerbation, with no statistically significant difference between those who started triple therapy early or later. An ANOVA test found statistical significance ($p < 0.001$) in the decrease in exacerbations between patients who had at least two moderate exacerbations or at least one severe exacerbation (belonging to group E, GOLD 2023), who had on average 1.8 fewer exacerbations, and patients with a history of only one moderate exacerbation, who had on average 1.2 fewer exacerbations. Peripheral eosinophilia did not produce statistically significant differences in exacerbations after initiation of triple therapy.
Conclusions: Most of the patients included started triple therapy after an exacerbation, on multiple devices. Initiation of triple therapy in exacerbating COPD patients was associated with a reduction in subsequent exacerbations, with no influence of early or late onset. Sample size, the retrospective nature of the study, based on clinical records, and the underestimation and lack of adequate registration of COPD exacerbations, particularly moderate ones, may be limitations of this study.

Keywords: *COPD. Exacerbations. Triple therapy. Inhaled corticosteroids.*

PC 146. CHEST CT IN COPD EXACERBATION RISK AND SEVERITY

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Chantal Cortesão, Filipa Bento, Pedro Silva Santos

Introduction: Chest CT scan is not a requirement for COPD diagnosis and has been used mainly to assess comorbidities such as lung cancer. Despite this, several imaging markers have shown correlation to disease severity and prognosis. We aimed to examine the associations of several chest CT scan-identifiable markers with history of COPD exacerbation.
Methods: We included patients with previous diagnosis of COPD, followed in a tertiary hospital. We evaluated chest CT scans with regards to emphysema, bronchial wall thickening, presence of bronchiectasis, pulmonary trunk to aortic ratio, coronary calcifications and luminal plugging. Clinical data, including history of exacerbations in the past two years (2020-2022), was obtained from clinical records. Statistical analysis was performed in SPSS v.28. We included 44 patients, 36 males (82%), with a medium of 71 years of age.
Results: Twenty patients (45.4%) had no history of exacerbations and 24 (54.5%) had at least one severe exacerbation (15 patients) or two or more moderate exacerbations (9 patients). No statistically significant difference was found between CT-identifiable markers in exacerbating and non-exacerbating patients nor between patients who had severe COPD exacerbations and moderate exacerbations.
Conclusions: Several CT scan-identified markers have shown correlation to disease severity and prognosis. We found no association between presence and distribution of emphysema, bronchial wall thickening, presence of bronchiectasis, elevated pulmonary trunk to aortic ratio, coronary calcifications or luminal plugging with exacerbation history in our sample. Other alterations such as low lung density and quantification of emphysema were not taken into account and might have association with COPD exacerbation risk.

Keywords: *COPD. CT SCAN. Exacerbation.*

PC 147. SEVERITY CLASSIFICATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE EXACERBATIONS IN HOSPITALIZED PATIENTS: THE ROME PROPOSAL

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Introduction: The current severity classification of COPD exacerbation has limitations, since it is based on event information obtained a posteriori, about the use of additional medication and health services. A new proposal for evaluation of exacerbations severity, published in 2021, classifies them in mild, moderate and severe, according to 6 objective variables. Despite being contemplated in the 2023 GOLD guidelines, this classification system is not yet generalized in clinical practice, in evaluation and treatment of COPD patients.
Objectives: To apply the Rome Proposal on the classification of COPD exacerbation severity in patients admitted to the Pulmonology Ward, in the first 4 months of 2023.
Methods: Retrospective analysis of patients admitted to the Pulmonology Ward of a Central Hospital, with the diagnosis of acute exacerbation of COPD, from January to April 2023. Patients were classified according to the severity of the exacerbation into Mild, Moderate, or Severe, according to the following criteria analyzed at admission: heart rate, dyspnea, respiratory rate, peripheral oxygen saturation, C-reactive protein, hypercapnia, and acidemia.
Conclusions: According to the previous severity classification, analyzed COPD exacerbations would be called "severe", due to the need for hospitalization. After applying the new severity stratification proposal, only 46% of exacerbations are "severe". "Severe" exacerbations had a greater number of patients under NIV and a longer hospital stay. There were 11% of "mild" exacerbations requiring hospitalization, which probably reflects other clinical, laboratory and radiological criteria, not approached by Rome Proposal, such as isolated hypoxemia or decompensation of comorbidity(ies), for example.

Keywords: *COPD. Exacerbation. Classification.*

PC 148. HOSPITALIZATIONS FOR ACUTE EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A DESCRIPTIVE ANALYSIS

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Introduction: The chronic obstructive pulmonary disease (COPD) is characterized by persistent and progressive obstruction of the airways, and its diagnosis is confirmed through spirometry. Currently, it is the third leading cause of death worldwide and represents a major public health issue. Being an underdiagnosed disease worsens the associated morbidity and mortality rates.
Objectives: To characterize the hospitalized patients diagnosed with acute exacerbation of COPD (AECOPD) in relation to demographic data, risk factors, spirometry results, therapeutic approaches, comorbidities, in-hospital mortality rate and readmission rate. To compare the group of patients with a confirmed COPD (cCOPD) diagnosis with the group of patients with suspected COPD (sCOPD – without spirometry).
Methods: Retrospective analysis of clinical records of patients hospitalized for AECOPD at Hospital Beatriz Ângelo in 2022. We considered for analysis the first hospitalization for AECOPD in that year. We performed descriptive statistics using Microsoft Excel and used IBM SPSS Statistics 22 to compare the two groups, considering results with a p-value < 0.05 statistically significant.

Results: We identified 99 patients hospitalized with an AECOPD diagnosis, 65% of them were male, with a mean age of 72 ± 12 years. The majority were smokers (47%) or ex-smokers (33%). The most frequent comorbidity was cardiac pathology (42%) and the primary cause of exacerbation was infection (75%). Among this population, only 52% had a confirmed diagnosis by spirometry, with an average FEV1 of 46% predicted. Vaccination rates were higher in the group with cCOPD vs sCOPD group (COVID-19: 82 vs 52%; flu: 66 vs 35%; 13-valent pneumococcal conjugate: 53 vs 21%; 23-valent pneumococcal polysaccharide: 31.4 vs 2.1%). We observed a higher proportion of patients on long-term oxygen therapy (LTOT) and noninvasive ventilation (NIV) prior to admission in the cCOPD group, but without statistical significance. During hospitalization, a significantly higher proportion of cCOPD patients experienced global respiratory failure (RF) (86 vs 69%) and required NIV (53 vs 31%). Likewise, the rates of systemic corticotherapy use and respiratory physiotherapy during hospitalization were higher in the cCOPD group (100 vs 67% and 96 vs 71%, respectively). At the time of discharge, the most prescribed inhaled therapy was triple therapy (cCOPD and sCOPD: 43 vs 27%), followed by dual bronchodilation (cCOPD and sCOPD: 37 vs 27%). 35% of cCOPD patients were discharged with indication for LTOT and 31% for NIV, while in the sCOPD group it was only 13% and 6%, respectively, with statistically significant differences. Finally, the in-hospital mortality rate was 4%, and the readmission rate at 3 months was 27% (similar in both groups).
Conclusions: Spirometry confirmation of COPD diagnosis is essential for correctly managing these patients. Vaccination rates in this sample were lower than recommended, despite being higher in the group of patients with cCOPD. The higher rate of RF and need for LTOT and NIV at discharge may be related to a greater disease severity in the cCOPD group or to the inclusion of patients without COPD in the sCOPD group.

Keywords: *COPD. Exacerbation. Hospitalization.*

PC 149. FEV1Q: IS IT A RELEVANT SPIROMETRIC ASSESSMENT IN COPD PATIENTS?

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is associated with persistent, often progressive, airflow obstruction. Evidence suggests a weak relationship between forced expiratory volume in 1st second (FEV1) and symptoms and health status in this disease. New spirometric parameters have been studied and related to clinical outcomes, such as the FEV1Q. FEV1Q is the measured FEV1 divided by the sex-specific 1st percentile value of the absolute FEV1. It has been proposed as the best related spirometric lung function parameter to all mortality and survival, however, its clinical role in specific diseases is unknown.
Objectives: To assess the relation between FEV1Q and the symptoms (dyspnea), exacerbations, GOLD ABE groups and estimated survival, according to the BODE index, in COPD patients.
Methods: We included COPD patients assessed in a Pulmonology appointment at Hospital da Luz Lisboa between January 2021 and June 2023. COPD was diagnosed according to GOLD criteria. Patients without spirometry data and information on symptoms and exacerbations were excluded. Demographic, clinical and functional data were collected through the clinical process. We calculated FEV1Q according to the equation: FEV1 (liters) divided by the sex-specific 1st percentile of the FEV1 (0.5L for males and 0.4 L for females). Continuous variables are presented as mean standard deviation and categorical variables presented as n (%). Post-bronchodilator FEV1Q value was compared in different groups according to: dyspnea (mMRC 0-1 vs mMRC 2), last 12 months exacerbations (0 or 1 moderate vs 2 moderate or 1 leading to hospitalization), GOLD ABE assessment tool and predicted survival, according to BODE index. Due to few individuals with a complete BODE index, two categorical groups were considered: 4 years survival of 80% and < 80%.
Results: We included 152 COPD patients, 70.29.8 years old and 94 (61.8%) were male. The pos-bronchodilator FEV1 was 73.319.9%. The BODE index was calculated for 55 patients. We documented differences in FEV1Q according to the dyspnea (mMRC 0-1: 4.81.5 vs mMRC 2: 3.61.4, $p < 0.001$), exacerbations (4.41.5 vs 3.41.6, $p = 0.011$), GOLD ABE groups ($p < 0.001$) and estimated survival (4 years survival of 80%: 4.30.9 vs < 80%: 2.61.0, $p < 0.001$). Regarding GOLD ABE groups, we documented differences between A-B (4.91.4 vs 3.61.2, $p < 0.001$) and A-E (4.91.4 vs 3.41.6, $p < 0.001$) but no statistical difference between B-E ($p = 0.695$).
Conclusions: In this sample of COPD patients, the FEV1Q presented differences according to the symptoms, exacerbations and survival based on BODE index. Considering the GOLD ABE groups, we also documented differences between A group and other groups; however, we did not find differences between B and E groups which could be related with the lower survival of these groups. In conclusion, FEV1Q can be a promisor spirometric parameter to access COPD patients, however more studies are needed, including to access changes over time.

Keywords: *COPD. FEV1Q. Spirometry.*

PC 150. SURGICAL MANAGEMENT OF INFECTIOUS PULMONARY CONDITIONS: A 5-YEAR SINGLE CENTER EXPERIENCE

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Introduction: Surgical treatment in infectious pulmonary disorders is usually reserved to symptomatic patients with focal disease pathology and no effective response to medical treatment. This study will focus on 4 major conditions: bronchiectasis, aspergillosis, tuberculosis, and lung abscesses. Although showcasing a vastly different biological nature, these conditions normally display a favorable outcome with conservative therapy. However, in some cases, surgery may play an important role in symptomatic control and prevention of long-term disease progression. We aim to evaluate the impact of surgery in the treatment of infectious pulmonary conditions.
Methods: We performed a retrospective cohort analysis of all patients with infectious pulmonary diseases who underwent surgical resection from 2018 to 2022 in our institution.
Results: During the 5-year period, 43 patients were considered. There was a slight female predominance (51%) and a mean age of 50.5 (± 18.5) years. Many patients had underlying lung disease, including asthma (7%), chronic obstructive pulmonary disease (14%) and previous history of severe pneumonia (14%) and lung tuberculosis (19%). When solely considering the patients affected with aspergillosis, 36% exhibited cavitary lung lesions from past tuberculosis infection. The most common presenting symptoms were productive cough (42%), dyspnea (26%) and recurrent hemoptysis (26%). 10 patients (23%) were asymptomatic but showed persistent radiological abnormalities. Surgery was indicated in the treatment of bronchiectasis in 16 patients (37%); aspergillosis in 14 (33%), tuberculosis in 9 (21%) and lung abscess in 4 patients (9%). The procedures comprised pneumonectomy (9%), bilobectomy (4%), lobectomy (42%), segmentectomy (9%) and wedge resection of lung lesions (36%). In 64% of patients, surgery was per-

formed on the right lung. Thoracotomy was conducted in 51% of surgical procedures while the reminiscent were performed through videoassisted thoracoscopy. The conversion rate to open surgery was 2% (one case required conversion for adequate hemostatic control). The median drainage time was 5 [1-22] days and median hospital stay was 7 [2-39] days. The minor morbidity rate was 14% (Clavien Dindo II) whereas major morbidity rate was also 14% (Clavien Dindo III-V). Major complications comprehended recurrence of pneumothorax, requiring replacement of pleural drainage (8%); empyema, needful of surgical decortication (8%); development of lung abscess with resulting lobectomy (8%); hemothorax, with the need of surgical hemostasis (8%) and respiratory failure requiring reintubation (17%). Mean follow-up time by Thoracic Surgery was 6.8 (± 9.8) months. There were no cases of perioperative or 30-day mortality. The survival rate, 1 year after surgery, was 98%. Conversely, 30 patients (69.8%) experienced clinical improvement after surgery.
Conclusions: Infectious pulmonary conditions can lead to complications which greatly impact the respiratory capacity and quality of life. Unsuccessful medical treatment is the main indication for surgery. Although this is a very heterogenous group of patients, our study confirmed that surgical treatment is effective, playing an important role in symptomatic improvement. Surgery reduces the morbidity and mortality rates with careful preoperative planning and in appropriately selected cases.

Keywords: *Infectious pulmonary disease. Bronchiectasis. Tuberculosis. Aspergillosis. Lung abscess. Surgery.*

PC 151. A RAGING CHEMICAL PNEUMONIA – A CASE REPORT OF SEVERE FIRE BREATHER'S LUNG

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Introduction: Fire breather's lung is a rare entity ensuing from manipulation of liquid hydrocarbons namely paraffin due to its high explosive feature. Aspiration lipoid pneumonitis constitutes a serious complication. The lipid component of paraffin generates an exacerbated inflammatory reaction that results in destruction of alveolar structures, edema and abundant mucus secretion and interstitial lung necrosis. Recognition of imaging findings and assertion of accidental exposure is essential for establishing a prompt diagnosis and determining the best course of treatment. Evidence published shows a good clinical response to conservative therapy. Very few cases have been reported requiring surgical approach. Herein, we present a surgical case of fire-breather's lung with rapid pathologic deterioration. In our center, only two cases of chemical pneumonitis were accounted for requiring surgery, the first of which was published in 2020.
Case report: A 21-year-old male smoker presented in the emergency department after accidental aspiration of liquid paraffin from blowing fire. He exhibited fever, cough and pleuritic pain but did not show signs of difficulty breathing. Chest X-ray revealed a heterogeneous hypotransparency on the right hemithorax. Treatment with oral amoxicillin-clavulanic acid and azithromycin was initiated and the patient was discharged on the same day. Clinical deterioration dictated the return to the emergency room after 72 hours with an acute onset of respiratory distress and hemoptysis. Chest auscultation disclosed crackles on the right side and blood tests displayed a rise of inflammatory markers. CT scan revealed middle lobe abscess and necrosis as well as cavitary lung nodules in the right and left lower lobes. A bronchoscopy demonstrated extensive inflammation and drainage of purulent fluid from the bronchus intermedius. Antibiotic treatment was escalated to piperacillin-tazobactam and respiratory rehabilitation was started. However, poor clinical response and worsening of infection parameters favored the need for surgical resection. A middle lobe lobectomy and wedge resection of the right lower lobe lesion was performed through muscle-sparing thoracotomy with evidence of extensive infected parenchymal destruction of the middle lobe. After the procedure, the patient experienced substantial clinical improvement and increase in respiratory capacity. Pleural drainage removal and subsequent hospital discharge took place on the 5th post-operative day. One month after surgery, the patient is asymptomatic with resolution of the left lung lesion and no evidence of complications.
Discussion: Aspiration of exogenous toxic substances and specifically hydrocarbons can lead to chemical pneumonitis and culminate in lung parenchymal destruction and severe chronic disease. Awareness should be emphasized to the possible hazards of accidental exposure and the potential respiratory distress and delayed clinical decline. In most cases, early antibiotic and supportive therapy allow for disease control. Lung necrosis is extremely rare and yet is a life-threatening complication, requiring surgical removal of the destroyed parenchyma. Our case reflects an atypical poor prognosis of fire breather's lung disease, disclosing the pivotal role of Thoracic Surgery in the treatment of severe complications from toxic pulmonary exposure.

Keywords: *Fire breather's lung. Chemical pneumonitis. Lipoid pneumonia. Paraffin. Lung necrosis. Surgery.*

PC 152. SPONTANEOUS PNEUMOTHORAX FOLLOWING RIGHT INFERIOR LOBECTOMY – A COINCIDENTAL FINDING.

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Introduction: Prolonged air leak (PAL) is the most common complication of lung resection surgery, with an incidence of 15 to 18%. In the literature, there is few evidence regarding spontaneous pneumothorax following lung resection surgery.
Case report: A 49 years old male patient and a former-smoker (20 pack-year's) was referred to Thoracic Surgery consult due to an endobronchic hamartoma in right B6 (diagnosed by rigid bronchoscopy). Submitted to right inferior lobectomy by VATS, without complications, with thoracic drain removal and discharge on the 2nd post-op day. The patient was admitted in the emergency room 3 days after, with dyspnea and subcutaneous emphysema on the right hemithorax. The thoracic radiography showed a large volume pneumothorax and a Jolly 18Fr drain, with a low pression suction system (Thopaz®), was placed. The next day, the right lung was fully expanded, however it kept a persistent air leak (about 200-400 ml/min). The low pression suction was removed on the 8th day of admission, with a persisting air leak. Due to the PAL, the surgical team decided to re-intervene, in order to revise the aerostasis, which was performed on the 18th day of admission. During the surgery, no air leak was found on the bronchial stump. However, a ruptured bleb was identified and, consequently, a wedge resection and chemical and mechanical pleurodesis was performed. The patient showed a satisfactory clinical development, removing the thoracic drain and being discharged on the 4th post-op day.
Discussion: This case highlights the importance of considering different etiologies of a post-surgical PAL, particularly in a patient with risk factors for a spontaneous pneumothorax. A prospective study could enlighten the true incidence of this coincidental finding and, perhaps, change the current therapeutic and surgical approaches.

Keywords: *Pneumothorax. Prolonged air leak.*

PC 153. TERATOMAS: A DIFFERENTIAL DIAGNOSIS IN MASSES OF THE ANTERIOR MEDIASTINUM THAT MUST NOT BE FORGOTTEN

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Introduction: Teratomas of the mediastinum are rare and the anterior mediastinum is the most common extragonadal location of these tumors. Most of the mediastinal teratomas are mature teratomas therefore being benign. Benign teratomas have no sex predilection and are more common in early adulthood (between 20 and 40 years old). These tumors are mostly asymptomatic so its diagnosis is mainly incidental by a chest X-ray or CT scan performed for other reasons. CT scan of the chest is the imaging method of choice and usually reveals well demarcated and lobulated masses, cystic or mostly cystic with calcifications and areas of fat. The presence of a fat-fluid level is pathognomonic for teratomas but rarely seen. As most mediastinal teratomas are located in the anterior mediastinum, they can be misdiagnosed as thymomas. Complete surgical excision is the treatment of choice and prognosis after resection is excellent. Malignant transformation is rare.
Case report: A 60 year old woman presented with chronic cough after Covid-19 infection. Chest X-ray revealed a bulky mass occupying most of the left hemithorax and the right lower hilar region. CT showed a large mass in the anterior mediastinum protruding to the left hemithorax with 15 centimeters, with a density mainly cystic and peripheral calcifications. Beta-human chorionic gonadotropin (beta-hCG) and alpha-fetoprotein (AFP) were normal. MRI showed a heterogeneous mass with some areas of fat tissue and some cystic areas, with a right deviation of the mediastinum but neither infiltration nor apparent invasion of surrounding structures. The patient underwent complete surgical excision of the lesion by median sternotomy. The hospital stay was uneventful and she was discharged three days after the surgery. Histological examination revealed a benign neoplasm with characteristics of mature cystic teratoma. The postoperative CT scan one year after the surgery showed no signs of recurrence of the tumor.
Discussion: Teratomas of the anterior mediastinum present a rare clinical scenario. Although rare, mediastinal teratomas can attain a substantial size and represent a diagnostic challenge due to their heterogeneous composition. A successful outcome is dependent on precise preoperative evaluation and complete surgical excision. This case report enhances the importance of considering teratomas in the differential diagnosis of anterior mediastinal masses and its timely surgical intervention for the best prognosis on a long run. Sharing such cases is of clinical importance to help other medical practitioners that encounter similar cases.

Keywords: *Teratoma. Germ cell tumor. Anterior mediastinum. Surgery.*

PC 154. CARDIOPULMONARY EXERCISE TESTING (CPET) WITH CYCLE ERGOMETER IN PREOPERATIVE EVALUATION FOR LUNG RESECTION SURGERY: EXPERIENCE FROM A HOSPITAL CENTRE

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Introduction: Certain parameters assessed during Cardiopulmonary Exercise Testing (CPET) with cycle ergometer, particularly peak oxygen uptake (VO2), are used to stratify postoperative risk following lung resection surgery. However, the established thresholds for predicting postoperative mortality and morbidity were mainly derived from patients undergoing thoracotomy, while minimally invasive surgical methods, such as video-assisted thoracoscopic surgery (VATS), are now increasingly used. Other factors may also be associated with unfavorable events in patients undergoing surgery.
Objectives: The aim of this study is to analyze the relationship between certain clinical and functional factors and some CPET-derived variables with the occurrence of postoperative complications after lung resection surgery, based on the experience of a Central Hospital.
Methods: A retrospective analysis of patients who underwent CPET as part of the preoperative evaluation for lung resection surgery between 2010 and the first half of 2023. Statistical analysis was performed using SPSS (IBM Statistics 26).
Results: Among 32 patients who underwent CPET to assess conditions for lung resection surgery, only 20 underwent surgery. Most patients were male (55%; n = 11), and mean age was 60.4 (± 11.2) years. The indication for surgery was mostly due to oncological disease (n = 18) and only in two cases due to emphysema (n = 1) and bronchiectasis (n = 1). Most patients underwent lobectomy (n = 16; 80%), 13 patients underwent VATS. The postoperative complication rate was 25% (n = 5), with 2 patients having more than one cardiopulmonary complication. However, there were no deaths in the first 90 postoperative days. The most frequent complication was pneumothorax (n = 4), followed by respiratory infection (n = 1), unilateral pleural effusion (n = 1), and cardiac arrhythmia (n = 1). Mean peak VO2 was 20.9 mL/kg/min (17.1-23.8) in patients who developed some complication and 19.5 mL/kg/min (10.0-26.6) in patients without any postoperative complication (p = 0.24). The proportion of patients with peak VO2 of < 15 mL/kg/min, 15 to < 20 mL/kg/min, and 20 mL/kg/min developing at least one postoperative complication was 0.0, 22.0, and 33.0%, respectively. The mean O2 pulse was 80.4% (± 13.3%) in the group of patients with some complication and 98.1% (± 15.6) in the group without any postoperative complication and this difference was statistically significant (p = 0.02).
Conclusions: In this patient sample, there was only a statistically significant association between O2 pulse and the occurrence of postoperative complications. Although VO2 is a well-established parameter for predicting complications following lung resection surgery, this study does not provide support for such an association. VATS has increasingly been favored as an alternative to thoracotomy and is generally associated with a lower rate of postoperative complications. Therefore, prospective studies are needed to define the thresholds for parameters such as peak VO2, as well as other variables derived from CPET with potential in the preoperative risk assessment of patients proposed for lung resection surgery.

Keywords: *Postoperative complications. Cardiopulmonary exercise testing. Peak oxygen uptake. Oxygen pulse. Lung resection.*

PC 155. MANAGEMENT OF CHEST DRAINAGE IN THE OUTPATIENT POSTOPERATIVE SETTING: CASE SERIES REPORT

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Introduction: The management of chest drainage after lung resection surgery remains an evolving science. The maintenance and decision to remove a chest tube continues to be influenced by the surgeon's personal experience and access to new technologies-portable and digital drains for example-and the duration of chest

tube drainage is an important factor in patient morbidity and length of stay. One of the concerns and complications frequently observed after surgery is persistent air leak one of the most common postoperative complications, occurring in 15% of patients undergoing lung resection - which can now be safely managed in the outpatient setting using portable drainage systems.
Case reports: Case report 1: Male, 73 years old, submitted to left upper lobectomy sparing the lingula and VATS mediastinal lymph node dissection for pulmonary nodule suspected of neoplasm - pT-1bN0M0 - IA2. Discharge on the 4th day post op. Reassessed on the 6th day post op - air leak maintained, lung expanded, drain mobilised by about 5 cm. 12th day post-op - no air leak, drain clamped with chest X-ray with good expansion and no collections. Drain removed and biotrol bag left to reassess fluid (dressing with yellow fluid). Biotrol bag removed on the 13th day. Case report 2: Male, 52 years old, non-smoker, plumber with exposure to asbestos. Excellent general condition, diagnosis of malignant pleural mesothelioma of the right epithelioid type, submitted to pleurectomy/extended decortication-ypT2N0. Due to the maintenance of a low output airway fistula, he was discharged on the 16th postoperative day with a portable drainage device, with indication for reassessment. Drain removed 3 weeks post-op. Case report 3: A 65-year-old male with a history of tuberculosis sequelae and status post wedge resection of LSE adenocarcinoma. He underwent LSD, wedge resection of the right lower lobe and VATS mediastinal lymph node dissection for a pulmonary nodule suspected of neoplasm - CPC pT-1bN0. Discharge 17th day post-op. Re-evaluation 27th day post-op asymptomatic, chest X-ray superimposed on discharge. Obstructed drain with minimal serous drainage, replaced with 24f pezzer. Drain removed on 34th day post-op.
Discussion: There was no presentation of major pneumothorax or subcutaneous emphysema at discharge, and the presence of small apical pneumothorax is not a contraindication for outpatient management, leading all cases to be good candidates for outpatient management due to persistence of low output air fistula. There were no complications or development of infectious complications such as pneumonia or empyema, and in the 1st case prophylactic measures were instituted such as progressive drain exteriorisation in the 1st week and drain removal within 20 days post-op. No mortality or increased morbidity was observed in all cases. A decrease in hospitalisation times was observed in these patients, suggesting that this type of management should be incorporated into the postoperative care protocol.

Keywords: *Chest drainage. Persistent air leak. Lung resection. Decortication and pleurectomy.*

PC 156. HOSPITAL SCORE: REAL LIFE APPLICATION IN A TERTIARY HOSPITAL PULMONOLOGY WARD

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Introduction: Hospital readmission after discharge from a ward is common and carries high healthcare costs. The HOSPITAL score is a validated tool to identify patients at risk of potentially avoidable hospital readmission within 30 days of discharge. This study aims to demonstrate the practical application of this score in patients admitted to the pulmonology ward of our hospital, as well as to assess whether its result is concordant with hospital readmission at 30 days and which additional variables may influence readmissions in respiratory patients. 3 patients admitted to the Pulmonology ward in 2022, both with readmission at 30 days and without, were selected and the HOSPITAL score was applied. Data were collected from the hospital clinical records.
Case reports: Case 1: Female, 48 years old. Personal history (PH) of stage IV breast cancer. Hospitalized for 14 days due to respiratory distress in the context of neoplastic pleural effusion. With anemia and hyponatremia at discharge; known oncological pathology; undergoing procedure coded in ICD-9; current urgent admission; with one admission in the previous year. HOSPITAL score of 8 (high risk). Readmitted within 30 days of discharge for recurrence of pleural effusion. Case 2: 80-year-old male. PH of COPD and heart failure with preserved ejection fraction. Hospitalized for 25 days for acute COPD due to acute tracheobronchitis without isolated agent, requiring non-invasive ventilation (NIV) due to respiratory acidemia. Anemia at discharge; current urgent admission; undergoing ICD-9 coded procedure (NIV); no hyponatremia, no known oncological pathology and no admissions in the previous year. Hospital score of 4 (low risk). Readmitted within 30 days of discharge for a new COPD exacerbation. Case 3: Male, 19 years old. No known PH, no previous visits to the Emergency Department (ER). Hospitalized in March 2022 for primary spontaneous pneumothorax, for 10 days due to delayed lung expansion. No anemia or hyponatremia at discharge; no known oncological pathology; undergoing ICD-9 coded procedure; current urgent admission; no admissions in the previous year. Hospital score of 4 (low risk). Readmitted 2 weeks after discharge for recurrence of pneumothorax.
Discussion: Although the Hospital score is a validated tool to identify the risk of hospital readmission at 30 days, it has some limitations, as illustrated by the cases presented (readmission of a patient with a low risk score and despite his young age; readmission of a patient with a second COPD exacerbation). Although this score is validated for hospitalizations for any pathology, it is a general score that leaves out the particularities of certain subgroups of patients, such as respiratory patients. Thus, although it is a useful tool for identifying patients at risk of readmission, it is essential to develop a score adapted to our inpatient population, which includes the presence of certain underlying pathologies as a risk factor, as well as changes in chest imaging or respiratory function.

Keywords: *HOSPITAL score. Readmission. Ward.*

PC 157. CEMENT LUNG? A CASE OF CEMENT IMPLANTATION SYNDROME

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Introduction: Cement implantation syndrome (CIS) is a rare but potentially serious condition that can occur during or after joint replacement surgery using cement, typically within 48 hours. It is characterized by the presence of hypotension, hypoxemia, or both, and may or may not be accompanied by loss of consciousness.
Case report: A 70-year-old man with a history of hypertension and diabetes mellitus, without relevant pulmonary antecedents, presented to the Emergency Department of HSM (Hospital Santa Maria) due to a fall at home resulting in a traumatic fracture of the left femur. He underwent cemented hip arthroplasty and was admitted to the Orthopedics department. Approximately 24 hours later, the patient developed a sudden onset of dyspnea and peripheral desaturation, which worsened progressively over a few hours and did not respond to implemented oxygen therapy. Internal Pulmonology Emergency was activated for diagnostic and therapeutic guidance. Upon examination, the patient was hemodynamically stable but tachypneic while receiving supplementary oxygen through a Venturi mask with an FiO2 of 60%, with SpO2 at 86%. The following relevant findings were observed during complementary evaluation: Arterial blood gas analysis (with FiO2 60%): pH 7.44, pCO2 35 mmHg, pO2 57 mmHg, HCO3- 23.8 mmol/L, sO2

86%. Laboratory evaluation: leukocytosis (15,000/µL) with neutrophilia (89%), C-reactive protein 18 mg/dL, procalcitonin 0.3 ng/mL. SARS-CoV-2 Antigen test: negative. Contrast-enhanced chest CT scan: ruled out pulmonary embolism, showed evidence of bilateral scattered areas with crazy paving pattern and some foci of alveolar consolidation. Therefore, after ruling out other more common diagnoses and considering the recent cemented joint prosthesis placement, the probable diagnosis of Cement Implantation Syndrome was considered. High-flow oxygen therapy (HFOT) and corticosteroid therapy with Methylprednisolone 1 mg/kg were initiated, leading to progressive clinical and radiological improvement during hospitalization.
Discussion: CIS is a rare and potentially fatal complication of orthopedic surgery involving cement implantation, and it should be considered in patients with sudden dyspnea in the postoperative period. Although the pathophysiological mechanism is not entirely understood, the treatment during the acute phase involves early initiation of corticosteroid therapy and supportive organ function measures.

***Keywords**: Cement. Arthroplasty. Respiratory failure.*

PC 158. STRUCTURED MONITORING OF THE INHALATION TECHNIQUE: EXPERIENCE IN A HOSPITAL CENTER

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Introduction: The inhalation route is the preferred method for administering therapy in the treatment of respiratory diseases. Incorrect use of inhalation devices and non-adherence to therapy have a frankly negative influence on the therapeutic efficacy of inhaled drugs. Medical doctors and nurses have a central role in patient follow-up and education, particularly in monitoring and optimizing the inhalation technique at each visit.
Objectives: Evaluate, record and correct in a structured way the performance of patients in carrying out the inhalation technique, with their device, in a hospital consultation.
Methods: Patients seen in a Pulmonology consultation, from March to June 2023, with a diagnosis of COPD, Asthma, Asthma/COPD Overlap or Bronchiectasis, medicated with inhaled therapy, and who consented to participate in the investigation were included. The patients were evaluated in medical and nursing consultations, where the inhalation technique was checked, the main errors in its execution were identified, recorded and corrected. The document of the "7 steps of the inhalation technique" (Inhaler Standards and Competency Document, UK Inhaler Group 2019) was used. The demographic and clinical data of each participant were obtained from the clinical file, ensuring the anonymization of the data.
Conclusions: A high proportion of patients (78%) had at least 1 step with associated technical error. It should lead to reflection, since most patients were followed up in a hospital consultation (82%) and had been medicated for more than 6 months (78%). The inhalation technique steps with the highest frequency of associated errors were step 3 (41%), step 5 (35%) and step 6 (27%). Most of the errors seen were not related to the type of device. It is worrying the difficulty of adapting the inspiration according to the devices, observed with the Aerosphere and the SMI. Ellipta was the device with least occurrence of errors. The sample size does not allow us to identify factors associated with the inhalation technique.

***Keywords**: Inhaled therapy. Inhaler device. Patient education.*

PC 159. MAINTENANCE OF PULMONARY REHABILITATION BENEFITS: IMPACT OF A PERSONALISED COMMUNITY-BASED PHYSICAL ACTIVITY PROGRAMME (PICK UP) FOR PEOPLE WITH COPD

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Introduction: Pulmonary rehabilitation (PR) is a grade-A evidence-based intervention to manage people with chronic obstructive pulmonary disease (COPD), with recognised benefits in several health-related domains (e.g., functional status and symptoms). Nevertheless, extending PR benefits on the long-term remains an important research challenge, and the optimal maintenance strategy is yet to be determined. Inclusion of people with COPD in community-based physical activities (PAs), which incorporate various PA facilitators (e.g., proximity, social inclusion, supervision), may encourage adherence to a sustained physically active lifestyle, thereby, maintaining PR benefits on a long-run. This study aimed to assess the effectiveness of a community-based PA programme (PICk UP) in sustaining several health-related PR benefits, over a six-month period, in people with COPD. This multicentre, parallel, randomised controlled trial (NCT04223362/NCT04711057) included people with COPD who had completed a community-based PR programme running in four primary healthcare centres (Aveiro, Estarreja, Oliveira-do-Bairro and Montemor-o-Velho) and in the Lab3R-ESSUA (School of Health Sciences, University of Aveiro).
Methods: Participants were randomly assigned to the experimental group (EG), enrolling in community-based physical activities (i.e., gym, senior exercise classes, pool exercise classes and Chi Kung) for six-months, or to the control group (CG), proceeding with standard care. Immediately after PR and after three- and six-months, the following outcomes were assessed: functional status (six-minute walk test, 1minute sit-to-stand [1-minSTS] and physical performance test); peripheral muscle strength (quadriceps maximal voluntary contraction and handgrip, both using hand-held dynamometry); balance (Brief-Balance Evaluation Systems); symptoms (COPD Assessment Test, Checklist of Individual Strength-fatigue subscale and Functional Assessment of Chronic Illness therapy–fatigue subscale); emotional status (Hospital Anxiety and Depression Scale); and health-related quality of life (St. George's Respiratory Questionnaire). Effectiveness of the PICk UP trial was assessed using the intention-to-treat approach (inclusion of all randomised individuals) through unadjusted linear mixed models followed by post-hoc multiple comparisons.
Results: This study included 61 participants, 32 in the EG (84% male, 70.1 ± 9.2 years, FEV1 60 ± 16.7% predicted) and 29 in the CG (83% male, 69.1 ± 7.7 years, FEV1 53.9 ± 16.5% predicted). A significant time-group interaction was found for the 1-minSTS test ($p < 0.05$). There was a significant difference between the groups at the six-month follow-up: the CG performed 2.6 fewer repetitions at the six-month follow-up than at baseline, compared to the EG. For the other outcomes, there was neither a significant time-group interaction nor differences between the groups.
Conclusions: Engaging people with COPD in community-based PA programmes can effectively prevent the decline in sit-to-stand performance after six-months of PR. The remaining PR benefits were maintained in both groups. Future studies with longer follow-up periods (up to one or two years) are needed to confirm whether these results are similar in the long-term.

Keywords: *Physical activity. Behavioural change. Community. Chronic respiratory diseases.*

PC 160. EFFECTS AT 2-MONTHS FOLLOW-UP OF PULMONARY REHABILITATION IN OUTPATIENTS WITH AN EXACERBATION OF COPD – A RANDOMIZED CONTROLLED TRIAL

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Introduction: People with chronic obstructive pulmonary disease (COPD) frequently suffer from exacerbations (ECOPD), which have a negative impact on health status and disease progression. Pulmonary rehabilitation (PR) is a well-established intervention for the management of stable COPD. Nevertheless, uncertainty regarding the effects of PR in patients with ECOPD still exists, namely in those with mild and moderate ECOPD, managed in outpatient settings.
Objectives: To explore the effects at 2-months follow-up of a home-based PR programme on disease impact and physical activity in outpatients with ECOPD.
Methods: A randomized controlled trial (NCT03751670) was conducted in outpatients with ECOPD. Patients were included within 48h of the diagnosis of ECOPD and randomly assigned to the control (CG, i.e., standard medication) or experimental (EG, i.e., standard medication plus 3-weeks of home-based PR [breathing control, airway clearance techniques, exercise training, psychoeducational support]) groups. Impact of the disease and physical activity levels were assessed at inclusion (Pre), after 3weeks (Post) and 2-months after the Post assessment (FU2M) with the COPD assessment test (CAT) and the brief physical activity assessment tool (BPAAT), respectively. For these outcome measures, comparisons within and between groups were explored with (non-)parametric mixed ANOVAs followed by Bonferroni-adjusted pairwise comparisons. Exacerbation recurrency and ECOPD-related unscheduled healthcare visits were explored at the FU2M, and comparisons between groups were performed with Chi-square and Mann-Whitney U tests.
Results: Fifty outpatients with ECOPD (78% male, 69.7 ± 10.7 years, FEV1 47.4 ± 16.4%pred) were included. Superior results were found in the EG in comparison to the CG for both the CAT ($p = 0.006$) and the BPAAT ($p < 0.001$). At FU2M, patients in the EG were able to maintain the benefits obtained with PR in the CAT (Pre 23.1 ± 7.1 vs. Post 10.6 ± 5.4 vs. FU2M 8 ± 4.7) and BPAAT (Pre 0 [0; 0] vs. Post 3 [2; 5.5] vs. FU2M 4 [0; 4]), while the CG could maintain the improvements obtained at the post assessment for the CAT (Pre 23.2 ± 7.1 vs. Post 17.4 ± 9.5 vs. FU2M 13.6 ± 7.7) and had no improvements in the BPAAT (Pre 0 [0; 0] vs. Post 0 [0; 0] vs. FU2M 1 [0; 4]). The number of ECOPD-related unscheduled healthcare visits (EG 0 [min 0; max 1] vs. CG 0 [min 0; max 8], $p = 0.165$) and the number of patients suffering a re-exacerbation were similar in both groups (EG 2 vs. CG 4, $p = 0.667$).
Conclusions: A 3-weeks home-based PR programme in outpatients with ECOPD is more effective than just standard medication not only in improving patients' physical activity levels and impact of the disease, but also in maintaining those improvements during 2-months follow-up. No additional benefits of PR were found on exacerbation recurrency or ECOPD-related unscheduled healthcare visits. Future larger studies with longer follow-up periods are needed to confirm these findings and further explore the role of PR in the prognosis of these patients.

Keywords: *Chronic obstructive pulmonary disease. ECOPD. PR. COPD assessment test. Physical activity. Exacerbation recurrency.*

PC 161. CHARACTERIZATION OF SYMPTOMS OF DEPRESSION, ANXIETY AND STRESS IN A POPULATION OF PATIENTS INTEGRATED IN A PULMONARY REHABILITATION PROGRAM

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Introduction: Depression and anxiety are prevalent comorbidities in patients with respiratory diseases, particularly in chronic obstructive pulmonary disease (COPD), with an impact on exacerbations and mortality.
Objectives: To characterize the prevalence and severity of symptoms of depression, anxiety and stress in a group of patients integrated in a Pulmonary Rehabilitation Program (PRP) and its correlation with other outcomes evaluated in PRP.
Methods: Observational unicentric study (Lisbon-Portugal) using the questionnaire DASS-21 (Depression, Anxiety and Stress Scale) in the initial evaluation of the PRP.
Results: Forty-two patients were included, with mean age of 68.1 ± 10.4 years, 64.3% men (n = 27), 71.4% former smokers (n = 30) and 4.8% current smokers (n = 2), 21.4% with BMI 21 kg/m^2 (n = 9) and 21.4% with BMI > 30 kg/m^2 (n = 9). The most frequent diagnoses were COPD (n = 22; 52.4%), interstitial lung diseases (n = 6; 14.3%), asthma (n = 4; 9.5%) and pleural diseases (n = 4; 9.5%). There was a predominance of obstructive ventilatory defect, with mean FEV1% pred 62 ± 26 (1.57 ± 0.71L). The mean mMRC (modified Medical Research Council) Dyspnea Scale value was 1.88 ± 0.86, with mMRC3 in 23.8% (n = 10). Fifteen patients presented chronic respiratory failure. According to the recommended cut-off scores (Lovibond, 1995), 31% of patients presented increased scores in the depression (DASS-depression) and anxiety (DASS-anxiety) subscales and 19% of patients in the stress (DASS-stress) subscale. Psychopathology was already diagnosed in ten patients (depression in 8 patients and anxiety in 5 patients). After the application of the DASS-21 questionnaire, four other patients were further referred to Clinical Psychology. The subscales DASS-depression and DASS-anxiety presented a positive correlation with the depression and anxiety subscales from Hospital Anxiety and Depression Scale (HADS): $r = 0.613$ ($p = 0.005$) and $r = 0.700$ ($p < 0.001$), respectively. The subscale DASS-depression presented a positive correlation with DASS-anxiety ($r = 0.753$; $p < 0.001$), DASS-stress ($r = 0.720$; $p < 0.001$), HADS-depression ($r = 0.613$; $p = 0.005$), HADS-anxiety ($r = 0.772$; $p < 0.001$) and the London Chest Activity of Daily Living (LCADL) ($r = 0.448$; $p = 0.010$), and a negative correlation with the Pulmonary Rehabilitation Adapted Index of Self-Efficacy (PRAISE) ($r = -0.592$; $p = 0.005$) and the distance covered in the six-minute walk test ($r = -0.318$; $p = 0.046$). As for the subscale DASS-anxiety, there was a positive correlation with DASS-stress ($r = 0.877$; $p < 0.001$), HADS-anxiety ($r = 0.700$; $p < 0.001$), HADS-depression ($r = 0.513$; $p = 0.025$), COPD Assessment Test (CAT) ($r = 0.771$; $p = 0.001$), LCADL ($r = 0.460$; $p = 0.008$) and a negative correlation with PRAISE ($r = -0.658$; $p = 0.001$). The subscale DASS-stress showed a positive correlation with HADS-depression ($r = 0.631$; $p = 0.004$) and HADS-anxiety ($r = 0.751$; $p < 0.001$) and a negative correlation with PRAISE ($r = -0.624$; $p = 0.003$).
Conclusions: The use of the questionnaire DASS-21 pointed to an increased prevalence of symptoms of anxiety and depression in about one-third of the patients in PRP, presenting a correlation with other outcomes evaluated and being associated with decreased functional capacity and decreased self-efficacy in disease management. Although the use of DASS-21 is already validated for COPD patients in Pulmonary Rehabilitation, further research is necessary to evaluate its use in other pulmonary diseases, as well as its responsiveness to evaluate the effects of PRP.

Keywords: *DASS-21. Depression. Anxiety. Stress. Pulmonary rehabilitation program. Psychology. Mental health.*

PC 162. TUBERCULIN SKIN TEST IN TUBERCULOSIS SCREENING IN PSORIATIC PATIENTS

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Introduction: The diagnosis of latent tuberculosis infection (LTBI), with tuberculin skin test (TST) and IGRA (Interferon-Gamma Release Assay), is mandatory prior biological treatment. Recent studies suggest that TST results could be associated to psoriasis severity, which can result in greater discordance between TST and IGRA results in these patients.
Objectives: The aim of this study is to evaluate the discordance between TST and IGRA in the TBIL screening in patients with psoriasis and in patients with autoimmune pathologies without cutaneous involvement, proposed to biological treatments.
Methods: Case control study with adult patients referred to the Center for Pneumological Diagnosis for LTBI screening before biological treatments, between July 2021 and July 2022. Cases were patients with psoriasis and controls were patients with autoimmune diseases without skin involvement. Patients with immunosuppression or previously treated tuberculosis were excluded. History of TB in family members, BCG vaccination, TST and IGRA results were recorded.
Results: 325 patients were included, mainly females (55.38%; n = 180). The mean of ages was 51.06 ± 15.37. There were 167 (51.38%) patients with BCG vaccination. Fifteen patients (4.62%) had a history of TB in a family member and 21 (6.46%) had contact with a case of TB. There were 122 cases (37.54%) and 203 controls (62.46%). In the psoriatic group, 43 patients (79.07%) had positive results of TST and/or IGRA, with agreement in 8 patients (18.60%). There were 34 patients (79.07%) with TST+/IGRA- and 1 patient (2.33%) with TST-/IGRA+. In the control group, 64 patients (31.52%) had positive result of TST and/or IGRA, with agreement in 19 patients (29.68%). There were 26 patients (40.62%) with TST+/IGRA- and 19 (29.69%) with TST-/IGRA+. The patients with psoriasis were more likely to have a positive result of TST (OR1.83; p = 0.017) than those with other autoimmune diseases. The TST and IGRA showed fair agreement either in the case group (k = 0.22; p < 0.01) and control group (k = 0.28; p < 0.01).
Conclusions: In this study, we found moderate agreement between TST and IGRA in both groups. However, psoriatic patients were more likely to have a positive TST and a TST+/IGRA- result. We should discuss the benefit of using TST in the screening of this group of patients.

Keywords: *Latent tuberculosis infection. Psoriasis. Tuberculin skin test. Interferon-gamma release assay.*

PC 163. DISSEMINATED AND DISGUISED: THE SEARCH CONTINUES

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Introduction: Constitutional syndrome can be the manifestation of several pathologies including malignant, infectious, autoimmune and psychiatric diseases.
Case report: 71-year-old male, non-smoker. Former driver and worked in a quarry. History of malaria at age 21, dyslipidemia, hypertension and atrial fibrillation. Symptoms for 6 months: asthenia, anorexia, and weight loss (26 kg/12 m). The etiological study revealed anemia, elevated SV and CRP, CT scan with a left para mediastinal lung consolidation, micronodular pattern and mediastinal, hilar, celiac and inguinal adenopathies. Fiberoptic bronchoscopy (FOB) showed a lesion suggestive of neoplastic infiltration (LMB) and indirect signs of neoplasia (LSLB). Bronchial biopsies (BB): squamous metaplasia and inflammation; bronchial aspirate (BA): inflammation; microbiological direct and cultural exam negative for mycobacteria. Transthoracic biopsy revealed a non-necrotizing granulomatous inflammatory process. Analytically: negative HIV serologies; Mantoux 22 mm; normal IgA, IgG, IgM. PET-FGD: "Left lung densification with intense glycolytic metabolism compatible with high metabolic grade malignant pathology (...) mediastinal and hilar lymph node metastases". Decided on presumptive treatment with HRZE, which he did not tolerate and suspended 6 weeks later. Subsequently, started Prednisolone 60 mg/day with gradual weaning with clinical, analytical and imaging improvement. Repeated FOB: no endobronchial lesions; BA: direct and PCR-DNA for Mycobacterium tuberculosis (MT) negative, culture positive for atypical mycobacteria – Mycobacterium intracellulare isolation. BB: granulomatous inflammation. Started treatment for NTM: Clarithromycin+R+E. He presented cutaneous fistulation of a right inguinal adenopathy conglomerate and adenopathy biopsy results: direct, PCR-DNA, and cultures negative for TM/NTM and fungi; histology with granulomatous lymphadenitis with central necrosis. Imaging reassessment with stability and maintained treatment. Later he was admitted for new neurological symptoms and CT and MRA revealed evidence of a brain lesion with vasogenic edema, suspected of tumor nature. Liquor exam: direct, culture, PCR-DNA negative for TM and NTM. He was given dexamethasone and maintained anti-NTM drugs. By neurosurgery, surgical approach to the lesion was postponed. In the reassessment CT scan, cervical, thoracic, abdominal and inguinal adenopathies persisted with increased dimensions and necrosis and a new ganglion biopsy confirmed a granulomatous process, negative for TB and NTM. He underwent lesion excision: direct exam positive, PCR-DNA TM/NTM negative, granulomas with caseous necrosis, culture not performed. It was decided the suspension of all antibiotic drugs. There were performed again several exams with the following results: BAL and several ganglionic biopsies negative for TM/NMT, presence of granulomatous and necrotizing lymphadenitis; negative exhaustive immunological and infectious studies; monoclonal peak IgA/lambda and immunophenotyping in peripheral blood not compatible with chronic granulomatous disease. A new brain lesion analysis was available: PCR-DNA positive for atypical mycobacteria. The case was discussed with a reference center for NTM and started treatment with Azithromycin/Ethambutol/Rifampicin/Moxifloxacin for 12 months with a favorable clinical, analytical, and radiological response.
Discussion: It was assumed an atypical disseminated Mycobacteriosis in a patient without an identified immunosuppression and negative anti-gamma interferon antibodies. During follow-up maintenance of anemia, anorexia, asthenia, and weight loss without improvement with antidepressant treatment, endoscopic studies with no relevant changes and a new autoimmune analysis revealed positive ANA, so the hypothesis of systemic sclerosis is being considered.

Keywords: *Atypical mycobacteriosis.*

PC 164. CRIPPLING DORSALGIA – WHAT POTTENTIAL CAUSES?

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Introduction: Bone tuberculosis (TB), an infection of the bone/joints by Mycobacterium tuberculosis (Mt), accounts for 35% of

cases of extrapulmonary TB. Spinal tuberculosis, also known as Pott's disease, represents 50% of bone TB cases. Although it is a rare manifestation of the disease in modern times, it can still affect a significant percentage of individuals, and clinicians should be attentive to this possibility when presented with a case of spondylitis.
Case report: A 37-year-old man from Benin, residing in Portugal since 2009, non-smoker, working in the construction industry. No other recognized environmental exposures. History of pulmonary TB diagnosed in 2013, completed a 6-month anti bacillar treatment at the local CDP. Referred to the Pulmonology clinic in March 2021 by his family doctor due to changes observed in chest CT performed on an outpatient basis, showing traction bronchiectasis in the left upper lobe and subpleural thickening in the middle lobe, both with residual appearances. During the consultation, he had no respiratory complaints such as dyspnea, cough, sputum, or fatigue. He reported experiencing inflammatory back pain for several months following an accidental fall, making movement painful. He had already taken analgesics, but without relief. Additionally, he mentioned unquantified weight loss and night sweats. Physical examination revealed no abnormalities. A thoraco-abdomino-pelvic CT scan in April 2021 showed an osteolytic lesion at D7-D8 and a pathological fracture of D8, with other aspects of the lung parenchyma without new alterations. He underwent a bone biopsy, and the mycobacteriological culture result was positive for drug-sensitive Mt. He was referred to the local CDP and started anti bacillar therapy in May 2021, which continued until October 2022. A follow-up CT scan in November 2022 revealed evidence of resolution of the previously observed bone changes. The treatment, though lengthy, was successful, and the patient remains asymptomatic.
Discussion: Given the patient's previous history of TB, all reported symptoms should be carefully assessed and considered. We should not forget that TB is a systemic disease that can affect not only the respiratory system but also various extrapulmonary sites, including bone TB, which can significantly impact patients' quality of life. Nevertheless, it is a condition that can be effectively treated.

Keywords: *Bone tuberculosis.*

PC 166. PLEURAL TUBERCULOSIS – A CHALLENGING DIAGNOSTIC PATHWAY

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Introduction: Pleural tuberculosis is a disease characterized by a non-productive cough in over 90% of patients, often associated with chest pain in 75% of cases. In its acute form, it can mimic pneumonia with parapneumonic effusion. In the chronic form, the disease is marked by symptoms such as low-grade fever, night sweats, dyspnea, and weight loss.
Case report: A 35-year-old man, originally from India, with no relevant medical history, sought the emergency department due to pleuritic chest pain lasting for three weeks. He presented with progressively worsening dyspnea, anorexia, and weight loss. On examination, he was febrile, tachypneic, with peripheral oxygen saturation of 90% on room air, decreased breath sounds on the left base, and obvious emaciation. Notable findings from medical imaging and tests: laboratory analysis showed leukocytosis and an increase in C-reactive protein (CRP). Chest X-ray revealed right-sided pleural effusion, and a chest CT scan showed bilateral pleural effusion with small volume on the left side and significant volume on the right side. Mediastinal lymphadenopathy was also observed, with the largest node measuring 9 mm, and no alterations in lung parenchyma. A thoracentesis was performed, revealing an exudate with a pH of 7.36 and predominantly polymorphonuclear cells, suggesting parapneumonic effusion. The patient was admitted and started empirical antibiotic treatment with amoxiclav and clarithromycin; however, there was no significant clinical improvement, and he continued to have regular fever spikes and recurrence of pleural effusion. The effusion was addressed again, and the fluid had a pH of 7.3, LDH of 459 U/L, and predominantly mononuclear cells. PCR testing for Mycobacterium tuberculosis (MT) in the pleural fluid was negative, as well as bacteriological tests and acid-fast bacilli (AFB) staining. A new chest CT scan revealed persistent empyema on the left side, with marked pleural thickening and fluid content with gas loculations, indicating strong adherence. Additionally, there was an increase in pleural effusion on the right side. Due to the persistent diagnostic suspicion of pleural tuberculosis, a pleural biopsy was performed, which revealed the presence of lymphocyte infiltrates and granulomas with macrophages and Langhans giant multinucleated cells. The AFB staining was positive, as well as PCR for MT, confirming the diagnosis of pleural tuberculosis after bacillus isolation in culture. The patient promptly started treatment with antituberculosis drugs and showed progressive clinical and radiological improvement.
Discussion: The diagnosis of pleural tuberculosis should be based on a combination of clinical data, imaging, and laboratory tests. Given its complexity, multiple methods are often required to establish the diagnosis with greater precision. Demonstrating the presence of *Mycobacterium tuberculosis* in various available samples can be difficult despite strong evidence of the disease. However, having a high clinical suspicion is essential for timely diagnosis of this condition.

Keywords: *Tuberculosis. Pleural biopsy. Antituberculous drugs.*

PC 167. TB CONTACT TRACING REGISTRIES: TRADITIONAL FORMS IN A DIGITAL AGE

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The interaction and communication of contact tracing data between Outpatient Tuberculosis (TB) Clinics and Public Health is based on the exchange of several paper forms created more than two decades ago by the National TB Program of the National Health System (NHS). Form "Modelo 3" is used to register the results of contact tracing completed at the Outpatient TB Clinic: for each TB index case an individual form is created and the results for every single contact evaluated are filled or added, manually or digitally. Though the role of these forms has been undeniable in attaining the aims of the National TB Program the current procedure of filling in the former is labour intensive, susceptible to registration errors, loss of information, and may facilitate confidentiality breaches, among other pitfalls. In this context, aiming to surpass some of the limitations of the traditional forms, in a partnership between the Matosinhos Outpatient TB Clinic and the Department of Information Technologies of the Unidade Local de Saúde de Matosinhos, based on the concept and content of "Modelo 3" a confidential digital platform was created to register Contact Tracing Data based directly on updated information available on the NHS national platform, with access restricted to involved healthcare professionals. The new platform has been regularly updated and optimized in a continuous dynamic process, taking advantage of direct data extraction and computerization strategies. On the other hand, this platform includes search tools and allows for data exportation to other apps developed to manage, edit and analyse for direct evaluation and interpretation of extracted data. This presentation seeks to share potential new, safe and efficient strategies to handle contact tracing registering, communication and analysis, aligned with current trends towards modernizing and computerizing National TB Program forms.

Keywords: *Tuberculosis. Contact tracing. Registry platforms. Computerization.*

PC 168. TUBERCULOSIS CONTACT TRACING IN PRISON SETTING – CHALLENGES AND THE WAY FORWARD

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Introduction: The imprisoned population in Correctional Facilities (CF) is often characterized by the presence of risk factors for Tuberculosis (TB) development. HIV infection, previous drinking and drug habits, allied to prison-cell overpopulation render CF prone to evolving TB cases and its transmission. Furthermore, several limitations have been reported regarding the ability to comply with national policy aimed at preventing the admission of new TB cases into CF by early detection strategies. These factors combined have contributed to the persistently high TB incidence in CF. When faced with a new TB case in a CF, past contact tracing strategies were simplified relying mainly on symptom assessment and lung X-ray. Subsequent latent TB infection (LTBI) diagnosis has been frequently overlooked.
Methods: Following a new inmate TB case diagnosed in a CF in December of 2021, a conjoint strategy was established, in a partnership between the TB Outpatient Clinic (TOC) and the CF healthcare team to improve contact tracing and minimize future TB cases in the CF. In addition to the usual symptom and radiological evaluation, IGRA blood tests were performed in inmates with criteria for LTBI screening.
Results: The results of this strategy are summarized below: Forty-six (46) exposed inmates and 29 professionals working at the CF were submitted to symptom assessment and lung-X ray. All workers (asymptomatic and with normal X-rays) were directed to be evaluated by Occuppational Health Services. The inmate population included 46 men with a mean age of 47 years (± 11.2). All inmates were asymptomatic. Three inmates had abnormal X-rays, 2 of which with known lung sequelae of previous disease, and one newly diagnosed with Pulmonary TB. Among the remaining 43 inmates, two were known to be HIV positive and were evaluated at the OTC and started on chemoprophylaxis. Nineteen had been released from the CF thus not being submitted to IGRA testing. LTBI was ruled out in 12 inmates while 7 were summoned to the OTC for LTBI treatment. Of the 9 inmates who were started on medication, 3 completed the treatment (1 Chemoprophylaxis, 2 LTBI), 2 abandoned treatment after being released from the CF (1 Chemoprophylaxis, 1 LTBI) and 4 inmates, though still within the CF, failed to show up to several follow-up consultations.
Conclusions: It is essential to ponder on the approach to TB at CFs. The main focus should be on compliance with national policy on TB screening applied for every new inmate on arrival. On the other hand, the data presented evidences the importance of contact tracing both for early detection of new cases of TB and LTBI diagnosis. It is however, critical to ensure that the investment made on LTBI diagnosis is complemented with adequate conditions for treatment completion on follow-up.

***Keywords**: Contact tracing. Prison setting. Correctional facilities.*

PC 169. PULMONARY ARTERIOVENOUS MALFORMATION – NOTICING WHAT GOES UNNOTICED

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Introduction: Pulmonary arteriovenous malformations (PAVM) lead to an anatomical right-to-left intrapulmonary shunt that compromises alveolar gas exchange. It is a rare condition, with variable clinical presentation, often associated with hereditary hemorrhagic telangiectasia. Treatment should follow individual guidance and include embolization or resection surgery.

Case report: A 75-year-old man, ex-smoker, with hypertension and polyglobulia being studied at a Hematology consultation, with no relevant respiratory symptoms, was referred for respiratory function tests. In the Pathophysiology Laboratory, due to his low peripheral oxygen saturation, he performed blood gas analysis (BGA) in ambient air, which revealed relevant hypoxemic respiratory failure (BGA: pH 7.40; pO2 40 mmHg; pCO2 43 mmHg), for which reason oxygen therapy was instituted (progressively titrated to mask of venturi (MV) at 60% for acceptable saturations) and sent to the ER for further study. On admission to the ER, asymptomatic, physical exam without mucocutaneous alterations or on cardiopulmonary auscultation, except globally decreased vesicular murmur. Analytically, he presented polyglobulia (hemoglobin: 16.4 g/dL), without elevation of inflammatory parameters, and on chest X-ray, bronchovascular reinforcement, and signs suggestive of hyperinflation. To exclude pulmonary thromboembolism, a chest angio-CT was performed, which revealed a "vascularized subpleural peripheral nodular lesion with vascular enhancement, about an arteriovenous vascular malformation (AVM) measuring about 16.3 mm, as well as incipient signs of centrilobular emphysema." Considering the findings, interventional imaging at the Centro Hospitalar Universitário de Coimbra was contacted, and elective embolization was proposed. During hospitalization and to investigate the presence of arteriovenous malformations in other locations, abdominal ultrasound and cerebral magnetic resonance imaging were requested, both normal. Contrast-enhanced transthoracic echocardiogram excluded the existence of concomitant cardiac disease, presenting a low probability of pulmonary hypertension. Twelve days after the diagnosis, the patient underwent embolization of the afferent branch of the AVM with the placement of 2 detachable coils, without immediate complications, returning to the Centro Hospitalar de Leiria for continued care. After the procedure, there was a slight improvement in polyglobulia (hemoglobin: 15.8 g/dL) and a significant improvement in hypoxemia (BGA at 2 liters/minute: pH 7.43; pCO2 47 mmHg; pO2 61 mmHg; HCO3 31.2; SatO2 94%). He also performed respiratory functional tests that were not valued due to poor cooperation. After progressive weaning from oxygen therapy, he was discharged on long-term oxygen at 2 liters/minute and was referred for reassessment in a Pulmonology consultation.
Discussion: PAVM are associated with considerable morbidity and mortality, and their detection and treatment are important to prevent serious complications such as ischemic stroke or brain abscess. This clinical case reflects the challenges in diagnosing PAVMs, which are often asymptomatic, sometimes being an accidental finding in imaging tests performed to investigate other pathologies. After treatment and with adequate follow-up, the prognosis is generally favorable.

***Keywords**: Pulmonary arteriovenous malformation. Embolization. Intrapulmonary shunt.*

PC 170. PULMONARY THROMBOEMBOLISM IN PATIENTS WITH COVID-19: INCIDENCE AND PRESENTATION OF PULMONARY IMPAIRMENT

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Introduction: Pulmonary thromboembolism (PTE) is one of the components of venous thromboembolism, and thus the 3rd most common cause of acute cardiovascular syndrome, but it has a nonspecific clinical presentation. For the definitive diagnosis of PTE, which is potentially treatable, imaging evaluation is recommended, with angiotomography of the pulmonary arteries (ANGIO-CT) being the modality of choice. It is known that the association between PTE and COVID-19 results in a greater risk of death compared to PTE alone in the hospital environment.

Objectives: To describe tomographic findings compatible with PTE in patients diagnosed with COVID-19. To analyze the incidence of pulmonary thromboembolism (PTE) in hospitalized patients diagnosed with COVID-19.
Methods: Retrospective, descriptive, observational cohort study, using data from electronic medical records of patients over 18 years old, with COVID-19 admitted and followed up in a private and public Hospital between April 2020 and April 2021, with approval of the institution's research ethics committee. The variables of interest were defined as sociodemographic data, clinical data, comorbidities, radiological and laboratory findings. As for the statistical analysis, for the quantitative variables the Shapiro-Wilk and/or Kolmogorov-Smirnov tests were applied and the calculation of measures of central tendency. In addition, for non-Gaussian quantitative variables, medians and interquartile ranges were used. As for the Gaussian variables, mean and standard deviation. For the qualitative ones, valid percentages and absolute frequencies were calculated.
Results: A total of 1,822 patients with COVID-19 were verified, of which 64 were diagnosed with PTE, with an incidence of 3.51% (95%CI: 2.74 to 4.43). The tomographic presentation found: ground-glass opacity (83.1%), consolidation (59.3%), mosaic paving (40.7%), atelectasis (37.3%), pleural effusion (32.2%), Bronchiolitis obliterans with organizing pneumonia (6.8%), and inverted halo sign (5.1%). Embolus distribution on CT-ANGIO revealed a pattern of peripheral involvement, as segmental/subsegmental arteries were more frequently involved compared to main/lobar arteries (76.2 versus 23.8%). There was also a predominance of unilateral (64.4%) over bilateral ones. Of the total, 72.9% had mild to moderate extension of lung involvement, while 27.1% had severe extension.
Conclusions: The tomographic presentation of patients hospitalized with COVID-19 can mimic parenchymal changes associated with PTE, as it overlaps findings of both diseases when associated. Furthermore, the predominantly peripheral location of TEP in COVID-19 suggests an important role for local immunothrombosis. Thus, as chest CT is used in routine practice for the diagnosis of COVID-19, PTE should be suspected despite the low incidence demonstrated in the study.

***Keywords**: Pulmonary embolism. COVID-19. Computed tomography angiography.*

PC 171. LUNG NODULES – CANCER RECURRENCE OR SYSTEMIC DISEASE?

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Introduction: Lung nodules are a diagnostic challenge in the follow-up of patients with a history of lung cancer. In addition to excluding possible recurrence, non-malignant causes, such as infectious, inflammatory or drug-related causes, should be investigated.
Case report: Autonomous 81-year-old man, with smoking (42 pack years) and ethanol (45 g/day) habits, and a history of type 2 diabetes mellitus, arterial hypertension, mild OSAS, hyperuricemia and benign prostatic hyperplasia. The patient underwent left pneumonectomy with lymph node dissection in 2015 due to squamous cell carcinoma of the lung (pT3N0M0). In January 2022, several solid nodules with a ground-glass halo (the largest measuring 11 mm and 8 mm) were identified in the right lung. In a multidisciplinary meeting, a probable infectious etiology was assumed, therefore empirical antibiotic therapy was started, without subsequent disappearance of the nodular lesions. PET was performed in March 2022, which revealed hypermetabolism of nodular lesions suggestive of a secondary cause (maximum SUV between 4.2 and 11), as well as right broncho-hilar, subcarinic and interaortocaval adenopathy avid for FDG. In March, following an episode of hemoptysis, he underwent bronchofibroscopy, showing scattered pearly lesions of the trachea. Bronchoalveolar lavage revealed fibrinogranulocyte exudate, with no identification of neoplastic cells, and the tracheal biopsies contained fragments of the respiratory mucosa without particularities. About 1 month later, he went to the Emergency Department due to progressively worsening dyspnea, edema of the lower limbs and choluria with 1 month of evolution. He reported the occurrence of lesions suggestive of purpura on the lower limbs, which meanwhile resolved. He denied other complaints, namely constitutional, urinary and ophthalmological. The physical examination highlighted the presence of exuberant, symmetrical lower limb edema and, on pulmonary auscultation, crackles in the lower third bilaterally. Blood tests revealed hemoglobin of 10.1 g/dL, no change in leukogram, creatinine of 4.32 mg/dL (in January creatinine value was 0.92 mg/dL), urea 100 mg/dL and increase in CRP (11.8 g/dL). Summary urine analysis revealed hemoproteinuria and mild leukocyturia. He underwent CT whose abdominal evaluation showed no alterations except for a globular prostate. A KDIGO 3 acute kidney injury of probable renal etiology was concluded. He was hospitalized and, from the complementary study carried out, we highlight the identification of positive ANCA PR3 (876 CU) and sedimentation velocity of 120 mm/h. The diagnosis of ANCA PR3 vasculitis with multisystemic involvement (kidney damage, pulmonary nodules and history of hemoptysis) was considered, therefore corticosteroid and rituximab therapy were started, as well as hemodialysis (HD), were initiated in this context. He was discharged after 10 days of hospitalization with indication to maintain immunosuppression and HD.
Discussion: Small vessel vasculitides associated with ANCA are rare autoimmune diseases, more common in men of advanced age. The lungs and kidneys are the main organs affected, with a spectrum of mild to fulminating symptoms. The occurrence of hemoptysis and hemoproteinuria are important warning signs. Pulmonary involvement can be manifested by nodules, often multiple, so this group of diseases should be included in their differential diagnosis.

***Keywords**: Pulmonary nodules. Anca vasculitis. Hemoptysis.*

PC 172. THE RED SUBMARINE: A CASE OF HEMOPTYSIS AFTER BREATH-HOLD DIVING

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Introduction: The connection between humans and the sea is ancient and steeped in history. Although in ancient times primarily used for food harvesting, breath-hold diving is currently a form of underwater sport in which practitioners submerge themselves to varying depths without the aid of respiratory support. Underwater sports like this induce intense physiological changes and push the human body to its limits. The respiratory system is particularly affected due to hypoxia and increased ambient pressure, impacting intrapulmonary gas volumes and pressures. Despite limited literature, there are a few reported cases of pulmonary edema, chest pain, and hemoptysis after free diving.
Case report: We present the case of a 51-year-old male with no significant past medical history or medication use, who was a recreational breath-hold diver. He presented to our emergency department with a three-day history of mild hemoptysis/hemoptoic sputum after free diving. He reported previous similar episodes, but of shorter duration (self-limited to 1 day). In this episode, he was diving at approximately 12 meters of depth. Physical examination revealed no noteworthy changes. Chest CT revealed bilateral ground-glass opacities, predominantly on the right side, suggestive of diffuse alveolar hemorrhage. Flexible bronchoscopy identified a track of blood originating from the posterior segment of the right upper lobe bronchus

(RULB). He was started on aminocaproic acid and did not experience further hemoptysis episodes. Coagulation studies were normal, as well as autoimmune screening. A follow-up CT at 6 months showed resolution of the previous findings. He remained asymptomatic despite resuming free diving at shallower depths.
Discussion: This case illustrates an instance of diffuse alveolar hemorrhage following breath-hold diving, clinically manifesting as hemoptysis. Breath-hold divers are susceptible to pulmonary barotrauma, which can clinically present as hemoptysis or pulmonary edema. However, there is limited literature on this topic. The exact mechanism of symptoms remains unknown, likely related to changes during diving, including cardiovascular, increased ambient pressure, and hypoxia. Boyle-Mariotte's Law postulates that as ambient pressure progressively increases with dive depth, lung volumes decreases. Eventually, total lung capacity is reduced to residual volume, creating negative intrathoracic pressure that results in blood pooling in the chest. This can potentially lead to pulmonary edema and alveolar hemorrhage due to endothelial damage. A study on two professional divers pinpointed the origin of the hemorrhage in the subsegments of the RULB, which was also observed in our case, constituting an interesting observation. Other contributing pathophysiological factors have been proposed, but the exact mechanism remains unknown. The spectrum of clinical manifestations related to underwater sports is likely underreported and underdiagnosed, and this case seeks to draw attention to such situations.

Keywords: *Diffuse alveolar hemorrhage. Hemoptysis. Free diving. Breath-hold diving.*

PC 173. WHAT IS THE ROLE OF SPIROMETRY IN THE SELECTION OF INHALER DEVICES IN COPD?

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Introduction: Incorrect inhalation technique is directly associated with poor control of COPD. Evaluating patients' inspiratory capacity to select the most suitable inhaler becomes essential in disease management. However, this assessment is often challenging to conduct during clinical practice. The authors aim to evaluate whether there is any parameter in spirometry that can predict the inspiratory capacity of COPD patients.
Methods: A multicenter study was conducted involving all patients with a confirmed diagnosis of COPD who had been using an inhaler for at least one month and underwent respiratory functional tests during the months of March and April of 2023 at two tertiary hospital centers. The inspiratory capacity of all patients was tested at various intensities using the In-Check DIAL G16 device, and their results were compared with spirometry values.
Results: In the study, 53 patients diagnosed with COPD were included. Among them, 11 were female (20.8%), and their average age was 71.1 ± 10.3 years. Thirteen patients (24.5%) were current smokers, 34 (64.2%) were ex-smokers, and 6 (11.3%) had never smoked, with an average smoking history of 44.7 ± 20.6 pack-years. Regarding the inhaler devices used by the patients, 11 (20.8%) used the ellipta device, 19 (35.8%) used the breezhaler, 13 (24.5%) used the pressurized metered-dose inhaler (pMDI), 7 (13.2%) used the respimat, 2 (3.8%) used the genuair, and 1 (1.9%) used the spiromax. During the study, 45 patients (84.9%) demonstrated inspiratory capacity at the average intensity when using the In-Check DIAL G16 device. Only one patient showed a lack of inspiratory capacity at the pressurized intensity (1.9%). To assess the correlation between spirometry values and average inspiratory capacity, a Receiver Operating Characteristic (ROC) analysis was performed. Among the parameters tested, FIF50 showed the best Area Under the Curve (AUC) value of 0.756. This suggests that FIF50 can serve as a valuable parameter for predicting patients' inhalation capacity.
Conclusions: Evaluating the inspiratory capacity in all COPD patients is crucial for therapeutic management; however, the limited time in consultation makes this evaluation difficult to perform systematically. FIF 50 emerges as an easily accessible parameter that can aid in choosing the appropriate inhalation device.

Keywords: *COPD. Inhaler device. Inspiratory capacity.*

PC 174. USE OF THE PREOPERATIVE RESPIRATORY THERAPY SCORE TO ASSESS OUTCOMES IN SURGICAL CANDIDATES: ANALYSIS OF A SERIES OF CASES

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Introduction: The preoperative respiratory therapy (PORT) score, created in 1988 by Torrington and Henderson, aimed to identify surgical candidates with a higher risk of perioperative and postoperative complications. With the evolution of surgical techniques and peri/postoperative care provided, the question arises of the usefulness of this score currently. The aim of this study was to apply the PORT score to a series of surgical candidates and compare their severity with observed adverse events.
Methods: Retrospective analysis of a series of 101 consecutive people evaluated with pre-surgical spirometry in the Physiopathology sector of the Pulmonology Department of a tertiary hospital between December 1, 2021 and January 31, 2022. Demographic and clinical data collected was subjected to descriptive and inferential statistical analysis. A p-value of 0.05 was assumed.
Results: Of the 101 cases evaluated, only 74 had undergone surgery at the time of data collection. In these, there was a predominance of males (62.2%), with an average age of 59.61 (± 18.07). The most common comorbidities in the sample were smoking (43.2%, with an average smoking burden of 34.7 pack-year units), heart failure (28.4%) and pulmonary emphysema (24.3%). The surgical procedures that motivated the performance of spirometry were liver transplantation (13.5%), followed by aortic valve replacement and pulmonary lobectomy (both 12.2%). Mean percentage values of forced expiratory volume in one second (FEV1; 84.6%), forced vital capacity (FVC; 85.6%) and the ratio of these measurements (77.7) were normal. Calculation of the PORT score classified 58.1% of patients as low risk, 37.8% as moderate risk and 4.1% as high risk. After performing spirometry, only 17.6% of patients were subjected to attitudes aimed at respiratory optimization, namely seven patients referred for kinesitherapy and six patients who managed smoking reduction; two patients were newly diagnosed with COPD. In the postoperative period, there were respiratory complications in 32.4% of the patients, the most common being lower respiratory infection (13 patients) and pulmonary atelectasis (12 patients). The occurrence of pulmonary atelectasis was significantly related to the "high risk" group ($p = 0.042$); there were no other significant differences in the rate of postoperative complications between PORT score severity levels. The presence of diffuse lung pathology ($p = 0.031$) and undergoing liver transplantation ($p = 0.031$) were associated with a higher rate of complications. There were two deaths, both in patients undergoing liver transplantation.
Conclusions: In our study, the PORT score was not related to the rate of postoperative respiratory complications, except in pulmonary atelectasis and in patients undergoing liver transplantation. Additionally, the documentation of the PORT score resulted in optimization attitudes in a minority of cases, suggesting undervaluation of the findings. It is important to identify patients at greater

surgical risk in order to take prophylactic measures to avoid cardiorespiratory complications more effectively, as well as to identify any relevant clinical scores.

Keywords: *Respiratory physiopathololology. Spirometry. Port score. Liver transplant. Surgical risk.*

PC 175. IS IT NOW AS BEFORE?!

Andreia Neves Cardoso, Inês Gonçalves, Susana Carreira, Marta Fradinho, Sara Franco, Liliana Pinto, Rafael Jerónimo, Raquel Morgado, Vânia Silva, Sofia Tello Furtado

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Introduction: In view of the introduction of new guidelines regarding the interpretation of respiratory functional tests (RFT), it was considered pertinent to verify the impact of their implementation. In this study, the results were compared using fixed percentage values and the ERS 2021-z-score, regarding the classification of the ventilatory impairments, its severity and the diffusing capacity of the lung for carbon monoxide (DLCO) measurement. The bronchodilator responsiveness was also compared using the previous and the current criteria.
Methods: All patients who underwent RFT between January and June 2023 were included. 413 patients underwent plethysmography and/or spirometry, 172 bronchodilator responsiveness test and 174 DLCO measurement. A comparative analysis was performed with calculations in Excel.
Results: Of the 413 patients, 51.2% were female, the mean age was 54 years and the mean height was 165 cm. Regarding the ventilatory impairments, according to the fixed percentage values, 58.1% of the RFT were normal, 38.3% revealed an obstructive pattern, 2.9% restrictive, 0.2% mixed and 0.5% nonspecific pattern. Using the ERS 2021 z-score, 61.7% of the RFTs were normal, 32.2% revealed an obstructive pattern, 2.4% restrictive, 1% mixed and 2.7% nonspecific pattern. Thus, it was verified, using the z-score compared to the fixed percentage values, an increase in normal RFT, a decrease in the obstructive and restrictive pattern and an increase in the nonspecific and mixed pattern. The increase in the number of normal tests with z-score was mainly at the expense of tests considered obstructive, when fixed percentage values were used (n = 25). It is noteworthy that 128 RFTs maintained the obstructive pattern, using both criteria and that 11 normal RFTs became nonspecific (n = 7), obstructive (n = 4) or mixed (n = 1). Of the 12 tests with restrictive pattern using fixed percentage values, 9 remained restrictive, 1 became normal and 2 became non-specific with z-score. Regarding the severity of the obstruction, moving to the ERS 2021-z-score, the mild classification increased from 50% to 72.7%. Concerning the bronchodilator response, 172 RFTs were analysed. There were no percentage differences in positivity or negativity of the response. Regarding DLCO measurement, the percentage of normal remained practically the same. Using z-score, the mild ones decreased from 18.3% to 12.1% and the moderate and severe increased from 13.7% to 19.2%.
Conclusions: The study showed a decrease in RFT with an obstructive pattern and an increase in normal tests and with a nonspecific and mixed patterns, using ERS 2021-z-score, compared to fixed percentage values. Although the expectation was an increase in the number of significant bronchodilator responsiveness using the new criteria, this was not the case. One possible justification is that the value from which the comparison is made, according to the current criteria, is the predicted value and not the pre-bronchodilation of the patient. It was verified that, using the z-score, in the obstructive pattern there was a higher percentage of PFR that reduced its severity, contrary to what happened in the DLCO.

Keywords: *Spirometry. Plethysmography. Diffusing capacity of the lung for CO measurement. Bronchodilator responsiveness test. Obstructive pattern. Restrictive pattern. Fixed percentage values. ERS 2021-Z-Score.*

PC 176. PREDICTIVE EQUATIONS OF MAXIMAL RESPIRATORY PRESSURES: WHICH TO APPLY IN THE PORTUGUESE POPULATION?

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Introduction: Maximal respiratory pressures (MRP) are used to detect respiratory muscle weakness, often present in respiratory and neuromuscular diseases. Currently, there is no consensus regarding the lower limit of normal for MRP. These pressures are influenced by several factors (e.g., sex, height, age), which must be considered in each evaluation. To this date, no existing predictive equation has been validated for the Portuguese population.
Objectives: To compare and verify the applicability of predictive equations of MRP in a sample of Portuguese adults without relevant comorbidities.
Methods: We conducted a retrospective analysis of respiratory function tests performed in the last year in a Portuguese hospital, with the assessment of MRP using a spirometer. Inclusion criteria were adults without relevant comorbidities with a BMI below 35 kg/m^2, who underwent a respiratory function test to exclude respiratory disease or in the preoperative context. Demographic data was collected to apply 12 predictive equations of maximal inspiratory pressure (MIP) and 6 predictive equations of maximal expiratory pressure (MEP) compliant with the ATS/ERS standards. We calculated each equation's predictive value (predicted/measured -%) and tested for statistically significant differences. A stepwise multiple linear regression was performed to determine independent predictors of MRP.
Results: We included 47 men and 61 women. Different equations were more appropriate depending on MRP type and sex. Overall, they overestimated the measured values of MIP and MEP and were statistically different ($p < 0.001$). The Rsquared of our model for the MIP was 18%. Gender proved to be the only independent factor in the multivariate analysis. When considering MEP, R-squared was 33%. Gender, BMI, and FEV1 were independent predictors.
Conclusions: Enright *et al.* (1994) equation proved to be the most appropriate to predict MIP values in Portuguese women, while the equation by Pessoa et al. was more suitable for males. Regarding the MEP, the equation by Gopalakrishna proved more appropriate for females, while Enright et al. (1995) suited males the most. The existing predictive equations differ and fail to explain the measured MRP. Our low coefficient of determination is similar to the R-squared for the available equations. More robust studies are needed to explain the missing variability.

Keywords: *Maximal inspiratory pressure. Maximal expiratory pressure. Predictive equations.*

PC 177. EVALUATING CARDIORESPIRATORY COMPLICATIONS AFTER LUNG RESECTION IN PATIENTS ASSESSED BY CARDIOPULMONARY EXERCISE TEST: A 10-YEAR REVIEW

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Introduction: The Cardiopulmonary Exercise Test (CPET) is recommended in pre-operative risk stratification in all patients with comorbidities or previously documented functional limitation consid-

ered to undergo lung resection surgery. It provides an estimate of the cardiopulmonary reserve.
Methods and objectives: A retrospective observational study was conducted with data from patients assessed by CPET to estimate surgical risk in a secondary hospital between January 2013 and January 2023. We aimed to evaluate variables associated with cardiorespiratory morbidity in the 30 days following lung resection surgery in patients preoperatively assessed by CPET.
Results: 64 patients assessed by incremental CPET on cycle-ergometer were evaluated. 14 patients who were not subjected to lung resection surgery due to perceived surgical risk or complications in the time until surgery were excluded. Patients were mostly male (66.0%), with a mean age of 64.2 years (SD 7.38). At the time of CPET, 32 patients still smoked (64.0%) and 15 patients (30.0%) were former smokers. The most prevalent comorbidities were COPD (64.0%), hypertension (62.0%) and a previously diagnosed neoplasm (22.0%). The average workload supported during CPET was 72.44 Watts (SD 24.86) and the average percent of workload predicted was 58.36% (SD 23.22). The mean VO2Peak was 18.08 mL/kg/min (ranging from 9.6 to 25.5 mL/kg/min), and on average, it reached 67.72% of the predicted value (ranging from 35% to 106%). 32 patients (64.0%) then underwent Lobectomy or Bilobectomy, 14 (28.0%) had a resection inferior to Lobectomy, and four pneumonectomy (8.0%). The median time between CPET and surgery was 42 days (IQR 38). 16 patients experienced at least one cardiorespiratory complication (32.0%) and one patient died (2.0%) during the postoperative period. The most frequent complications were respiratory tract infections (13 patients), dysrhythmia (five patients) and bronchopleural fistula (three patients). The mean age (p 0.022) and length of hospital stay (p 0.001) were significantly higher in the group with complications. The absolute and per cent of predicted VO2Peak values were inferior in patients with complications, although not significant (p 0.541 and p 0.107, respectively). A statistically significant association was observed between VO2Peak below 15 mL/kg/min and morbidity (p 0.027). The frequency of VO2Peak below 10 mL/kg/min, between 10-15 mL/kg/min, between 15-20 mL/kg/min, and above 20 mL/kg/min was 2.0%, 12.0%, 56.0%, and 30.0%, respectively. The decision regarding the surgical extent was made according to the peak oxygen consumption. The proportion of patients with complications in each of the described groups was 100%, 66.7%, 25.0%, and 26.7%, respectively, with no significant association between morbidity and the different groups (p 0.083).
Conclusions: In this evaluation, we observed a low mortality and morbidity rates, comparable to previously reported values. The critical interpretation of patterns of stress response in CPET may illustrate the risk of surgical risk after lung resection surgery, allowing both the identification of factors limiting each patient's physiological reserve, as well as a more personalized approach of treatment.

***Keywords**: Cardiopulmonary exercise test. VO2. Lung resection surgery. Post-operative morbidity.*

PC 178. CARBON MONOXIDE DIFFUSION CAPACITY IN CHRONIC THOMBOEMBOLIC PULMONARY HYPERTENSION – A NEW PROGNOSTIC TOOL?

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Introduction and objectives: Chronic thromboembolic pulmonary hypertension (CTEPH) constitutes a progressive condition with important therapeutic and prognostic considerations. The carbon monoxide diffusion capacity (DLCO) has been widely used as a marker to evaluate pulmonary function in various respiratory pathologies; however, its prognostic value in this patient group remains poorly elucidated.
Methods: Eighty-five (85) patients with confirmed CTEPH at a pulmonary hypertension reference center were retrospectively evaluated between February 2010 and June 2023. DLCO was assessed at the time of the first evaluation, and its prognostic impact was determined, including mortality at 1 and 5 years after diagnosis, as well as hospitalizations due to cardiovascular or respiratory causes within the first year after diagnosis. Additional laboratory, hemodynamic, and respiratory functional parameters were also evaluated. The data were analyzed using IBM® SPSS® software, version 28.0.
Results: The mean age at the time of DLCO evaluation was 62.3 years ± 14.8; two-thirds of the patients were female (68.2%, N = 58). Approximately 90% of the patients were treatment-naïve at the time of this initial assessment (N = 76). The mean DLCO for the sample was 67.7% ± 17.6 (N = 63). Regarding 1-year mortality, it was observed that DLCO was significantly lower in this group (48.82 vs. 68.98%, p = 0.013; N = 62), with similar results found in 5-year mortality after diagnosis (53.79 vs. 69.92%, p = 0.010; N = 61). Similar results were observed using the DLCO adjusted for alveolar volume (KCO) - 59.40 vs. 80.49%, p = 0.025 (N = 31); 56.93 vs. 82.77%, p < 0.001 (N = 31), respectively. Significant differences were also observed in mixed venous saturation (52.6 vs. 66.0%, p = 0.014), mean right atrial pressure (14.0 vs. 8.3 mmHg, p = 0.025), and N-terminal pro-B-type natriuretic peptide (NT-proBNP) levels (3,132.5 vs. 679.0 pg/mL, p = 0.005) concerning 1-year mortality after diagnosis. Regarding the rate of hospitalizations due to cardiovascular or respiratory causes within the first year after diagnosis, there was a trend towards lower DLCO values in this patient group, but it did not reach statistical significance (60.98% vs. 69.51%, p = 0.117; N = 60). Through ROC curve analysis, the values of 64.05% and 64.60% were determined as DLCO cutoffs associated with a higher risk of mortality at 1 (area under the curve (AUC) 0.828, p = 0.016, sensitivity (S) 80%, specificity (E) 60%) and 5 years (AUC 0.766, p = 0.011, S 88.9%, E 63.5%), respectively.
Conclusions: This study demonstrates that the evaluation of DLCO may have important prognostic implications in patients with CTEPH, potentially reflecting changes in the microvasculature of these patients, as well as an association with worse outcomes. Further studies should be conducted to confirm its prognostic implications and its potential use in risk stratification for this patient group.

***Keywords**: Pulmonary hypertension. Chronic thromboembolic pulmonary hypertension. Carbon monoxide diffusion capacity.*

PC 179. INDUCING CHRONIC PULMONARY HYPERTENSION SWINE MODEL WITH SUTURES EMBOLIZATION

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Introduction: There is an urgent need for large animal models of pulmonary hypertension (PH) that allow application of pharmacological and interventional therapies in a translational setting.
Objectives: We attempted to develop a simple large animal model of severe PH with right ventricular (RV) failure by mimicking chronic thromboembolic pulmonary hypertension phenotype Previous attempts have used short suture segments, microspheres and pharmacological interventions.

Methods: 2-month-old pigs (~25 kg) were used. Right heart catheterization (RHC) was performed, and after baseline pulmonary artery (PA) pressure and cardiac output (CO) measurements, a sheath was advanced into the left or right PA and a high-fidelity pressure transducer was placed at its tip. Silk sutures (0,15 cm) were injected into the selected PA, while continuously recording pressures. Embolization was stopped when mean PA pressures reached 40 mmHg, or complete occlusion of the selected branch was seen (angiography). The procedure was performed for 3 consecutive weeks, and followed by a 3-6 week period, followed by echocardiographic, hemodynamic (pressure-volume loop (PVL) analysis) and sample collection.
Results: Embolization led to an acute increase in PA pressure, which was attenuated at re-intervention, but aggravated during the follow-up period. A significant portion of both right and left lower lobes were obstructed. Terminal RHC showed severe PH development (mPAP = 49 ± 5 mmHg). Significant RV hypertrophy and failure (lower TAPSE and EF) were observed, without significant RV fibrosis. Quantitative PCR showed an upregulation of adverse remodelling markers (MYH7/MYH6, NPPB and TNFA), and downregulation of ATP2A2. Isolated skinned RV cardiomyocyte analysis showed normal active tension development and calcium sensitivity, but passive stiffness was significantly increased in the RV from CTEPH animals. Overflow-induced vascular remodelling was observed in distal arteries from the right upper lung lobe (unobstructed).
Conclusions: We created a simple large animal model of chronic PH by injecting long sutures into the pulmonary circulation, without the need for additional hits.

Keywords: *Pulmonary hypertension. Chronic thromboembolic pulmonary hypertension. Large animal models.*

PC 180. CARDIORESPIRATORY STRESS TEST AND PULMONARY HYPERTENSION – A SUI GENERIS RELATIONSHIP

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Introduction: Many patients with Pulmonary Hypertension (HTP) have exercise limitation, and PECR is an important method to evaluate the potentially underlying pathophysiological mechanisms. VO2 (Peak oxygen uptake) represents the most frequently analyzed parameter and has prognostic significance, with values < 10.4 mL/kg/min to be considered predictive of early mortality.
Objectives: To evaluate the existence of increased ventilatory response in patients diagnosed with HTP followed in a pulmonology consultation.
Methods: Retrospective observational study of initial PECR performed in 16 patients diagnosed with HTP. Statistical analysis with SPSS software version 25.
Results: PECR of 16 patients were reviewed, with a predominance of females (62.5%) and a mean age of 53.6 years (min. 28, max. 75 years). 37.5% of patients had HTP in group 1 and approximately 70% were non-smokers (n = 11). With incremental protocol, the average maximum load was 82.81 watts. Regarding the maximum VO2 reached, the mean was 10.76 mL/Kg/min (with a minimum of 6.37 and a maximum of 2.1). The mean anaerobic threshold was 74.5 and the median ventilatory equivalent was 31.8. Mean maximum heart rate was 138.5 bpm. More than half of the PECR were abnormal due to respiratory factors (62.5%), almost 20% had cardiac changes and 12.5% mixed anomalies.
Conclusions: Patients with HTP often have increased ventilatory CO2 equivalent, decreased O2 pulse, and reduced VO2 maximum, among other changes – as observed in patients whose PECR was analyzed. Although it does not diagnose HTP, PECR can assist in its diagnostic gait and contribute to the initial and follow-up evaluation, providing important prognostic information.

Keywords: *Pulmonary hypertension. Cardiorespiratory exercise test. Ventilatory equivalent.*

PC 181. MULTIFACTORIAL HYPOVENTILATION, A REAL CHALLENGE!

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Introduction: Hypoventilation related to sleep is characterized by inadequate ventilation and an increase in PCO2 during sleep. It should be noted that its etiology can be multifactorial, which appears to be a huge diagnostic and therapeutic challenge.
Case report: 65-year-old male, former smoker, with multiple cardiovascular risk factors, including obesity and cerebrovascular disease and a history of spinal cord trauma, with sequelae of tetraparesis. Referred to the pneumology consultation due to suspected respiratory sleep pathology, presenting: snoring, assisted breathing pauses, morning headaches and excessive daytime sleepiness. Level III polysomnography was performed, which showed severe OSA (REI of 106/h, with 482 obstructive apneas), with nocturnal hypoxemia (mean SatO2p of 83.3%; time < 90% (T90) of 80%; ODI of 113.9/h), with an oximetry curve suggestive of hypoventilation, confirmed by blood gas analysis. A chest CT was performed, which revealed paraseptal emphysema and apical bullae, suggestive of COPD, which it was not possible to confirm given the patient's inability to cooperate with the performance of a pulmonary function tests. Treatment with APAP was started until adaptation to NIV, which was found to be insufficient in correcting obstructive events, daytime hypercapnia and nocturnal hypoxemia. He was then adapted to NIV and parameters were measured using: oximetry and capnography, thoracic and abdominal bands and laboratory monitoring. He started home ventilation with bilevel ST mode (IPAP 26 mmHg, EPAP 9 mmHg, RR 18 cpm) with supplemental O2 at 1 L/min, at night. Significant clinical and symptomatic improvement was observed, in particular, resolution of morning headaches, daytime sleepiness and correction of obstructive events. However, nocturnal oximetry, despite an average SatO2p of 95%, maintained an ODI of 41/h and an irregular "sawtooth" profile, which could not be explained by the history and tests described. In this context, level I polysomnography was performed under NIV, compatible with severe OSA (AHI of 30.6/h) with nocturnal hypoxemia (T90 of 30.7%). An attempt was made to re-adapt, in an inpatient setting, with measurement of parameters, change to hybrid mode (AVAPS) and finally adaptation to volumetric mode (ACV: VT 600 ml, PEEP 4 mmHg, Ti 1.1 sec) which allowed an improvement, but not normalization of nocturnal hypercapnia and oximetry. At follow-up, despite an excellent adaptation and adherence (average use 12 hours/night and 100% of the days), there was a recurrence of drowsiness and persistence of hypercapnia. Given the limitation of parameter escalation, due to structural changes, it was decided to increase the time of use, including adaptation to the mouthpiece (AC-MPV: VT of 1,350 ml; PEEP of 0 mmHg, RR of 0 cpm, Ti of 1.4 sec). Currently asymptomatic with an average use of ventilation of 20 hours/day, maintaining significant changes in nocturnal oximetry and daytime blood gas analysis, which supports hypoventilation.
Discussion: We present a case of multifactorial hypoventilation that was very difficult to correct. Thus, the importance of an adequate etiological study that allows defining and limiting ventilation strategies emerges, as well as an appropriate follow-up with emphasis on clinical, gasometric and nocturnal oximetry evaluation, particularly its morphology.

Keywords: *Nocturnal hypoventilation. Obstructive sleep apnea. Non-invasive ventilation. Mouthpiece ventilation.*

PC 182. WHAT IS THE RELEVANCE OF THE CONTEXT OF THE INITIATION OF NON-INVASIVE VENTILATION IN PATIENTS WITH OBESITY HYPOVENTILATION SYNDROME?

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Introduction: Continuous positive airway pressure is one of the mainstays in the treatment of obesity hypoventilation syndrome (OHS), either in the form of CPAP (continuous positive airway pressure) or in the form of non-invasive ventilation (NIV). The start of this therapy may occur in an exacerbation (emergency/hospitalization service), when the patient presents with initial global respiratory failure, or occur, in stability, during follow-up in a specialized consultation.
Objectives: The aim of this study was to analyze if there were statistically significant differences on outcomes and comorbidities of patients with OHS depending on the context of initiation of NIV (stability versus exacerbation).
Methods: A retrospective analysis was carried out of the patients followed in the NIV consultation, between January 2014 and June 2023, in a tertiary hospital, with the diagnosis of OHS. The t-test for independent samples was used, and a Kaplan-Meier survival analysis was performed for a follow-up time of 150 months. Results with $p < 0.05$ were considered statistically significant.
Results: In a population of 921 patients being followed up at the consultation, a sample of 137 (14.9%) was obtained with the diagnosis of OHS. Most patients (89.8%) were under NIV, with more than half (59.1%) starting in the context of a consultation. In those who started NIV in stability, the median age was 69.0 [59.0-75.5] years, and 74.5 [64.3-83.0] years in those who started in exacerbation. The median time of daily use was similar between the two groups. We observed, on average, with a statistically significant difference, that the patients who started NIV in stability had a lower body mass index (BMI) and fewer hospitalizations, in relation to those who started it in exacerbation. It was also verified that there was a relationship between the context in which NIV was started and the survival time, with a lower average being obtained in patients who started NIV during exacerbation. No relationship was documented between comorbidities and the context of initiation of NIV.
Conclusions: It is concluded that there is a statistically significant relationship between BMI, the number of hospitalizations and the context in which NIV was started, as well as the survival time. Noting that, when the beginning of this therapy occurs in an acute context, the outcomes are worse, advocating the importance of early referral of these patients to a specialized consultation.

Keywords: *Obesity-hypoventilation syndrome. Home non-invasive ventilation. Context of initiation of therapy.*

PC 183. CONTINUOUS TRACHEOSTOMY VENTILATION WITH A HOME VENTILATOR IN SEVERE ANKYLOSING SPONDYLITIS: A CLINICAL CASE

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Introduction: Ankylosing spondylitis (AS), an axial spondyloarthritis, is a chronic multisystem inflammatory disease. Through a progressive process of spinal and joint fusion, advanced disease culminates in extreme limitation of spinal mobility and thoracic expansion. In a minority of patients, pulmonary manifestations of the disease are observed, including interstitial lung disease, fibrotic changes of the apices, spontaneous pneumothorax and restrictive syndrome. Dorsal kyphosis with involvement of the thoracic spine and the costoverterbral, sternoclavicular and sternomanubrial joints may prevent effective lung ventilation.
Case report: We present the case of a 51-year-old man, previously autonomous, non-smoker, with a relevant personal history of heart failure, atrial fibrillation and ankylosing spondylitis with severe cervical kyphosis, and no known previous respiratory failure. He was referred to the respiratory failure (RF) consultation after a long-term stay in an ICU for chronic global respiratory failure requiring continuous ventilation by tracheostomy and LTO. The condition began after 4 days of fatigue on progressively less exertion, and his wife found him unresponsive. He arrived at the ER in periparous state, with peripheral saturations of 40% on room air (aa) and respiratory acidemia on blood gas analysis (pH 7.18, pCO2 92.9, pO2 25.9). He was intubated and transferred to the ICU, and infectious, thromboembolic, cardiac or pleuroparenchymal pathologies were excluded. The diagnosis was acute chronic RF secondary to ankylosing spondylitis with severe restrictive syndrome. After failed extubation attempts, he was tracheostomized (lateral tracheostomy due to the impossibility of a previous approach due to kyphosis). As ventilatory weaning was not possible, he was discharged home with continuous mechanical ventilation (CMV) with an insufflated cuff by the tracheostomy, with a home ventilator, in ST mode and LTO at 2 L/min. In the RF consultation, he underwent chest and neck CT and BFO that aimed at airway patency, without evidence of obstruction, supra and infra tracheostomy, so hospitalization was proposed to attempt decannulation for NIV which the patient refused. Thus, he maintains continuous CMV through the tracheostomy, with controlled RF. During follow-up, he stopped LTO and started an external humidifier at night and a home mechanical in-ex-sufflator to fluidize secretions and promote mucociliary clearance. With the maintenance of the physical and respiratory rehabilitation program, a progressive gain in walking autonomy was observed, walking with the ventilator. He is currently performing short periods of cuffless ventilation with the home physiotherapist and will switch to a smaller caliber cannula in order to have peri-cannula air passage and voice training, although warned of the risk of ventilatory compromise if this management is not done in specialized hospitalization.
Discussion: Ventilatory compromise secondary to a restrictive syndrome in the context of AS is rare. Certain patients, notably restrictive and neuromuscular patients, may benefit from ICU support teams specialized in decannulation/extubation with advanced NIV expertise in patients with global RF, in order to avoid prolonged tracheostomy ventilation.

Keywords: *Ankylosing spondylitis. Non-invasive ventilation. Tracheostomy.*

PC 184. IMPACT OF OBESITY-HYPOVENTILATION SYNDROME ON HOSPITALIZATIONS FOR ACUTE-ON-CHRONIC RESPIRATORY FAILURE

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Introduction: Obesity-hypoventilation syndrome (OHS) is a diagnosis of exclusion among the various causes of alveolar hypoventilation. Typically the diagnosis occurs during acute-on-chronic respiratory failure. Evidence on admission to the Intensive Care Unit (ICU) of these patients is scarce. This study aimed to evaluate risk factors associated with ICU admission during hospitalization for type II respiratory failure in patients with OHS.
Methods: A retrospective cohort study was carried out in a level II hospital in Portugal, which included patients diagnosed with OHS who were hospitalized for acute-on-chronic respiratory failure re-

quiring ventilation therapy. It was considered the first admission to the ICU or the exacerbation with the greatest severity of respiratory acidemia. Patients with and without need for ICU admission were compared. NIV failure as the first line of therapy was considered the primary outcome. Sociodemographic characteristics (gender, age, BMI, smoking status) and clinical characteristics (comorbidities, length of stay, NIV failure, mortality, among others) were also analyzed.
Results: 56 patients were included, with a median age of 76 years [IQR 67-83], 80% (n = 45) were female. 86% (n = 48) were non-smokers and had a median BMI of 37.20 kg/m^2 [IQR 33.12-40.59]. The most frequent comorbidities were arterial hypertension in 91% (n = 51) and heart failure in 89% (n = 50). Of the patients with a sleep study (n = 29), 89.7% had obstructive sleep apnea syndrome (OSAS), and 43% (n = 24) had pulmonary hypertension confirmed by echocardiography. Among patients with OSAS, 25% (n = 14) had severe disease with a median AHI of 36.9/h. Regarding treatment, 20% (n = 11) were under NIV and 5% (n = 3) under APAP previously. 39% of the patients did not have a previous diagnosis of OHS. Of the evaluated patients, 23.2% (n = 13) were admitted to the ICU, of which only 3 underwent home ventilation therapy. The main causes of exacerbation were similar between groups (p = 0.573), with decompensated heart failure being the most frequent (ICU 61.5% vs non-ICU 71.4%), followed by acute tracheobronchitis (ICU 23.1% vs non-ICU 14.3%). On admission, the groups showed no differences in acidemia (median pH: ICU 7.27 vs non-ICU 7.31, p = 0.051). NIV was instituted as first-line therapy in all non-ICU patients and in 12 of the 13 patients in the ICU, failing to resolve acidemia in 1 patient, who required invasive mechanical ventilation. Mean time to resolution of acidemia was similar between groups (ICU 9 hours vs non-ICU 12 hours, p = 0.310) as was the median length of total hospital stay (ICU 10 vs non-ICU 9 days). There were no in-hospital deaths. There were no statistically significant differences between the groups in the remaining variables analyzed.
Conclusions: Patients with acute-on-chronic respiratory failure and OHS seem to respond favorably to NIV, with failure of first-line ventilation therapy being observed in only one patient. Given the prevalence of heart failure as an exacerbation factor, the control of cardiovascular risk factors is extremely important.

Keywords: *Obesity-hypoventilation syndrome. Intensive care unit. Non invasive ventilation.*

CARDIO 001. CLASSIFICATION OF VENTILATORY THRESHOLDS IN CARDIOPULMONARY EXERCISE TESTING USING MACHINE LEARNING AND DEEP LEARNING METHODS

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Introduction: The incremental cardiopulmonary exercise test (CPET) is a complementary diagnostic exam that assesses functional capacity by measuring cardiovascular, respiratory, and metabolic responses to incremental exercise. During the exercise increment, different energy substrates and metabolic mechanisms are predominantly used, characterizing the aerobic, transition, and anaerobic phases of exercise. Ventilatory thresholds (VTs) have been defined to separate these phases. Despite several years of study in this area, the precise measurement of these thresholds in clinical practice remains time-consuming and subject to variability due to visual analysis of patterns, resulting in inter-operator variability.
Methods: This study proposes an alternative to the traditional method of VT1 and VT2 measurement, using machine learning models (kNN) and deep learning models (GRU) with subsequent evaluation of their performance. The study individually identified VT1 and VT2 points in 720 CPETs collected from a public database (Physionet database "Treadmill Maximal Exercise Tests from the Exercise Physiology and Human Performance Lab of the University of Malaga"). The individuals who performed these CPETs were predominantly amateur and professional athletes. All CPETs were incremental treadmill tests, but several protocols were used. The available variables in the database were: oxygen consumption (VO2), carbon dioxide production (VCO2), minute ventilation (VE), respiratory rate (RR), heart rate (HR), test time, and treadmill speed. Subsequently, variables for ventilatory equivalents for oxygen (VE/VO2) and carbon dioxide (VE/VCO2), respiratory exchange ratio (RER), oxygen pulse, and tidal volume were created. In the initial approach, the kNN machine learning model was trained on 80% of a total of 277,399 examples to identify the exercise phase to which a given respiratory cycle belonged (aerobic, transition, or anaerobic), achieving an accuracy of 86.5%.
Results: However, while machine learning models are suitable for tabular databases, when the data is sequential (as in CPETs), deep learning algorithms usually perform better because they consider the temporal patterns in the data. Accordingly, two models of a recurrent neural network type (GRU) were created, one for automatically classifying VT1 and the other for VT2, resulting in accuracies of 92.0% and 88.4%, respectively. Regarding the identification of VT1, the GRU model achieved a mean absolute error (MAE) of VO2 of 286 ml.min^{-1} and a mean absolute percentage error (MAPE) of 13.5%, while in the measurement of VT2, the model achieved an MAE of VO2 of 202 ml.min^{-1} and an MAPE of 7.1%.
Conclusions: Although this is a proof of concept approach, machine learning models can identify the exercise phase in a CPET. Nonetheless, the accuracy of automated classification increases considerably when deep learning models are used, capable of identifying sequential patterns, which are essential in the analysis of incremental CPETs.

Keywords: *Cardiopulmonary exercise testing. Ventilatory thresholds. Machine learning. Deep learning.*

ENF 001. EFFECTIVENESS OF A REHABILITATION NURSING CONSULTATION FOR PEOPLE WITH ASTHMA

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Introduction: Asthma is a chronic inflammatory disease of the respiratory airways and is considered a Public Health problem, which lacks a personalized multidisciplinary intervention, to allow the user to develop mastery in the self-management of his disease. The project intends to answer the question: What methods could be used to enhance the use of asthma controller therapy?
Methods: Randomized and controlled clinical trial. The sample consists of users with asthma at Family Health Units in the municipality of Oliveira de Azeméis. There will be na experimental group that will undergo structured rehabilitation nursing consultations, and a control group that will receive the usual nursing care appropriate for asthma management. Both groups will be subject to two evaluation moments with the CARAT test and the AQLQ-M questionnaire.
Results: The aim is to evaluate the effectiveness of interventions for people with asthma implemented within the framework of a structured rehabilitation nursing consultation. It is expected to observe a clinically significant improvement with regard to disease control, quality of life, and user empowerment.

Keywords: *Asthma. Adults. Respiratory rehabilitation. Breathing exercises. Closed lip breathing. Diaphragmatic breathing. Quality of Life. Self-Management. Rehabilitation Nursing.*

ENF 002. PATIENT WITH INDWELLING PLEURAL CATHETER – CASE STUDY

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Introduction: The progression of oncological disease in humans leads to situations that are difficult for the user and family to manage, such as malignant pleural effusion (MPE). This leads to the appearance of symptoms, such as dyspnea, cough and chest pain, conditioning the patient's quality of life. Drainage of MPE allows the relief of these symptoms. Since chemical pleurodesis was the only option for definitive treatment until recently, indwelling pleural catheters have emerged as an alternative. The placement of a indwelling pleural catheter (IPC) can increase the relief of dyspnea, as well as the possible occurrence of spontaneous pleurodesis. Allows the reduction of the user's return to the hospital unit and the need for frequent hospitalizations. The nurse has an important role in the pre, intra and post placement of the IPC. The Nursing team must be able to respond to these differentiated procedures, adjusting to the needs of the patient and the reference person in order to empower them as true partners in care, with the aim of improving the patient's quality of life.
Objectives: To describe and analyze a clinical case of a patient with IPC. Reflect on nursing care for patients with IPC. Identify aspects of improvement to ensure the quality and safety of nursing care for patients with IPC.
Methods: Retrospective, exploratory and descriptive study based on proposals from an informal case study. The ethical assumptions inherent to the nature of the investigation were fulfilled.
Results: Female, 52 years old, with colon adenocarcinoma diagnosed in March 2022. She underwent left hemicolectomy and chemotherapy until February 2023. In April, she visited the emergency department (ER) twice due to abdominal pain, worsening with movement and coughing. Large right pleural effusion, diagnostic-evacuating thoracentesis was performed, with output of 1,200 cc of serous pleural fluid. Chest drain placed in hospitalization. Due to non-resolution of the MPE, it was decided to place the IPC in May. She was discharged home, after teaching the patient and family about care to be taken with the catheter, making a dressing, monitoring for inflammatory signs, periodicity and amount of fluid to drain. Patient stayed at home for 2 months, being autonomous in handling the catheter. During this period, doubts were clarified weekly by telephone, with no complications related to the catheter. She was later hospitalized again due to the progression of the disease, eventually dying.
Conclusions: The analysis of this clinical situation triggered the need for the nursing team to draw up guidelines for the placement of the IPC and post-placement care, as well as the creation of an information leaflet. Training the user and family to handle the IPC allows for the improvement of personal autonomy. The greatest advantage of using this equipment will be the relief of symptoms of respiratory distress in patients with neoplastic progression. Equipping the nursing team with the necessary tools to respond to the user and/or reference person in the multitude of possible scenarios is crucial for the provision of excellent health care.

Keywords: *Pleural diseases. Indwelling pleural catheter. Nursing care.*

FISIO 001. SIMEOX AS AN ADJUNCT TO RESPIRATORY KINESIOTHERAPY IN PATIENTS WITH BRONCHIECTASIS – PRELIMINARY STUDY

Ana Rita Pedroso, Ana Luísa Vieira, Sónia Tizon, Paula Cristina Nogueira, Bruno Ferreira, Cátia Caneiras, Lurdes Ferreira

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Introduction: The presence of bronchorrhea significantly affects the quality of life of patients with bronchiectasis. They are often enrolled in rehabilitation programs aimed at enhancing the elimination of bronchial secretions and reducing infectious exacerbations. The Simeox® (PhysioAssist S.A.S.) presents itself as an innovative technology to assist the elimination of bronchial secretions. Its mechanism is based on applying oscillatory intrathoracic pressure, which allows it to pass through the bronchial tree, changing the mucous characteristics of the secretions and facilitating their elimination.
Methods and objectives: Aiming to evaluate the impact of Simeox® inclusion on respiratory kinesiotherapy plan, this study included patients admitted for bronchiectasis acute exacerbation with respiratory kinesiotherapy criteria and patients with bronchiectasis in a regular program in respiratory kinesiotherapy outpatient care. At the beginning and end of the respiratory kinesiotherapy program (between 2-5 days/week, with a total of 25 sessions), symptoms and perception of health status were assessed through Bronchiectasis Exacerbation Symptoms Tool (BEST) and 5D-5Q-5L questionnaires. In the end of the program another questionnaire was applied to evaluate the satisfaction and the device's ease of use.
Results: 5 patients were included, 3 male and 2 female, ages between 24-75 years (mean of 52 years). Regarding symptoms, there was an improvement of the mean BEST' score from 20.6 (10-26) to 7.8 (7-12). When it comes to the perception of health status, using 5D5Q-5L, the mean score improved from de 9.6 (5-12) to 7.8 (5-12). The questionnaire also verified an improvement in self-assessment of health status, from 42/100 to 68/100, according to the visual analog scale. Lastly, regarding the satisfaction and Simeox®' ease of use, the mean score was 85% (73-100).
Conclusions: In this study, the addition of Simeox® in the respiratory kinesiotherapy plan for patients with bronchiectasis reduced associated respiratory symptoms and improved the perception of health status, resulting in a positive impact on the patients' quality of life. The patients expressed satisfaction with the device, considering it easy to use.

Keywords: *Simeox. Respiratory kinesiotherapy. Bronchiectasis.*

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PE 001. ASPIRIN-EXACERBATED RESPIRATORY DISEASE (AERD) – A SUCCESSFUL CASE

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Introduction: DREA is characterized by the pathognomonic triad composed of severe asthma, nasal polyposis, and hypersensitivity to aspirin (AAS) or other nonsteroidal anti-inflammatory drugs (NSAIDs). It is estimated to affect approximately 9% of patients with chronic rhinosinusitis associated with nasal polyposis and 15% of individuals with severe asthma.
Case report: a 38-year-old male, a merchant, presented to the Emergency Department with dyspnea and the development of a skin rash after taking aspirin at home. Relevant medical history includes late-onset severe asthma and chronic rhinosinusitis with nasal polyposis, having already undergone two polypectomies. On examination, the patient was tachypneic, with arterial oxygen saturation (SatO2) at 91% on room air, decreased breath sounds, presence of wheezing and bronchospasm, and scattered hives on the trunk and limbs. Laboratory analysis revealed an eosinophilia count of 370, and a chest X-ray showed hyperinflation. Despite optimized inhaled therapy, the patient remained highly refractory to treatment, experiencing numerous asthma exacerbations and requiring frequent visits to the Emergency Department. During the anamnesis, the patient reported a similar reaction in the past, with dispersed skin rash, itching, and dyspnea after taking metamizole, indicating a case of DREA. Given the diagnosis of DREA, the possibility of aspirin desensitization was considered as a treatment option. However, due to the risk of anaphylaxis, a multidisciplinary decision was made to initiate treatment with the biologic therapy mepolizumab, indicated for the treatment of nasal polyposis associated with severe eosinophilic asthma. The patient was followed up in the clinic, and after 3 months of biologic therapy, significant clinical improvement was observed with control of asthma and rhinosinusitis symptoms, without new exacerbations or detectable adverse effects.
Discussion: Aspirin desensitization is recommended for patients with DREA whose symptoms are not controlled with conventional therapy. However, it is considered a high-risk procedure and requires various safety measures for its execution. Currently, with the advancement of biologic therapies, mepolizumab has gained a prominent role in the symptomatic control of these patients, especially in those with severe eosinophilic asthma associated with nasal polyposis.

Keywords: *Asthma. Chronic rhinosinusitis. Nasal polyposis. Biologic therapy.*

PE 002. SPONTANEOUS PNEUMOMEDIASTINUM – A POSSIBLE COMPLICATION ASSOCIATED WITH ASTHMA EXACERBATIONS

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Introduction: Pneumomediaastinum is an uncommon entity resulting from alveolar rupture and air migration to the mediastinum as consequence of a rise in intrathoracic pressure (Valsalva maneuver, for example) or a rise in the pressure inside the airways (barotrauma, asthma or foreign bodies).
Case report: A woman, 19 years old, with personal history of atopic eczema, allergic rhinitis and asthma, previously medicated with inhaled terbutaline and nasal fluticasone furoate, both only as a rescue therapy, and oral hormonal anticonceptional went to the emergency department with dyspnea, tiredness and nasal congestion for the past week. On physical examination she was eupneic at rest and without supplemental oxygen, 97% on pulse oximetry, loud wheezing and a clear fatigue with speech. The heart rate was 144 bpm and she was apyretic. Pulmonary auscultation revealed a symmetric and maintained vesicular murmur and clear audible and disperse wheezes bilaterally. Blood tests revealed leukocytosis and neutrophilia, a C Reactive Protein of 51.1 mg/dL and a d-dímer test of 769 ug/L. The blood gas analysis and the chest X-ray showed no changes. To further clarify the case, a pulmonary angiography by computerized tomography was performed revealing the presence of a "mild pneumomediastinum close to the carina, extending anteriorly to the main left bronchus". The patient was hospitalized for a few days and then discharged with a scheduled pulmonology appointment.

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Discussion: Despite pneumomediastinum being an uncommon entity, usually self-limited and its treatment consists only of supportive measures. However, it is important to emphasize the importance of adequate assessment of possible causes, such as asthma, foreign bodies, tumors and other lung parenchyma diseases, as well as possible complications such as pneumothorax.

Keywords: *Spontaneous pneumomediastinum. Asthma exacerbation pneumothorax.*

PE 003. REMODELING IN SEVERE ASTHMA – AN ATYPICAL MANIFESTATION AND BIOLOGICAL THERAPY RESPONSE

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Introduction: Airway remodeling is an important component of several chronic respiratory diseases, particularly severe asthma. Airway remodeling's pathophysiology includes smooth muscle hyperplasia and hypertrophy, subepithelial fibrosis, mucus hyperproduction, angiogenesis and inflammation, leading to a fixed airway obstruction on pulmonary function tests (PFTs) despite the treatment. As atelectasis or segmental obstruction is a rare complication in an adult asthmatic patient, it could be associated with the remodeling process.

Case report: A 52-years-old female, quality controller worker in the food industry, non-smoker, with a history of overweight (BMI 26 kg/m^2) and laparoscopic surgery for gastroesophageal reflux. The patient was diagnosed with allergic and eosinophilic asthma with onset of symptoms at age 33 (positive test for dog and cat allergens, total IgE 115.8 UI/mL, marked eosinophilia [max 2,200/l], PFTs with moderate obstructive ventilatory impairment [FEV1 1.82 L, 64.8%], no significant improvement after bronchodilators). She had poor symptomatic control (ACT 3 |CARAT 9/8) and frequent exacerbations, despite prescribing of GINA Step 5 treatment. Autoimmune study, including negative ANAs and ANCAS. Computed tomography (CT) of the chest showed evidence of atelectasis of the anterior/lateral segment of the right and left lower lobes, significant bronchial wall-thickening and signs of compensatory hyperinflation. In bronchofibroscopy there was evidence of decreased caliber in all segments of the right lower lobe bronchus and left lower lobe bronchus, patent after instillation of saline, mucosa with edematous appearance and associated secretions, but no visible lesions or foreign bodies. Normal cardiac exams and sleep study were performed. Given the frequent asthma exacerbations, some of which associated with infectious complications and several courses of antibiotics ± systemic corticosteroid therapy (in which radiological examinations [teleradiography and/or chest CT] showed persistent areas of atelectasis), systemic corticosteroid therapy was initiated. Correct inhalation technique and adherence were confirmed, comorbidities were excluded, anti-influenza and anti-pneumococcal vaccination were completed and a respiratory rehabilitation program was included with partial improvement. Subsequently, it was discussed in a multidisciplinary severe asthma meeting and it was decided to start biological treatment with benralizumab 30 mg. After that a great clinical improvement was observed, with a decrease in dyspnea, wheezing and improvement on exercise tolerance (ACT 20|CARAT 29), as well as the absence of new exacerbations. The complementary study highlights the absence of eosinophilia in the leukogram, functional improvement (FEV1 1.93L 72.7%) and resolution of atelectasis in both lower lobes. Thus, it was possible to gradually discontinue systemic corticosteroid therapy.

Discussion: The airway remodeling mechanism in severe asthma is still not fully understood and little is known about short- or long-term impact of biological therapy on this mechanism. Thus, the authors present this case due to the rarity of atelectasis/segmental obstruction as an adult manifestation of airway remodeling in asthma and due to the favorable, and sustained response, to the administration of biological treatment with benralizumab.

Keywords: *Severe asthma. Remodeling. Atelectasis. Biological therapy. Benralizumab.*

PE 004. IMPACT OF COVID-19 INFECTION IN PATIENTS WITH SEVERE ASTHMA UNDER BIOLOGICAL THERAPY

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Introduction: The management of asthmatic patients during the pandemic and post-pandemic period has been challenging. Although there is no evidence of an increased risk of SARS-CoV-2 infection or its severity in these patients, recent studies suggest worsened asthma control and the need for escalated therapy after recovery from COVID-19. There is still no evidence regarding the subgroup of patients with severe asthma under biological therapy. We present two cases of patients with severe asthma under biological treatment experiencing symptomatic aggravation following SARS-CoV-2 infection.

Case reports: Case report 1: 52-year-old non-smoking woman with a history of asthma, allergic rhinoconjunctivitis, hypertension, diabetes mellitus secondary to corticosteroid use, benign follicular thyroid tumor and osteoarthrosis. Followed in the Severe Asthma outpatient clinic: initial ACT score of 12; eosinophils 900 cells/L, IgE 109 IU/mL; positive skin prick tests for dust mites and dog; pulmonary function study showed moderate obstructive ventilatory alteration with negative bronchodilator response (FEV1/FVC 63%, FEV1 61%); chest CT normal. She started mepolizumab in September 2019 and maintained triple inhaled maintenance therapy with good symptomatic control (ACT 22), reduced exacerbations, decreased corticosteroid need, normalized eosinophilia and functional stability. She had mild COVID-19 infection in January 2022. She continued to experience persistent fatigue and wheezing, with multiple visits to the emergency department and the need for systemic corticosteroid cycles. ACT 8. Therapy compliance was confirmed and comorbidity management was optimized. Her eosinophil count was 500 cells/L, and functional aggravation was evidenced by a decrease in FEV1 to 55.9%, with chest CT showing no relevant alterations. Biological therapy was changed to benralizumab in May 2023, resulting in improved symptomatic control (ACT 21). Case report 2: 66-year-old non-smoking woman with a history of eosinophilic asthma, hypertension, type 2 diabetes mellitus, osteoporosis, and depressive syndrome. Followed in the Severe Asthma outpatient clinic: initial ACT score of 15; pulmonary function study showed mild obstructive ventilatory alteration with a positive bronchodilator response (FEV1/FVC 57%, FEV1 73%); chest CT normal. She started benralizumab in January 2020 with good symptomatic control (ACT 23) and functional improvement (FEV1 82%). She had severe COVID-19 infection in October 2021, requiring hospitalization and respiratory support with CPAP. After the resolution of the infection, she experienced worsened functional status (FEV1 61%) and asthma control (ACT 16). Chest CT showed no relevant parenchymal changes. Biologic therapy was switched to reslizumab 250 mg in March 2022, resulting in significant improvement. After 1 year, she maintained good symptomatic control (ACT 23) and functional improvement (FEV1 70%).

Discussion: The real impact of SARS-CoV-2 infection on asthmatic patients is still not fully clarified. In these two patients, the chronological clinical evolution, along with the exclusion of other factors contributing to worsened asthma control, suggests that it may be a

consequence of previous COVID-19 infection. Further studies are needed to assess the relationship between COVID-19 and asthma control, particularly in the subgroup of patients with severe asthma under biological therapy.

Keywords: *Severe asthma. Biologic therapy. COVID-19.*

PE 005. SPONTANEOUS PNEUMOMEDIASTINUM AS ASTHMA INAUGURAL EPISODE

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Introduction: Pneumonediastinum is a rare, typically self-limiting condition defined by the presence of air in the mediastinum, considered spontaneous when not secondary to trauma. Several predisposing factors have been described, including asthma exacerbation.
Case report: 20-year-old man, autonomous, smoker for 2 years with a smoking load of 0.7 UMA, with no personal history to highlight, no usual medication and no previous diagnosis of asthma. He was admitted to the Emergency Department with a 3-day history of an initially dry cough, which later turned into a productive cough with purulent characteristics, fever, nocturnal wheezing, dyspnea and fatigue on exertion, and precordial and interscapular thoracalgia that worsened with coughing. On admission to hospital he was polypneic with scattered bronchospasm and wheezing on lung auscultation, and on arterial blood gas analysis he had partial respiratory failure with PaO2 57.2 mmHg on room air. Analytically, inflammatory parameters were also elevated and, imaging, chest CT angiography showed no apparent changes in lung parenchyma densification suggestive of an inflammatory process, no pneumothorax, but a small-volume pneumomediastinum. Bacterial sobreinfection of acute viral tranqueobronchitis was assumed, with no isolation of infectious agent in sputum culture tests and negative respiratory virus research. He was admitted to the Pulmonology Department and underwent 5 days of empirical antibiotic therapy with Azithromycin, with resolution of sputum, cessation of fever and reduction of inflammatory parameters. Respecting the diagnosis of pneumomediastinum, the patient underwent bed rest, surveillance and imaging control by chest radiography, with apparent stability; chest CT was repeated about 1 week later, with no evidence of pneumomediastinum. Due to the exuberant diffuse bronchospasm, the diagnostic hypothesis of asthma exacerbation in the context of respiratory infection was considered, although without a previous diagnosis of asthma. He was treated with systemic corticosteroid therapy for 5 days, with prednisolone 40 mg/day. Throughout hospitalization with marked clinical improvement and resolution of partial respiratory failure. From the clinical and complementary investigation carried out, he described a history of atopy in childhood with resolution in adolescence, denying allergies and symptoms suggestive during physical exertion, however he reported sporadic nocturnal wheezing since he started smoking, which he did not value. Laboratory tests showed increased total IgE of 353.0 U/mL and positive PADIATHOP (ratio 26.8), supporting the diagnostic hypothesis of allergen-induced asthma.
Discussion: Spontaneous pneumomediastinum was assumed in the probable context of an initial asthma episode, and he was discharged with an indication for smoking cessation and avoidance of diving activities. He was also medicated with inhaled budesonide and formoterol fumarate. He was evaluated in an outpatient clinic after discharge, complying with the inhaled therapy regimen and without new episodes of nocturnal wheezing. He is awaiting respiratory function tests and allergy skin tests.

Keywords: *Spontaneous pneumomediastinum. Asthma.*

PE 006. ASSOCIATION BETWEEN BRONCHIECTASIS AND ALPHA-1-ANTITRYPSIN DEFICIENCY – DOES AUGMENTATION THERAPY PLAY A ROLE IN REDUCING EXACERBATIONS?

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Introduction: Alpha-1-antitrypsin deficiency (AATD) is a codominant autosomal disorder characterized by mutations in the SERPINA1 gene. Currently, multiple pathological variants and genotypes have been identified. Among these, the Pi*ZZ genotype carries an increased risk of respiratory infections, due to the close relationship with the development of structural lung disease. In addition to the increased risk of emphysema, AATD as an etiologic factor and determinant of severity in bronchiectasis has recently assumed a prominent role.
Case report: We present the case of a 58-year-old woman, occasional ex-smoker, with a personal history of childhood asthma and treated pulmonary tuberculosis. She was referred to a Pulmonology consultation with long term complaints of productive cough, mucopurulent sputum and recurrent respiratory infections, requiring several cycles of antibiotic therapy. Pulmonary function test revealed a severe obstructive impairment (FEV1/FVC 66%, FEV1 1,080 ml/48.3% predicted). Chest computed tomography showed exuberant cystic and varicose bronchiectasis in the right upper lobe, lingula and both lower lobes with bilateral centrilobular emphysema, predominantly at the lung bases. During the etiological study, we detected a reduced AAT serum level of 22 mg/dL [80-220 mg/dL]. Viral serologies, immunoglobulins, SR, PCR and autoimmunity screening were negative. Phenotyping and genotyping allowed to identify a c.1096G>A p. mutation (Glu366Lys) of the SERPINA 1 gene in homozygosity, compatible with the Pi*ZZ genotype. Augmentation therapy with human-derived AAT (prolastin®, 60 mg/kg/week) was started in 2022. Due to a documented episode of drug hypersensitivity, therapy was switched to Respreeza® in the same posology. After this adjust, the therapy was well tolerated by the patient, which reported substantial clinical improvement, along with lung function stability and a significant reduction in the exacerbations number, aspects that currently maintains, in this first therapy year.
Discussion: AAT is a serine protease inhibitor that has been demonstrated to play a major role in regulating inflammatory activities through anti-protease activity and inhibition of TNF- and IL-1 levels. Its potent immunomodulatory and anti-inflammatory power may have an important role in treatment of conditions different from pulmonary emphysema, such in bronchiectasis. Screening bronchiectasis patients for AATD is recommended by several study groups.

Keywords: *Bronchiectasis. Alpha-1-antitrypsin. Exacerbations.*

PE 037. TARGETED THERAPY IN THE (RE)ACTIVATION OF SARCOIDOSIS – REGARDING A CLINICAL CASE

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Introduction: Diagnosis of exclusion, Sarcoidosis is characterized by variable evolution and systemic involvement, which are potentially conditioned by multiple factors, namely pharmacological – such as targeted therapies with cytotoxic and immune-mediated mechanism of action.
Case report: Man, 49 years old, maneuverer of industrial machines, followed in Oncological Dermatology for Melanoma of the 4th toe of the right foot (stage IIIB) excised 5 years before, referred to the Pulmonology consultation after detection of calcified pulmonary nodule in the right upper lobe and mediastinal adenopathies (ADN). For-

mer smoker, without respiratory complaints, alterations in the objective examination or chronic therapy, the patient was discussed in a group meeting and made a complementary study with analyses, Respiratory Function Tests (PFR) (both normal) and HRCT-Chest, which confirmed the presence of mediastinal ADN. In the suspicion of tumor recurrence, Bronchial Endoscopy (EBUS) was performed, whose anatomopathological results (AP) were negative for neoplasia. Maintaining mediastinal ADN in the various control tests, 6 years after oncological diagnosis, the patient developed a skin lesion on the inner face of the right leg, whose excision confirmed that it was melanoma metastasis, positive for BRAF. In monthly reevaluation, the appearance of a new papular lesion at the graft site, also excised and equally diagnostic of melanoma metastasis, BRAF+. In this context, assumed metastatic melanoma at the cutaneous and mediastinal ganglion level and decided to start targeted therapy with Encorafenib 450 mg id and Binimetinib 45 mg 2id. After one year of well-tolerated targeted therapy, the patient presented with important constitutional symptoms and related to several systems, namely ophthalmological, musculoskeletal and cutaneous. With repeated HRCT-thorax, micronodulation, discrete subpleural reticular pattern and increased ADN (pretracheal, loca de Barety, aortopulmonary window, subcarinal, right pulmonary hilum...) were identified – equating neoplastic progression versus extensive inflammatory involvement. Imposing the distinction between disease progression and inflammatory pathology, he repeated EBUS and performed BAL (with lymphocytosis). With AP results of non-necrotizing granulomatous lymphadenitis, of sarcoid type, and excluding other causes, considered a diagnosis of Sarcoidosis and started corticosteroid therapy in progressive weaning (and without discontinuation of targeted therapy). The patient became clinical and imagiologically better, without respiratory symptoms or alterations to the objective examination and maintaining PFR and normal analyses, and so was assumed Thoracic Sarcoidoses stage I without indication for directed therapy. Currently, the patient still in annual consultation – with PFR, analyzes and HRCT-Thoracic – along with the control of their oncological disease.
Discussion: The clinical case is presented for reflection on the possibility of activation/worsening of Sarcoidosis by certain therapies – which does not necessarily require its interruption, but concomitant management –, as well as to highlight the importance and difficulty around the exercise of differential diagnosis. Since Sarcoidosis is a diagnosis of exclusion, it is essential to affirm/deny progression of oncological disease as a cause of clinical and/or imaging changes in an appropriate context.

Keywords: *Melanoma. Targeted therapeutics. Sarcoidosis. Immune-mediated events.*

PE 038. DENDRIFORM PULMONARY OSSIFICATION – A CLINICAL CASE

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Introduction: Pulmonary ossification is a rare finding, characterized by the presence of mature bone in the alveolar or interstitial spaces, either localized or disseminated throughout the lung parenchyma. It may be idiopathic or secondary to chronic pulmonary, cardiac, or systemic diseases. It is classified as nodular (circumscribed) or dendriform (branched).
Case report: Male patient, 73 years old, former smoker of 35 pack-years, retired from an administrative job, with a history of atrial fibrillation, dyslipidemia, and chronic venous insufficiency, chronically medicated for his pathologies, was referred to the pulmonology consultation of Diffuse Pulmonary Diseases (DPD) due to respiratory symptoms associated with imaging changes in thoracic CT scans. In the DPD consultation, he mentioned productive cough, dyspnea, and tiredness for small efforts with months of evolution. In the functional respiratory study, the parameters were within normal limits. Laboratory tests revealed normal levels of calcium, phosphorus, and alkaline phosphatase. No alterations in renal function were identified. A sleep study was carried out (PSG level III), which revealed an AHI value of 21.6/h, translating into moderate OSAS. On the echocardiogram, the patient had mild mitral, tricuspid, and aortic insufficiency, with preserved ejection fraction. In the high-resolution chest CT scan, a slight interstitial thickening was identified, predominantly in the lower lobes, mainly peripheral, with a reticulomicronodular aspect with dense areas, which indicated a possible context of pulmonary ossification. After discussion in a multidisciplinary meeting, the presence of imaging alterations compatible with Dendriform Pulmonary Ossification was assumed. Considering the clinical stability of the patient and the absence of alterations in the functional respiratory study, it was decided to maintain vigilance and postpone the performance of a lung biopsy for histological confirmation.
Discussion: Dendriform pulmonary ossification is often associated with pathologies such as: histoplasmosis, idiopathic pulmonary fibrosis, pulmonary metastases from osteogenic sarcoma, pulmonary amyloidosis and Goodpasture's syndrome. Some studies also mention a correlation between episodes of recurrent chemical aspiration, such as those that occur in pathologies such as GERD and OSAS, with the development of pulmonary ossification. It often affects middle-aged men and is asymptomatic, so it is often incidentally diagnosed at autopsy. Thus, a high level of suspicion is necessary from an imaging point of view in order to diagnose and monitor this clinical condition in life.

Keywords: *Dendriform pulmonary ossification. OSAS. Autopsy.*

PE 039. HEMOPTYSIS AS THE FIRST MANIFESTATION OF IMMUNOGLOBULIN G4-RELATED LUNG DISEASE: CASE REPORT

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Introduction: The presence of a lung mass is a matter of concern for both the patient and the physician, due to the extensive list of differential diagnoses, requiring a prompt identification of its etiology. The authors present a case of recurrent hemoptysis as the manifestation of a pulmonary mass caused by immunoglobulin G4-related lung disease (IgG4-RLD).
Case report: 70-year-old male, with a personal history of ischemic heart disease, with unstable angina in August 2022, being medicated with acetylsalicylic acid and ticagrelor in this context. He went to the emergency department in December 2022 due to moderate volume hemoptysis with 1 week, without any other associated complaint. The initial bloodwork showed a slight increase in C-reactive protein and a moderate increase in the erythrocyte sedimentation rate; platelets levels and coagulation study were unremarkable. The immunological study showed increased serum levels of IgG4. Thoracic computerized tomography (CT) revealed the presence of a pulmonary mass in the right lower lobe, with a maximum diameter of 54 mm. Flexible bronchoscopy was performed, showing the presence of hematic vestiges throughout the right bronchial tree and a clot in the middle lobe bronchus, with no signs of active hemorrhage. Bronchoalveolar lavage was performed; cellular study documented increased total cellularity, lymphocytosis (20%) and neutrophilia (14%). A transthoracic lung biopsy (TTLB) was proposed, but preliminary CT scan documented regression of the lesion's dimensions, and biopsy was not performed. The patient was discharged with antifibrinolytics and suspension of ticagrelor, with-

out hemoptysis. He relapsed in February 2023, presenting hemoptysis lasting a week despite fixed antifibrinolytic use. A new thoracic CT scan revealed a dimensional increase in the lung mass described. TTLB was ultimately performed. The immunohistochemical study carried out revealed the presence of fibrosis and a lymphoplasmocytic-predominant infiltrate, with identification of a high amount of plasma cells positive for IgG4. The diagnosis of IgG4-RLD was established. At the time of diagnosis, the patient had no evidence of extrathoracic disease, with subsequent proton emission tomography confirming the absence of alternative sites of disease. The patient remains asymptomatic without the need for antifibrinolytics or immunosuppressive treatment and is being monitored through regular outpatient appointments with Pulmonology and a department of Autoimmune Diseases.
Discussion: IgG4-related disease is a recently recognized entity, consisting of the inflammatory infiltration of one or more organs by plasma cells rich in IgG4, with the lung seldom being affected. IgG4-RLD can be asymptomatic, or present with a myriad of respiratory symptoms, including hemoptysis. Manifestation as a lung mass is uncommon but possible, making it a very unlikely differential diagnosis of a lung mass.

Keywords: *Immunoglobulins. Hemoptysis. Lung mass. Lung disease associated with IGG4.*

PE 040. LYMPHANGIOLEIOMYOMATOSIS AND THE CASE OF THE VANISHING ANGIOMYOLIPOMA

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Introduction: Lymphangioleiomyomatosis (LAM) is a rare multisystemic disease that predominantly affects women of childbearing age. It is characterized by the presence of diffuse bilateral pulmonary cysts and renal and lymphatic angiomyolipomas (AML). The etiopathogenic mechanism is unknown, but it has been established to be related to the proliferation of immature smooth muscle cells. Follow-up of these patients should pay attention to the progression of lung disease, without overlooking the possibility of AML development, as its evolution may increase the risk of potentially fatal hemorrhages.
Case report: We present the case of a 48-year-old woman, a computer engineer, with a history of left hemithyroidectomy due to benign nodular pathology. The patient is under hormonal replacement therapy with levothyroxine. LAM diagnosis was made in 2000 through surgical biopsy. She had previously been medicated with medroxyprogesterone (hormonal therapy) for 6 years. During follow-up, she experienced recurrent bilateral pneumothoraces and underwent partial pleurectomy with talc pleurodesis on the right side and surgical talc pleurodesis on the left side. In 2010, the patient was referred for lung transplantation evaluation, but decided to not be included on the transplant list at that time. Due to worsening dyspnea, leading to mMRC functional class 3, and progressive respiratory failure, she accepted being referred for transplantation. In February 2013, she underwent right unilateral lung transplantation and started immunosuppressive therapy with prednisolone, mycophenolate mofetil (MMF), and tacrolimus. Subsequent and recurrent pneumothoraces on the contralateral side, of small dimensions, were conservatively managed. In the 2020, computed tomography evaluation of the chest and abdomen identified a "collection of liquid image, with multiple loci, extending 13 × 10 × 4.5 cm, involving the retroperitoneal vessels, displacing the pancreas and the third portion of the duodenum, without causing compression of the ureters, related to cystic AML". Optimization of immunosuppressive therapy was proposed to achieve better control of LAM and AML. MMF was discontinued, and sirolimus was initiated, while the rest of the medication (tacrolimus and prednisolone) was maintained. Three years after the therapeutic change, symptomatic improvement was observed, without recurrence of left sided pneumothorax, stable respiratory function, and complete regression of the retroperitoneal AML image. The patient continues under clinical, functional, and imaging surveillance.
Discussion: In LAM, AMLs smaller than 4 cm in diameter are typically well-tolerated without the need for targeted therapeutic intervention. The main complication of larger AMLs is hemorrhage. mTOR inhibitors (sirolimus and everolimus) have shown efficacy in reducing tumor size (with some cases documenting complete regression), preventing hemorrhage, and reducing the need for invasive interventions such as embolization or surgery. Discontinuation of these medications may lead to AML recurrence and an increase in its size.

Keywords: *Lymphangioleiomyomatosis. Angiomyolipoma. MTOR inhibitor. Sirolimus.*

PE 041. BIRT-HOGG-DUBÉ: TWO DIFFERENT PRESENTATIONS

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CHTV.

Introduction: Birt-Hogg-Dubé syndrome (BHDS) is a rare hereditary condition characterised by benign cutaneous lesions, lung cysts, increased risk of spontaneous pneumothorax and renal cancer. It shows heterogenous presentation within affected individuals. We present 2 case-reports that illustrate disease variability.
Case reports: Case 1: A previously healthy 41-year-old patient, referred to the Pulmonology Department for CT-scan abnormal findings: multiple cysts in the basal parts of the lung, bilaterally. At physical examination she had fibrofolliculomas and trichodiscomas in the face. She had no respiratory symptoms. Laboratory data (including alfa-1 antitrypsin) and Pulmonary Function Tests were normal. Genetic screening revealed a mutation in the FLCN gene, which confirmed the diagnosis of Birt-Hogg-Dubé Syndrome. Patient has developed no respiratory symptoms to the date. Case 2: A previously healthy 15 years-old, presented in the Emergency Room with dyspnoea and pleuritic thoracic pain. Chest X-Ray showed bilateral pneumothorax. Family history was notorious for recurrent spontaneous bilateral pneumothorax. Physical examination was unremarkable. Complementary studies were performed: laboratory results and Pulmonary Function Tests were normal. CT-Scan showed subpleural bilateral apical bullae. Genetic studies were inconclusive, and blood samples were sent to a Reference Center – and later confirmed the diagnosis. During follow-up, patient had several recurrences of pneumothorax: 2 right sided and 2 left sided. Surgery of bullae resection was performed and histology revealed emphysematous bullae, fibrosis and chronic inflammatory infiltrates. Unfortunately patient then lost follow-up.
Discussion: Because of its rarity, Birt-Hogg-Dubé is likely mistaken for primary spontaneous pneumothorax or emphysema. An early diagnosis is of extreme relevance to set up screening for renal cancer in patients and affected relatives.

Keywords: *Birt-Hogg-Dubé. Pneumothorax. Lung cysts.*

PE 042. CONGENITAL PULMONARY AIRWAY MALFORMATION: A DIAGNOSIS RARELY ESTABLISHED IN ADULTHOOD

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Introduction: The Congenital Pulmonary Airway Malformation (CPAM), formerly known as congenital cystic adenomatoid malfor-

mation, is a rare condition characterized by anomalies in embryogenesis that can affect various stages of lung development and leading to abnormalities in bronchial morphogenesis. Typically, CPAM is diagnosed in-utero or during the neonatal period, and its clinical presentation is variable. Children with CPAM may be asymptomatic or present respiratory insufficiency. Diagnosing CPAM in adulthood is an exceedingly rare occurrence.
Case report: The case presents a 30-year-old non-smoking male, with severe atopic eczema treated with dupilumab and without any neonatal medical issues nor family history of pulmonary disorders. He presented at a tertiary hospital's Emergency Department following a low-velocity motor vehicle accident involving a two-wheeled vehicle, which resulted in a right chest injury. On admission, the patient reported thoracic pain, which responded to analgesic treatment. During the physical examination, the patient remained hemodynamically stable and without signs of respiratory distress. Initial chest and ribcage X-rays did not reveal any abnormalities and the patient was discharged with analgesic therapy. Four days later, he returned to the same Emergency Department due to a sudden pain aggravation, now sharp right-sided, particularly exacerbated by deep inspiration. The patient experienced no symptomatic relief despite analgesic therapy. To further investigate the persistent complaints, a contrast-enhanced chest computed tomography (CT) scan was performed. The CT scan revealed a hypovascular hyperlucent area measuring approximately 6 cm in the right lower lobe (RLL) suggestive of CPAM, without evidence of infection or other complications). Pulmonary embolism and other post-traumatic complications were also excluded. Following symptomatic control, the patient was discharged with a referral to the Pulmonology outpatient clinic for further evaluation, where he currently maintains follow-up. A multidisciplinary team specializing in thoracic tumors discussed the case, and a decision was made to conduct regular surveillance. After two years of follow-up, the patient remains asymptomatic. Radiologically, the lesion in the RLL displays stable dimensions and morphology. Whole-body plethysmography and alveolarcapillary diffusion studies were normal.
Discussion: This case highlights an incidental CPAM diagnosis in adulthood, in an individual previously asymptomatic for respiratory symptoms. Radiologically, CPAM may present as a cystic lesion or consolidation. Differential diagnoses may include bronchopulmonary sequestration, congenital diaphragmatic hernia, bronchogenic cyst, congenital lobar emphysema and pneumatoceles. Due to the association of CPAM with pulmonary neoplasms, such as bronchioloalveolar carcinoma and pleuropulmonary blastoma, it is important to maintain clinical and radiological surveillance in these patients. Other potential complications include recurrent infections, pneumothorax, and pulmonary hypoplasia, with subsequent risk of pulmonary hypertension. Management options include clinical and radiological surveillance or, in selected cases, pulmonary resection.

***Keywords**: Congenital pulmonary airway malformation. Adulthood. Diagnosis.*

PE 043. PLEUROPARENCHYMAL FIBROELASTOSIS: THE CHALLENGES OF THE DIAGNOSIS AND THERAPEUTICS

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Introduction: Pleuroparenchymal fibroelastosis is classified as a rare form of idiopathic interstitial pneumonia. It is characterized by a combination of pleural fibrosis and fibroelastic changes, in the subpleural and upper lobe areas of the lungs. Its etiology and pathogenesis remain largely unknown. Some cases present with a progressive phenotype and evolve into severe forms, leading to lung volume loss and severe respiratory failure.
Case report: A 30-year-old man, originally from Ukraine, has been residing in Portugal since 2011. He is a former smoker (1.5 pack-years). His medical history includes bronchiectasis secondary to respiratory infections [bilateral pneumonia at the age of 13 and pulmonary tuberculosis (TB) at the age of 20]; recurrent respiratory infections and pectus excavatum. Seven months ago, he was diagnosed with advanced pleuroparenchymal fibroelastosis based on high-resolution CT imaging findings which revealed: "extensive fibrotic areas in both lung fields, multiple areas of apical predominant pleural thickening, cylindrical and varicose retractile bronchiectasis, tracheomegaly, dilatation of the main bronchi, and significant volume loss in both lung fields." His lung function showed severe restrictive syndrome (FEV1 26.4%, FVC 23.1%, FEV1/FVC 96.23, TLC 29.4%), leading to chronic global respiratory failure requiring ambulatory oxygen therapy at 3L/min. From the investigation, it is noteworthy: genetic testing for telomerase mutation, autoimmune studies, Aspergillus' precipitins, viral serologies and microbiological examination of bronchial secretions, which all yielded negative results. There is no family history of pulmonary fibrosis. The case was discussed in a multidisciplinary meeting in Interstitial Lung Diseases, where the diagnosis of pleuroparenchymal fibroelastosis was concluded, and antifibrotic therapy with nintedanib was proposed, along with a referral for a lung transplant consultation. Due to associated risks, a pulmonary biopsy was not performed. Over the past two months, the patient experienced three admissions due to spontaneous bilateral pneumothorax, which were managed conservatively without the need for drainage and with partial resolution. His chronic global respiratory failure has worsened, and the proposed treatment plan includes the nintedanib, respiratory rehabilitation, and follow-up in lung transplant consultations.
Discussion: This clinical case highlights the diagnostic and therapeutic challenges of pleuroparenchymal fibroelastosis, emphasizing the importance of a multidisciplinary approach. As there is currently no specific recognized treatment for this condition, lung transplantation remains the only viable option for progressive cases, despite potential technical complications due to pleural thickening. Immunosuppressive therapy has shown limited efficacy and is associated with the risk of infections. Antifibrotic therapy has been used in some isolated cases, but with inconclusive results so far. Although the underlying pathophysiological mechanism remains unclear, pleuroparenchymal fibroelastosis has been associated with mutations in the telomerase complex genes, bone marrow/lung transplantation, chemotherapy, autoimmune diseases, respiratory infections, chronic hypersensitivity pneumonitis, and environmental exposure to asbestos and aluminum. In the presented case, the history of recurrent respiratory infections and pulmonary tuberculosis may be linked to the development of this condition, warranting further studies to explore the potential role of respiratory infections as an eventual risk factor.

***Keywords**: Pleuroparenchymal fibroelastosis. Nintedanib. Pneumothorax.*

PE 044. CYSTIC LUNG DISEASE: DIFFERENT PRESENTATIONS AND THE ROLE OF HISTOLOGY IN ETIOLOGICAL DIAGNOSIS ABOUT 2 CHALLENGING CLINICAL CASES.

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Introduction: Cystic lung diseases are a heterogeneous group of diseases who share the imaging finding of thin-walled lung cysts,

usually diffuse. In the diagnostic evaluation, a personal medical history detailed with reference to exposures and underlying systemic diseases is critical. High-resolution CT, bronchoalveolar lavage (BAL) and histology are useful for the diagnosis.
Case reports: Case report 1: A 49-year-old woman, non-smoker, without history of inhalation exposures, with a history of psoriatic arthritis in follow-up in consultation of autoimmune. For sustained joint complaints, despite ongoing therapy and considering biological therapy, she was screened for latent tuberculosis. The radiography of the thorax was altered, and chest CT scan was performed where a multicystic pattern was visible with architectural distortion and parenchymal destruction more in the upper lobes with cystic formations of various confluent dimensions. At this point the hypothesis of the diagnosis raised were Langerhans histiocytosis, malformation congenital airway or pulmonary involvement by underlying connectivitis. Performed complete analytical study without relevant changes, functional tests that showed severe obstruction and BAL with neutrophilic alveolitis, with no other findings. Given that the study was not enlightening, it was decided to proceed to lung biopsy. The biopsy showed "emphysema lesions and morphological aspects of hyperplasia of smooth muscle tissue, significant multifocal fibrosis with numerous associated multinucleated foreign body giant cells, in relation to crystals of cholesterol." Upon this result, even after review of the slides in another Center and discussion, In a multidisciplinary meeting, the diagnostic doubt is maintained. The patient started biological for connectivitis and remain under surveillance. Case report 2: A 22-year-old non-smoker admitted to the SU due to right thoracalgia with an X ray which showed an large volume right pneumothorax. Placed thoracic drain with complete expansion, visualizing on posterior radiography rounded areas hypertransparent. The chest CT scan performed showed "Structural alteration emphysematous of the right lower lobe with parenchymal rarefaction with emphysematous areas and air cysts. The segmental bronchus of the right lower lobe had an apparent reduction in its caliber." Upon this examination, the differential diagnosis was congenital airway malformation or Bronchial atresia. Bronchofibroscopy showed no endobronchial changes. Proposed for surgical resection, performed segmentectomy of S6. Histology showed "lung parenchyma with dilated bronchial structures containing mucus. On the wall of these structures, in the wall of the vessels and sometimes lining the cystic spaces is observed proliferation of elongated or ovoid cells without atypia. Despite the negativity for HMB45 the morphological aspects observed -cystic spaces with cell proliferation smooth muscle, areas of emphysema, and hemorrhage, associated with secondary bronchiectasis, areas of fibrosis and dystrophic calcification - are consistent with the diagnosis of lymphangioleiomyomatosis."
Discussion: Cystic lung disease is a heterogeneous disease, with different presentations and severities, and sometimes even after exhaustive study remains a diagnostic challenge. Histology can be helpful, but not always enlightening.

Keywords: *Cystic lung disease. Different presentations. Diagnosis.*

PE 045. ANTI-SYNTHETASE SYNDROME: PERSISTENCE AS KEY TO DIAGNOSIS

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Introduction: Anti-synthetase syndrome is a rare autoimmune disease defined by the presence of anti-aminoacyl-tRNA synthetase antibodies, that can manifest through inflammatory myopathy, polyarthritis, Raynaud's phenomenon and interstitial lung disease.
Case report: This case portrays a 42-year-old male patient, autonomous, working in construction, with a history of Dupuytren's contracture surgery in 2017. Former smoker (10 pack-years) and previous exposure to caged birds for 3 years. Admitted to the Internal Medicine department for study of dyspnea, asthenia, unspecified weight loss, inflammatory arthralgias, and swelling of proximal interphalangeal joints and knees with one month of evolution, without respiratory failure. Investigations during the hospitalization revealed diffuse bilateral subpleural fibrosis on thoraco-abdominopelvic CT scan, with ground-glass opacities, along with hepatosplenomegaly. Laboratory analysis showed microcytic anemia, iron level of 39 µg/dL, ferritin of 487 ng/mL, slightly elevated sedimentation rate, negative viral serologies, unremarkable protein electrophoresis and negative autoimmune study. Bronchoalveolar lavage (BAL) demonstrated intense lymphocytic alveolitis with a low CD4/CD8 ratio (0.23). The patient was discharged with a prescription for prednisolone 40mg/day and was referred for Pulmonology outpatient consultation. Significant clinical improvement was observed after starting corticosteroid therapy. Despite suspicion of connective tissue-associated interstitial lung disease, the diagnosis of chronic hypersensitivity pneumonitis was established due to negative autoimmune study and compatible imaging findings, BAL analysis and previous exposure. Attempts at gradual corticosteroid tapering resulted in worsened imaging findings and recurrence of joint complaints after one year, leading to initiation of azathioprine (initially 50 mg/day, escalated to 100 mg/day, which the patient could not tolerate). A new enlarged autoimmune study was requested due to ongoing joint symptoms, which revealed positivity for anti-synthetase-anti-PL7 antibody. Consequently, the diagnosis was revised to anti-synthetase syndrome with pulmonary involvement, and treatment with rituximab was initiated in collaboration with Rheumatology, resulting in clinical and imaging improvement.
Discussion: This case underscores the overall importance of persistent etiological investigation when clinical suspicion is high and emphasizes the significance of screening for anti-aminoacyl-tRNA synthetase antibodies in patients with a clinical profile consistent with interstitial lung disease and systemic involvement.

Keywords: *Interstitial lung disease. Anti-synthetase syndrome. Aminoacyl-TRNA synthetase.*

PE 046. A RARE CAUSE OF DIFFUSE PULMONARY NODULES

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Case report: The authors present the case of an 18-year-old female patient who was referred to a pulmonology consultation by the primary health care provider after undergoing a CT scan of the chest showing multiple bilateral micronodules with distribution in all lung lobes. As a personal history, she had tuberous sclerosis diagnosed 2 years earlier, Moebius syndrome diagnosed in childhood, moderate cognitive delay, epilepsy and dorsolumbar kyphoscoliosis. She denied recurrent pneumonia or contact with tuberculosis patients. Clinically, the patient reported only non-productive cough and denied dyspnea, wheezing, or other complaints. On physical examination, dorsolumbar kyphoscoliosis was evident, she was eupneic on room air with a peripheral saturation of 95%, pulmonary auscultation showed a global decrease in breath sounds and no adventitious sounds, she did not have digital clubbing. It also had analyzes with tumor markers that were all negative (AFP, CA 19.9, CYFRA21, NSE, ProGrp and Scc). Gasimetrically, she did not present respiratory failure. She repeated the CT scan of the chest, which showed multiple nodules, some in ground glass, distributed throughout all the lung lobes, with no change in dimensions when compared to the previous examination, and no associated cystic lesions, raising the hypothesis of multifocal micronodular hyperplasia of pneumocytes. Functional respiratory tests were not performed, given the impossibility of col-

laboration. The patient's case was discussed in a multidisciplinary meeting, and the definitive diagnosis of micronodular multifocal hyperplasia of pneumocytes was considered. Anti-pneumococcal vaccination was prescribed and he remains under surveillance. Multifocal micronodular pneumocytic hyperplasia may occur in two-thirds of patients with tuberous sclerosis, with or without associated lymphangioleiomyomatosis. The etiology appears to be due to hyperphosphorylation of rapamycin-related proteins that can cause benign proliferation of type II pneumocytes along the alveolar septa.

Keywords: *Pulmonary nodules. Tuberous sclerosis. Multifocal micronodular pneumocyte hyperplasia.*

PE 047. DESQUAMATIVE INTERSTITIAL PNEUMONIA – AN EXCEPTION TO THE RULE

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Hospital Prof. Doutor Fernando Fonseca.

Introduction: Desquamative interstitial pneumonia (DIP) was originally described by Liebow *et al.* in 1965. It is a rare form of idiopathic interstitial pneumonia (IIP) usually associated with tobacco exposure. It often has a good prognosis, in contrast to other IIPs, given its usual response to smoking cessation and corticosteroid treatment. However, in some cases the disease progresses despite immunosuppression and there is little information and evidence on possible therapeutic alternatives.
Case report: 53-year-old male, smoker (30 pack-years), with a history of chronic rhinosinusitis and asthma in childhood, referred to a respiratory medicine consultation due to IIP. He referred complaints of dry cough and dyspnea on exertion (mMRC 1) with months of evolution, sometimes associated with wheezing, without fever or constitutional symptoms. He denied relevant occupational or environmental exposures, other addictions or usual medication. On physical examination, crackles were evident in the upper third of both hemithorax on pulmonary auscultation and digital clubbing. The chest CT that led to the referral described diffuse interstitial densification associated with ground-glass opacification areas more pronounced in the anterior segments and slight honeycombing in inferior subpleural space. The respiratory functional evaluation showed a mild restrictive pattern (FVC 71%, TLC 72%) with a moderate decrease diffusion (DLCOc 59%), without blood gas changes at rest or significant desaturation on exertion. The transthoracic echocardiogram showed no alterations. Videobronchofibroscopy (BFO) was performed with bronchoalveolar lavage, whose cytological analysis showed mild neutrophilic (9%) and eosinophilic (4%) alveolitis. The serological study revealed only positivity for ANA (titer 1/320) and p-ANCA autoantibodies. To clarify the condition, he underwent surgical lung biopsy by VATS whose histopathological evaluation showed filling of the alveolar spaces by aggregates of macrophages with golden-brown cytoplastic pigment and emphysematous changes associated with focal interstitial fibrosis in subpleural topography. Given the described findings, DIP was assumed and after smoking cessation, systemic corticosteroid therapy was initiated, which led to a slight clinical and functional improvement. Due to persistence of symptoms and imaging changes despite corticosteroid therapy, it was decided to intensify immunosuppression with Azathioprine, which he did not tolerate due to liver toxicity. It was then decided to associate Clarithromycin, which allowed the progressive reduction of corticosteroid therapy, maintaining functional stability. At 4.5 years after the diagnosis, the patient presents a new clinical and imagiological deterioration, which resulted in an increase in the honeycomb alterations. A new immunosuppressive treatment with Mycophenolate Mofetil and the start of anti-fibrotic therapy with Nintedanib were proposed.
Discussion: Although DIP has been described for over 55 years, much remains to be discovered. In the reported case, the disease progressed despite smoking cessation, immunosuppressive and immunomodulatory treatment, demonstrating, as has already been recognized in the literature, the possibility of progression to progressive fibrotic disease (PFD). If on one hand, such an evolution confers a worse prognosis, on the other hand according to the latest guidelines it provides a new therapeutic approach: the antifibrotics. However, further studies are needed to better characterise this disease and define its treatment, particularly in cases that do not respond to corticosteroid therapy.

Keywords: *Desquamative interstitial pneumonia. Progressive pulmonary fibrosis. Immunosuppression. Antifibrotics.*

PE 048. OTORHINOLARYNGOLOGICAL SURGERY IN OSAS: EFFICACY (UN)EXPECTED?

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Introduction: Highly prevalent and with several known risk factors, Obstructive Sleep Apnea Syndrome (OSAS) is a major threat to global health, and its timely and assertive approach are imperative.
Case report: Man, 42 years old, autonomous, theater actor, referred to the consultation of Sleep Respiratory Pathology (SRP) by clinic, devalued by himself and with years of evolution, of snoring, apneas visualized by his wife, preferential mouth breathing and initial insomnia. Associated with perennial nasal obstruction and recurrent tonsillitis. Former smoker (12 UMA), referred as comorbidities: allergic rhinitis, dyslipidemia and hepatic steatosis. No usual medication. Of family background to highlight: brother with SRP. On objective examination, the patient was eupneic, without auscultatory alterations, but with excess weight (although regular practice of physical exercise and denial of food and/or alcohol excesses), amygdalin hypertrophy and dimensional increase of the uvula. Because of suspicion of SRP, requested: Pulmonary Function Tests (PFT) (normal), Polysomnography (PSG) – diagnostic of severe OSAS (AHI/RDI of 106/h) –, and Blood Gas (GSA), which aimed at daytime hypercapnia. A CT-SPN and pharynx were also performed, identifying a pronounced deviation of the nasal septum (with reduction of the amplitude of the nasal cavities), rhinitis alterations, hypertrophy of the sinus mucosa, slight asymmetry of the piriform sinuses and reduction of the airway caliber in the rhino-pharyngeal transition (with concentric thickening of the pharyngeal walls and hypertrophy of the palatine tonsils). Thus, was requested evaluation by Otorhinolaryngology (ORL) and the patient started AutoCPAP 6-16 cmH2O. Followed in consultation, with therapeutic compliance and normalization of AHI, in the subjective evaluation of the patient, the clinical benefits were scarce. Associatedly, in the various GSAs performed, he maintained daytime hypercapnia, so the study was extended with CT-Thoracic and Skull, Echocardiogram, analysis and repetition of PFR (all normal), as well as with therapeutic PSG – in which an activation rate of only 3-4% was found, so it was decided to replace AutoCPAP by NIV-BiPAP-ST (6-16, FR 14). With the introduction of NIV, gasometric and capnography normalization was achieved, but the patient persisted with low activation rates in the various controls. At the same time, she maintained frequent tonsillitis and the evaluation of ENT was favorable to surgical indication. Bilateral tonsillectomy and inferior turbinectomy, partial uvulectomy and endoscopic septoplasty were performed without intercurrences, in the postoperative follow-up, and increasing difficulty in tolerance to ventilatory pressures developed. Thus, 3 months after surgery, repeated PSG (without ventilation) and diagnosed only mild OSAS (AHI/RDI 11/h). In view of the clinical improvement of the patient and reassessment by capnography with normal PCO2 and SpO2 values, NIV was suspended and the

necessary sleep hygiene and healthy lifestyle measures (with reduction of excess weight) were reinforced.
Discussion: The clinical case is presented for its richness in including several factors contributing to OSAS (male gender, age, overweight, ENT pathology...) – highlighting the need for an integrated approach –, for the gasometric benefit obtained when introducing NIV and, above all, for the excellent response obtained with the surgical intervention of ORL.

Keywords: *OSAS. Hypercapnia. Low activation. NIV. Otorhinolaryngological surgery.*

PE 049. CAN THE EPWORTH SLEEPINESS SCALE PREDICT THE OCCURRENCE OF OBSTRUCTIVE SLEEP APNEA?

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Introduction: Epworth sleepiness scale (ESS) is widely used for the assessment of daytime sleepiness. Excessive daytime sleepiness is common in sleep disorders, including obstructive sleep apnea (OSA). Only a few studies tried to predict ESS' usefulness in diagnosing OSA. We intended to assess its usefulness in predicting the occurrence of OSA.
Methods: For 12 months, we enrolled participants with high pretest probability for OSA and a valid ESS questionnaire, who underwent a type III home sleep apnea testing (HSAT) (N = 121 participants). The HSATs were manually reviewed by a trained sleep technician. ESS and apnea-hypopnea index (AHI) were evaluated statistically using correlation analysis and dependent t-tests. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of OSA identification by an ESS > 10 were calculated. The area under the receiver operating characteristic curve (AUROC) of ESS was also calculated.
Results: The mean age was 56.67 ± 13.60 years, 64.5% were male, and the mean BMI was 33.01 ± 6.52 kg/m2. 36 participants (24.0%) did not have OSA, 47 (31.3%) had mild OSA, 27 (18.0%) had moderate OSA, and 40 (26.7%) had severe OSA. Depression was present in 24% of the participants. The mean ESS was 10.18 ± 5.52. The mean ESS in men was 10.31 ± 5.40 and 9.95 ± 5.79 in women, without significant differences between groups (p = 0.357). When depression was present ESS was 10.31 ± 5.00 and when it was absent was 10.14 ± 5.70, without significant differences between groups (p = 0.495). At normal, mild, moderate, and severe OSA, ESS was 9.92 ± 5.16, 8.90 ± 5.20, 9.78 ± 4.80 and 12.03 ± 6.16, respectively. Despite a higher ESS in severe OSA, the ESS mean difference between the OSA severity groups was non-significant (p > 0.05). At ESS > 10 (55 participants), 27.3% had depression and the mean AHI manual scoring was 26.98 ± 25.28 events/hour. At ESS 10 (66 participants), 21.2% had depression and the mean AHI manual scoring was 20.14 ± 20.68 events/hour. However, the mean difference in AHI was non-significant (6.84 ± 4.18 events/hour; p = 0.056). The sensitivity, specificity, PPV, and NPV for OSA identification by an ESS > 10 were 45.3%, 53.8%, 78.2%, and 21.2%, respectively. The AUROC of ESS for OSA diagnosis was merely 0.51. There was a mild, positive, linear correlation between ESS and AHI manual scoring (r = 0.22; p = 0.016). This correlation remained significant (p = 0.014) despite introducing the "depression" variable, although the presence of depression negatively influenced AHI scoring (p = 0.078).
Conclusions: Our study shows that ESS was only marginally useful in predicting the occurrence of OSA, matching the results of other studies, and therefore it should not be used alone to screen patients for OSA. The presence of depression is important when evaluating ESS since excessive daytime sleepiness is frequent in these patients and the presence of depression negatively influenced AHI scoring.

Keywords: *Epworth. Apnea-hypopnea index. Obstructive sleep apnea. Excessive daytime sleepiness. Diagnosis.*

PE 050. OSAS BEYOND PAP THERAPY

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Introduction: Obstructive Sleep Apnoea Syndrome (OSAS) is highly prevalent respiratory disorder. The mandibular advancement device (MAD) allows the mandible to move forward to a more anterior position, achieving a better air passage into the upper airway; which has been shown to provide a positive response in the treatment of obstructive sleep apnoea and snoring. Bariatric surgery may be an option or the treatment of OSAS in patients with obesity, as may ENT surgery. Myofunctional therapy consists of correcting and oral cavity. dysfunctions of the orofacial structures, i.e. the entire face. The aim was to determine whether these therapies could correct or reduce the apnoea/hypopnoea index (AHI) in patients diagnosed with OSAS.
Methods: A retrospective evaluation was performed on patients followed in the Sleep Medicine clinic for OSAS between March 2019 and June 2023, in whom the initial therapeutic option for the treatment of obstructive sleep apnoea was not positive airway pressure (PAP) therapy. Patients with a mandibular advancement device were included, as well as patients who had undergone bariatric surgery, ENT surgery or myofunctional therapy.
Results: Nine patients were assessed, five men and four women, aged between 35 and 75 years, with a mean diagnostic AHI of 32.2/H (median 24.5), most of whom had positional OSAS. In June 2023, 4 patients were using MAD exclusively; 1 patient had only undergone ENT surgery; 1 patient had only undergone bariatric surgery and 3 patients had opted for more than one therapy, with 1 patient having MAD and undergoing myofunctional therapy; 1 patient had bariatric surgery and ENT surgery, 1 patient combined the use of MAD with weight loss. On average at diagnosis patients had: 22% mild OSAS; 33% moderate OSAS; 44% severe OSAS, who refused PAP therapy. After using the different therapies the patient group had: 44% AHI < 5/H, 44% AHI > 5/H and < 15/H, 11% AHI > 15/H and < 30/H, with 0% having an AHI > 30/H. Thus, patients who corrected or reduced the Apnoea/Hypopnoea Index with the use of MAD or other therapies were 78% and only 22% maintained the diagnostic AHI.
Conclusions: In patients with a confirmed diagnosis of moderate OSAS, alternative treatments to PAP therapy, when correctly indicated, have been shown to correct or decrease the diagnosed AHI without the need for PAP therapy.

Keywords: *OSAS. Therapies. AMD. Alternative therapies.*

PE 051. HOW TO ADDRESS UNDERDIAGNOSIS OF OBSTRUCTIVE SLEEP APNEA – PILOT PROJECT WITH PRIMARY HEALTH CARE

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Introduction: Obstructive sleep apnea (OSA) is a prevalent, underdiagnosed condition and the most frequent cause of referral to a sleep disorder consultation. It is associated with cardiovascular disease and increased risk of accidents (occupational and traffic). Given the higher prevalence of obesity and the need for specific

resources for the diagnosis of OSA, the response of hospital services has been insufficient, which limits the access of patients with more severe disorders to this consultation. For example, at ULSM the average waiting time for a sleep disorders consultation was over 12 months. To improve the diagnostic response, our Pulmonology service implemented a pilot project of shared management of OSA with primary health care (PHC). Objective: To describe the implementation of the pilot project and to characterize patients with suspected OSA referred by PHC for cardiorespiratory polygraphy (CRP) in the outpatient setting.
Methods: In the presence of a high clinical suspicion (STOP-BANG3), the doctor of general and family medicine (GFM) requested a CRP. This was performed by a cardiopneumology technician in the PHC using NOX3 equipment, and automatic analysis was performed based on published validations for this equipment. In doubtful cases or if apnea-hypopnea index (AHI) < 15, the study was reviewed manually. In case of AHI15, the patient was referred to a hospital consultation, implemented for clinical evaluation, therapeutic guidance and with predefined follow-up. The remainder (AHI < 15) received an information leaflet with sleep hygiene measures and were managed by GFM. PCR data from all patients referred by PHC were analyzed.
Results: From April to July 2023, 152 patients underwent CRP [56(36.8%) women; mean age = 54.9 ± 13.3 years]. Mean AHI was 25.3 ± 23.1/h and OSA was excluded in 23(15.1%) patients. Regarding severity, 40 (26.3%) patients had mild OSA, 42 (27.6%) moderate and 47 (30.9%) severe. When comparing patients with AHI < 15 and those with AHI15, BMI was significantly higher in those with higher AHI (AHI15 = 31.8 ± 5.1 vs AHI < 15 = 28.4 ± 5.4; p < 0.001). Oxygen desaturation index and time with SpO2 below 90% were significantly higher in those with AHI15, and they had lower mean and minimum SpO2 (p < 0.001). The positional component of OSA was not associated with AHI severity (p = 0.200). Concerning the clinic, there were no significant differences between the groups in daytime sleepiness, assessed by the Epworth sleepiness scale (AHI15 = 10.4 ± 6.3 vs AHI < 15 = 9.2 ± 4.9; p = 0.199), unlike snoring, assessed by the percentage of snoring (AHI15 = 38.4 ± 19.1 vs AHI < 15 20.2 ± 17.6, p < 0.001).
Conclusions: In our sample we found a distribution of OSA severity and an association with BMI in accordance with the literature. As for symptoms, snoring was more frequent in the more severe forms, but daytime sleepiness did not differ significantly between the different degrees of severity. Although this project is at an early stage, the possibility of performing PCR in PHC seems to speed up the diagnosis of OSA, which will hopefully translate into a reduction in the waiting list for consultation and earlier initiation of treatment, especially in the most severe cases.

Keywords: *Obstructive sleep apnea. Primary health care. Cardiorespiratory polygraphy.*

PE 052. GLAUCOMA AND ITS ASSOCIATION WITH OBSTRUCTIVE SLEEP APNEA: TWO CASE REPORTS

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Introduction: Glaucoma, a common and serious progressive disease of the optic nerve has been associated with Obstructive Sleep Apnea (OSA) in recent years. The authors present two case reports of patients with normal tension glaucoma (NTG) sent for OSA evaluation due to their aggressive progression despite considerable intraocular pressure reduction and unremarkable systemic workup.
Case reports: The first case is a 78-year-old ex-smoker man with previous history of arterial hypertension (AH) and dyslipidemia. After being diagnosed with rapidly progressing NTG, he underwent carotid and transcranial doppler and cerebral MRI, which were normal, and 24-hour ambulatory blood pressure monitoring which revealed a good blood pressure control. After normal cardiovascular studies, the patient was referred to the sleep respiratory pathology appointment. He underwent polysomnography, revealing a moderate OSA with an apnea-hypopnea index of 23.6/h. The patient started on positive pressure therapy. The second case is a 77-year-old woman with previous history of AH, diabetes mellitus type 2, obesity and ischemic stroke in 2015. After a diagnosis of rapidly progressing NTG, she presented a normal carotid and transcranial doppler and cerebral MRI. She was then referred to a respiratory pathology appointment. Even though the patient was asymptomatic, she underwent polysomnography, revealing a moderate OSA with an overall apnea-hypopnea index of 15.6/h.
Discussion: The authors' goal is to raise awareness about the need to consider OSA in patients with glaucoma who continue to experience progression despite significant intraocular pressure reduction as it is common and treatable, and may positively impact glaucoma control.

Keywords: *Glaucoma. OSA.*

PE 053. THE ROLE OF OBSTRUCTIVE SLEEP APNEA IN CANCER: A CROSS-SECTIONAL STUDY

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Introduction: Obstructive sleep apnea (OSA) is common and linked to poor health outcomes. A key modulator of OSA is nocturnal intermittent hypoxemia, which was found to affect cell metabolism, inflammation and immune response. Likewise, hypoxia has been recognized as a hallmark of cancer, due to its effect on gene expression and metabolism. However, despite striking epidemiological evidence of higher cancer rates and mortality, the association between OSA and cancer in observational studies remains inconclusive.
Methods: To investigate preferential locations of cancer in OSA patients and its progression, we conducted a cross-sectional study of a retrospective combined cohort of 10-year data on patients with OSA and cancer followed-up in the sleep and noninvasive ventilation unit in a tertiary hospital.
Results: We included 415 patients, of which 267 (64.3%) were males with a mean age of 70 ± 10.6 years. Of all patients, 365 (88%) were overweight, 243 (58.6%) were smokers or previous smokers and 115 (27.7%) had history of alcohol abuse. Concerning OSA diagnosis, the mean age at diagnosis was 63 ± 10.61 years old, the mean Epworth Sleep Scale score at diagnosis was 9.6 ± 5.43, the mean apnea-hypopnea index (AHI) was 26.6 ± 25.6, with a mean oxygen desaturation index (ODI) of 25.5 ± 26.3. Thirty-three percent of patients met the criteria for nocturnal hypoxemia. Overall, 103 (24.8%) patients had mild OSA, 129 (31.1%) moderate OSA and 183 (44.1%) severe OSA. Of all patients, 309 (74.5%) were initially treated with positive airway pressure therapy. During the follow-up period, 243 (78.7%) showed and adherence greater than 70%, 35 (11.3%) adhered below 70% and 31 patients (10%) stopped treatment for intolerance. OSA was the first diagnosis in 229 (55.2%) patients and the median time until cancer development was 57 ± 51.1 months. Regarding cancer diagnosis, the most frequent primary malignancy sites were lung, breast and colorectal cancer, with a prevalence of 123 (29.6%), 71 (17.1%) and 66 (15.9%), respectively, 86 (20.7%) of which presented with metastatic disease at diagnosis. During follow up, 155 (37.3%) showed disease progression. The mean overall disease-free survival was 61.4 ± 58.5 months.
Conclusions: This cross-sectional study showed that lung, breast and colorectal were the most prevalent cancer locations in OSA patients and its diagnosis was stablished, on average, 57 months after OSA, which focus the role of nocturnal intermittent hypoxia

as a key modulator in both diseases and underscores the need for further investigation to elucidate the complex interplay between these two conditions and particularly the impact on health outcomes.

Keywords: *OSA. Cancer. Intermittent hypoxemia.*

PE 054. SEVERE SLEEP APNEA-HYPOPNEA SYNDROME. WHAT ARE THE ODDS?

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Introduction: Sleep Apnea-Hypopnea Syndrome (SAHS) represents a significant part of the activity of the Pulmonology service given its high prevalence. Currently, the gold-standard for diagnosis is level I polysomnography (PSG). When video monitoring is not necessary, more accessible methods are preferred and widely used, such as level III PSG. The aim of this study was to identify the risk factors associated with severe SAHS in patients who underwent level III PSG.
Methods: Retrospective observational study of 713 patients referred to the Laboratório de Estudos do Sono, Centro Hospitalar do Médio Tejo (CHMT) between January and December 2022 for level III PSG. Data was collected through the database of the Laboratório de Estudos do Sono, CHMT. Patients under 18 years of age, with inconclusive examinations or with no Epworth Sleepiness Scale (ESS) record were excluded from the analysis. The predictive value of sex, age, BMI or ESS in severe SAHS (apnea-hypopnea index, AHI30) was assessed using binary logistic regression. Statistical analyses were performed in SPSS version 28.
Results: The analysis included 669 patients: 31.5% with severe SAHS; 60.7% male; mean age 60.3 ± 12.60 years; body mass index (BMI) 31.3 ± 5.33 kg/m^2; ESS 7.1 ± 5.44; AHI 26.9 ± 21.22 respiratory events/hour of sleep. Sex, BMI, age and ESS score are statistically significant predictors of severe SAHS, and explain 17.5% (Nagelkerke R2) of the variability. This model correctly classified 72.3% of cases. Males are about 2.4 times more likely to have severe SAHS than females (odds ratio, OR = 2.38; 95%CI [1.62;3.50]). Per kg/m^2 of BMI, the odds of having severe SAHS increase on average 1.14 times (95%CI [1.10;1.19]). Severe SAHS is associated with higher ESS scores (OR = 1.05; 95%CI [1.02;1.09]) and increasing age (OR = 1.04; 95%CI [1.02;1.06]).
Conclusions: This study shows that gender, BMI, age and ESS are factors associated with a higher probability of having severe SAHS, assessed by level III polysomnography, reflecting its importance in clinical practice. Level III PSG may be particularly appropriate for male patients with higher BMI.

Keywords: *Severe sleep apnea-hypopnea syndrome. Level III polysomnography.*

PE 055. CHYLOTHORAX IN RECURRENT COLORECTAL CANCER IN A PATIENT WITH FOLLICULAR LYMPHOMA

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Introduction: Chylothorax is a rare condition. Initially, its most frequent cause was non traumatic, corresponding to about two thirds of the cases. However, currently the traumatic etiology, mainly the post-surgical one, represents more than 50% of the cases described in the literature. Neoplasia is the most common non traumatic cause, with hematological neoplasms being the most frequent, more rarely it may originate from metastases. A representative rare case is presented.
Case report: Male, 82 years old, partially dependent on activities of daily living, with a history of sigmoid adenocarcinoma in 2017, who underwent Hartmann operation and adjuvant chemotherapy with posterior intestinal reconstruction, is currently being followed up at the hemato-oncology consultation for follicular lymphoma, undergoing chemotherapy (completed the fourth cycle), was referred to Pulmonology consultation for bilateral pleural effusion after hospitalization for SARS-CoV-2 infection with bacterial superinfection. A diagnostic thoracocentesis was performed, with output of milky pleural fluid, with characteristics of exudate, triglycerides > 1,100.0 mg/dL, cholesterol 275.41 mg/dL, with a total of 503 × 10^6/L nucleated cells, 26% of which were lymphocytes and 70% of other cells, negative cytology for neoplastic cells, compatible with chylothorax. Given the patient's history, the main diagnostic hypothesis was the progression of the hematologic malignancy. However, there had been a good analytical response to the chemotherapy cycles, so the study was continued, namely thoracoabdominopelvic computed tomography, which showed a slight increase in some of the parenchymal nodules in both lung fields, without evident nodular formations "de novo", stable pleural effusion on the left, disappearance of the pleural effusion on the right, and overlapping abdominopelvic adenopathic sleeve. Transthoracic biopsy of a peripheral nodular lesion in the right lower lobe was performed, the result of which revealed infiltration by adenocarcinoma with an enteric phenotype. The patient was referred to a Medical Oncology consultation and proposed to initiate palliative cytostatic treatment.
Discussion: This is a case that mirrors a rare situation of a chylothorax which, in addition to occur in an individual with active hematologic neoplasia and which is the most frequent cause of non-traumatic chylothorax, is associated with a context of recurrent colorectal adenocarcinoma, whose site of metastasis may be the lung. This demonstrates that the various diagnostic hypotheses should be considered even though, at first glance, there is a plausible and even more probable cause for the condition presented.

Keywords: *Chylothorax. Lymphoma. Colorectal cancer.*

PE 056. NONTRAUMATIC BILATERAL CHYLOTHORAX: A CASE REPORT

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Introduction: Chylothorax is a type of exudative pleural effusion, characterized by the presence of chyle in the pleural space. According to the literature, it is not completely clear which is the most prevalent cause for chylothorax, especially when bilateral. Still, a significant portion of the reported cases are unilateral and non-traumatic, with malignancy as the underlying cause. However, reaching the underlying diagnosis particularly in the absence of thoracic trauma, can be challenging, estimating that about 10% are idiopathic.
Case report: We report a case of a 66-year-old female, referred to the emergency department by her attending physician for a 1-week progressing dyspnea, associated with a 2-month old constitutional syndrome of unquantified weight loss and anorexia. After detecting a bilateral pleural effusion on chest x-ray, the patient was admitted for further study. After diagnostic thoracentesis, the pleural fluid analysis confirmed the presence of an exudate with characteristics compatible with chylothorax and whose pathological anatomy did not confirm the presence of neoplastic cells. On contrast-enhanced computed tomography, multiple mediastinal, lumbo-aortic and retrocrural adenopathies and mesenteric panniculitis were detected. In collaboration with colleagues from the Pulmonology and General

Surgery departments, we deliberated on the best approach for obtaining lymph node material for anatomopathological study, immunophenotyping and search for Koch's bacillus, in order to exclude ganglionic tuberculosis. Using a laparoscopic mesenteric lymph node biopsy and through evaluation by immunophenotyping, we were able to confirm the presence of a follicular lymphoma stage III B.
Discussion: The main aim with this case report was to draw attention to the difficulty that may arise from trying to find the underlying cause of a chylothorax, especially in cases of bilateral presentation and in the absence of thoracic trauma. Although this clinical case is in line with the literature, with neoplasia as the final diagnosis, it is worth remembering that even within this category, the pathology can be very diverse.

***Keywords**: Chylothorax. Follicular lymphoma. Pleural effusion.*

PE 057. EMPYEMA AS CLINICAL PRESENTATION OF EXTRATHORACIC PATHOLOGY

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Introduction: Empyema can be the starting point of the diagnosis of several pathologies, many of which are not directly related to the respiratory system.
Case report: 81-year-old man, former smoker (20 packs/year), with history of pancreatic cysts being followed up in a private clinic. Medicated with pancreatin, midazolam, trazodone, esomeprazole and betahistine, which he complied irregularly. Partially dependent. He went to the emergency department on 14/05/2023 due to progressive weakness and anorexia and weight loss (not quantified) for 2 months. In the last 2 days associated with left quadrants abdominal pain and constipation. He denied fever, cough or sputum. On physical examination, conscious and oriented, emaciated. BP 92/61mmHg, HR – 90 bpm, eupneic with SpO2 97% at room air. PA with abolished murmur on the left. Painful abdomen on palpation, without apparent masses. No peripheral edema. Chest radiography in dorsal decubitus showed hypotransparency in the entire left hemithorax, abdomen radiography with tangential rays without air-fluid levels. Analytically, Hg 7.1 g/L, no leukocytosis, neutrophilia 8,000, RCP 173 mg/dL, creatinine 1.5 mg/dL and BUN 50. He underwent ultrasound-guided diagnostic thoracocentesis draining 100 ml of purulent liquid with fetid smell, subsequent insertion of a chest drain on the left, which was functional with pus output. He was admitted to the Pulmonology department with diagnosis of left empyema, constitutional syndrome of probable infectious cause and constipation. After collecting blood cultures, started antibiotic therapy with ceftriaxone and clindamycin. The post thoracentesis radiographic control showed an image suggesting pneumoperitoneum. Thoraco-abdomino-pelvic CT revealed, "...a small amount of gas and liquid in the left pleural space (...) lung without suspicious nodular images or consolidations (...) moderate-volume pneumoperitoneum (...) heterogeneous splenomegaly resulting from an abscess (...) large retroperitoneal expansive cyst in continuity with several structures, raising as main diagnostic hypothesis a mucinous tumor of pancreas tail (probably malignant IPMN), with fistulization into the stomach sites and invasion/fistulization into the descending colon/splenic angle of the colon. Patient remained hospitalized in the Pulmonology department, given that Surgery and Anesthesia considered that he did not meet criteria for a surgical approach, as well as the interventional Radiology for a percutaneous approach to the splenic abscess. Started follow-up by Palliative Care. On the 9th day of hospitalar internment, *Streptococcus anginosus* was isolated in the pleural fluid. Despite maintenance of antibiotic therapy, the patient's general condition kept to deteriorate and he died in the following day.
Discussion: The existence of a pleural effusion does not necessarily determine the existence of chest pathology. Some neoplasms, particularly in pancreas, expand locally and may fistulize into adjacent structures, favoring infectious complications.

***Keywords**: Pleural effusion. Empyema. Pneumoperitoneum.*

PE 058. KIDNEY STONES AND EMPYEMA? A COMBINATION HARD TO FIND

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Introduction: Pleural empyema usually results from an underlying pneumological pathology, with extrapulmonary causes being rare.
Case report: A 56-year-old woman, former smoker (20 packs/year), with known diagnoses of asthma, chronic obstructive pulmonary disease and depressive syndrome, went to the emergency department complaining of fever and left back pain, worsening on deep inspiration with 2 weeks of evolution, without improvement with oral analgesia. She denied dyspnea, worsening of her usual coughing pattern, or sputum. On admission, the patient was hemodynamically stable, SpO2 96% without oxygen therapy, with no signs of respiratory distress. On pulmonary auscultation, there was a decrease in vesicular murmur in the lower third of the left hemithorax. She also had renal murphy present on the left. Her blood gas analysis did not have alterations, analytical evaluation showed elevation of inflammatory parameters (leukocytosis, CRP 23.9 mg/dL), without alterations in renal function and without alterations in the summary urine test. She underwent a chest X-ray which confirmed the presence of hypotransparency in the lower half of the left lung field, suggestive of loculated pleural effusion. In this context, a probable empyema was assumed, and Pulmonology was contacted with the indication for possible drainage. Due to the absence of previous infectious respiratory symptoms, a thoracic CT was performed, which revealed the presence of left pleural effusion, also emphasizing the globoidity of the left kidney, extending to the abdominal CT, where obstructive calculi were identified in the kidney and ureter, with multiple peri, pararenal and left psoas muscle infectious collections. Acute obstructive lithiasic pyelonephritis on the left was assumed, and antibiotic therapy with ceftriaxone was started. She was referred to Urology and subsequently underwent placement of a left ureteral catheter and perirenal collection drainage with bacteriological isolation of *Proteus mirabillis*. After the urological procedure, she presented respiratory failure with an increase in pleural effusion and elevation of inflammatory parameters and underwent thoracentesis on the 8th postoperative day. There were no pleural, serum or urinary microbiological isolations. The patient showed progressive improvement, with thoracic imaging resolution in the reassessment at 8 weeks, maintaining follow-up in Urology.
Discussion: In the case presented, the patient had no significant pneumological complaints or suspected respiratory infection justifying the pleural effusion, and the imaging study was extended to the abdominal region with identification of the urological cause and targeted treatment. Empyema as a complication of urological infection is rare and its mechanism is poorly known, and may be associated with transdiaphragmatic migration of infected abdominal fluid or congenital or acquired defects of the diaphragm. Empyema secondary to abdominal infections represents a diagnostic challenge given that patients may have a nonspecific clinical presentation and confounding factors, such as the presence of previous pulmonary pathology.

***Keywords**: Empyema. Kidney abscess. Kidney lithiasis. Thoracentesis.*

PE 059. PNEUMOTHORAX AS A RARE COMPLICATION OF PULMONARY THROMBOEMBOLISM

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CHTS.

Introduction: Despite the high prevalence of thromboembolic disease (with studies reporting an annual incidence of approximately 0.5 to 1 per 1,000 inhabitants), its presentation in the form of a pneumothorax is rare. The underlying physiological mechanism appears to be related to direct alveolar rupture and subsequent air leakage into the pleural space, with the possibility of rapid progression to tension pneumothorax, a pneumological emergency.
Case report: A 41-year-old non-smoking woman with a history of peripheral venous insufficiency, no known respiratory diseases, and taking oral contraceptives. She presented to the emergency department with a 4-day history of fatigue on moderate exertion, accompanied by non-productive cough, denying any other symptoms. On examination, she was hemodynamically stable, tachypnoeic, with decreased breath sounds throughout the right hemithorax, no peripheral edema or signs of poor perfusion, bilateral varicose veins in the lower limbs, and an erythematous region on the anteromedial aspect of the left thigh, tender to touch. Gasometrical analysis revealed hypoxemic respiratory failure. Chest X-ray showed a large right-sided pneumothorax with no other pleuroparenchymal changes. Partial blood analysis showed no increase in inflammatory parameters or coagulation abnormalities. A chest CT scan was performed, revealing a large free distribution right-sided pneumothorax, causing significant atelectasis of the lung parenchyma and contralateral mediastinal shift, as well as a small right-sided pleural effusion. Thoracic drainage was performed. Subsequently, on completing the blood analysis, she had an elevated D-dimer level of 1,397. Due to this finding, along with complaints in the left lower limb (LLL), a Chest Angio-CT was performed, showing pulmonary embolism at the level of the right pulmonary artery bifurcation, extending into the proximal portion of the right upper lobar artery and the right lower lobar artery and its subsegmental branches, where it was almost occlusive, as well as a small non-occlusive thrombus in the left lower lobar artery. An echo-doppler of the lower limbs revealed signs of recent occlusive venous thrombosis at the level of the popliteal vein, the venous tibiofibular trunk, and the peroneal veins of the LLL. There were also signs of recent superficial venous thrombosis in a short varicose vein segment present in the left thigh. She started anticoagulation with low molecular weight heparin and showed a favorable evolution. Complete lung expansion was achieved with thoracic drainage and aspiration. At the time of discharge, she was prescribed home anticoagulation with warfarin.
Discussion: Although pulmonary embolism is a rare secondary cause of pneumothorax, it should be considered when studying the etiology of a pneumothorax, particularly in patients with risk factors for the development of this disease.

Keywords: *Pulmonary thromboembolism. Pneumothorax. Dyspnoea.*

PE 060. PNEUMOMEDIASTINUM, MARIJUANA AND PNEUMORRACHIS

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CHTS.

Introduction: We present a case of pneumorrhachis, a very rare condition that refers to the presence of gas in the spinal cord, described in the literature as a possible rare complication of pneumomediastinum and smoked marijuana consumption.
Case report: An 18-year-old man, with an active smoking habit of 10 cigarettes per day and regular use of smoked hashish, with a history of suspected untreated asthma. He sought the emergency department due to dyspnoea that had been evolving for several days. There was no history of chest trauma. He had audible wheezing, scattered wheezing, prolonged expiratory time, and palpable subcutaneous emphysema bilaterally in the lateral cervical area. Afebrile and hemodynamically stable. Gasometrical analysis showed hypoxemic respiratory failure. Blood tests revealed an elevation in inflammatory parameters. Respiratory virus screening was negative. A chest X-ray showed pneumomediastinum and subcutaneous emphysema. He was started on oxygen therapy with a high-flow mask. A chest CT scan showed extensive emphysema in all neck spaces, diffuse pneumomediastinum, and also signs of extensive emphysema in the intermuscular and subcutaneous planes along the cervical region and thoracic wall. Notably, there was gas within the spinal canal involving the spinal cord-pneumorrhachis. There was no pleural effusion or pneumothorax. He was admitted to the Intensive Care Unit, where he received bronchodilator therapy and the possibility of reducing supplemental oxygen therapy. He was later transferred to the pneumology department, where he continued bronchodilator therapy, and his respiratory dysfunction resolved without the need for supplemental oxygen therapy. A cervical-thoracic and spinal CT scan was performed on the 5th day of hospitalization, showing resolution of the previous imaging findings - no evidence of gas in the spinal canal, subcutaneous emphysema, or pneumomediastinum. At the time of discharge, he had no respiratory symptoms and was saturating at 99% on room air. He was revaluated in an outpatient clinic 2 months later, without complying with the prescribed bronchodilator therapy, reporting the absence of symptoms. He continues to smoke.
Discussion: Pneumorrhachis is a rare condition that can occur traumatically or non-traumatically. Among the non-traumatic causes, it can occur in the context of pneumomediastinum or inhaled marijuana consumption, among others. Although often benign and self-resolving, it can lead to complications such as increased intracranial pressure and intra-spinal hypertension. It should be considered in the etiological study of these patients.

Keywords: *Pneumorrachis. Pneumomediastinum. Young. Marijuana. Emphysema. Subcutaneous.*

PE 061. A CASE OF PLEURO-PERITONEAL LEAKAGE

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Introduction: The incidence of pleural effusion in dialysis patients can be as high as 80%. The most common causes are hypervolemia, parapneumonic effusion and uremic pleuritis. However, in patients on peritoneal dialysis who develop low ultra-filtration and pleural effusion, the presence of a pleuro-peritoneal leak should be considered. This is a rare complication of peritoneal dialysis approximately 2%. It is usually manifested by sudden dyspnea, cough and pleuritic-type chest pain. There are multiple explanations for this phenomenon, however it is well established that polycystic kidney disease is a risk factor due to increased intra-abdominal pressure and patients with previous episodes of peritonitis. The effusions are more frequently on the right. Therefore, as this is a rare complication of peritoneal dialysis, the authors consider it important to present this case to raise awareness of the existence of this entity.
Case report: This is a 76-year-old female patient with a known history of chronic kidney disease in the probable context of cardiorenal syndrome, permanent atrial fibrillation, heart failure with reduced ejection fraction, group 2 pulmonary hypertension, post-hysterectomy status due to neoplasia and hypothyroidism, admitted

to the nephrology department for cardio-renal syndrome. In this context, the patient has an indication for dialysis, so peritoneal dialysis is initiated. It was found that after infusion of 1,500 ml of dialyzing fluid, only 700 ml were drained. Ten hours after starting dialysis, he began to present with sudden dyspnea, polypnea and desaturation. Bronchodilator therapy, hydrocortisone 200 mg and furosemide 80 mg intravenously and supplementary oxygen were administered, but without reversal of the condition. Paracentesis was also performed with 500 ml of effluent. Due to persistent volume overload without response to diuretic therapy, a jugular dialysis catheter was placed and hemodialysis was performed. The chest X-ray of the venous catheter control showed the presence of a right pleural effusion. In this context, collaboration was requested from Pulmonology to perform evacuative thoracentesis. An echo-guided thoracentesis was performed in the 5th right intercostal space, midaxillary line, which was uneventful and 1,500 ml were drained. On macroscopic observation, the fluid was translucent and yellow in color. Gasimetry of the pleural fluid revealed a pH of 7.429 and biochemical examination of the pleural fluid was suggestive of a transudate with a creatinine level of 5.14 mg/dL. Given a biochemical test highly suggestive of peritoneal dialysis fluid and clinical and radiological improvement after evacuative thoracentesis, pleuro-peritoneal leak was assumed. This dialysis technique was discontinued and there was no recurrence of the pleural effusion.
Discussion: Despite being a rare cause of pleural effusion, pleuroperitoneal leak should be considered in patients on peritoneal dialysis. Early diagnosis should therefore be made, as maintenance of this dialysis technique would perpetuate the pleural effusion.

Keywords: *Dialysis. Peritoneal. Leak. Effusion. Pleural.*

PE 062. WHEN DYSPNEIA HAS A BAD OUTCOME

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Introduction: Mesothelioma is a rare and aggressive neoplasm that develops in mesothelial cells after asbestos exposure. Workers in the textile industry, construction, welders, miners or mechanics are some of the professions at higher risk. There are several types of mesothelioma, including pleural and peritoneal (the most common), as well as pericardial and testicular. Symptoms may appear only 10 to 50 years after exposure and can easily be mistaken with less severe pathologies, as they are often nonspecific. Survival rates range between 18 and 31 months with treatments such as chemotherapy, which can improve the quality of life.
Case report: The authors present the case of an 83-year-old man, retired mechanic, and smoker with a smoking history of 30 pack years. He had a personal history of dyslipidemia and benign prostatic hyperplasia but no known pulmonary history. He was referred to the pulmonology consultation due to a 2-month history of progressive dyspnea, fatigue, and a weight loss of 10 kg in the previous month. Chest X-ray showed left-sided hypotransparency. Chest CT revealed an "extensive solid proliferative lesion in the left pleura, with slight atelectasis of the left lower lobe and moderate left pleural effusion." There was no evidence of respiratory insufficiency in the blood gas analysis. Staging exams were requested, including cranial brain CT, which demonstrated "mild cerebrovascular small-vessel disease. No expansive lesions or abnormal contrast uptake suggestive of intra or extra-axial metastasis were identified. Atheromatous wall calcifications were observed in the carotid siphons, and slight dilation of the supratentorial ventricular system, consistent with involutional changes." PET-CT showed "anomalous pattern in the left pleura, suggesting mesothelioma, to be confirmed histologically. Metabolically active signal in the left adrenal gland and left cervical lymph node, favoring metastatic involvement." Laboratory analysis showed elevated beta2-microglobulin and CA levels. A transthoracic biopsy confirmed the diagnosis of epithelioid mesothelioma. Therefore, the patient was diagnosed with stage IV Mesothelioma (with metastasis in the left adrenal gland and left cervical lymph node) and was referred to the Oncology Pulmonology consultation. Unfortunately, the patient passed away after completing four cycles of chemotherapy.
Discussion: This clinical case stands out as a rare manifestation of malignancy, as mesothelioma accounts for only 0.3% of neoplasms. The symptomatic manifestation of mesothelioma can be easily confused with less severe respiratory pathologies, emphasizing the importance of Pulmonology in the correct differential diagnosis. Obtaining a thorough clinical history, especially investigating occupational exposure, allows for earlier suspicion and confirmation of diagnosis, potentially improving the patient's prognosis.

Keywords: *Neoplasia. Mesothelioma. Staging. Dyspnea.*

PE 063. WHEN PLEURAL EFFUSION IS THE FIRST DIAGNOSTIC CLUE...

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Introduction: Pleural effusions can result from multiple pleuropulmonary or systemic disorders, of benign and malignant etiologies. Although the most frequent cause is the presence of fluid overload as a result of heart, liver or kidney disease, the rarest causes cannot be neglected, such as autoimmune pathologies (for example systemic lupus erythematosus or rheumatoid arthritis), hypothyroidism or even in the context of occupational or drug exposure. Making a prompt diagnosis is important so that it is possible to institute adequate therapy that allows resolving the condition and so that serious conditions, such as neoplasms and tuberculosis, are not neglected.
Case report: 85-year-old male, autonomous in activities of daily living, residing in Lisbon. As personal antecedents, chronic obstructive pulmonary disease stands out GOLD E, whose last exacerbation would have occurred 1 year before, pleuropulmonary tuberculosis at the age of 18 submitted to collapse therapy in the left lung, arterial hypertension, dyslipidemia and benign prostatic hyperplasia. He went to the Emergency Department due to dyspnea, tiredness on minimal exertion and cough with whitish sputum in the previous 7 days, having denied other systemic symptoms. The objective examination only highlighted the abolition of vesicular murmur in the left base with a decrease in vocal vibrations and dullness to percussion in that location. Analytically, on admission, with increased inflammatory parameters, with neutrophilic leukocytosis and CRP of 8.5 mg/dL, without elevation of NT-proBNP or troponin T. A chest X-ray showed bilaterally diffuse reticulo-interstitial infiltrate and left pleural effusion, as a result of which performed chest CT for better clarification, which confirmed pleural effusion, also demonstrating the presence of infected bronchiectasis in both bases, with calcified pleural plaques and pericardial effusion with poor definition of pericardial fat. He started levofloxacin empirically after blood cultures and sputum cultures were negative. The transthoracic echocardiogram showed circumferential pericardial effusion predominantly anterior to the right ventricle, with fibrin, without hemodynamic compromise. In the absence of a safety window for draining the pleural effusion, an etiological study was started, including a complete panel with the investigation of infectious causes, an autoimmune study and a study of active tuberculosis, among which an increase in SV, presence of rheumatoid factor and positivity for Ac anti-cyclic citrullinated peptide, without other alterations. From the review of the anamnesis, the presence of arthralgias with a long-standing inflammatory rhythm, which the patient undervalued, without relevant radiographic alterations, was

verified. After excluding other possible etiologies, particularly neoplastic ones, polyserositis was assumed in the context of rheumatoid arthritis (RA), and therapy with hydroxychloroquine and prednisolone was started, with resolution of pleural and pericardial effusions.
Discussion: Pleural disease is common in patients with RA, but it is usually subclinical. Pleural disease is more common in long-term RA but may precede joint disease. In addition, it is more common in men and may coexist with rheumatoid nodules and interstitial lung disease in up to 30% of cases. Although it is not one of the frequent causes of pleural effusion in the elderly, this case shows the importance of taking it into account.

Keywords: *Pleural effusion. Polyserositis. Rheumatoid arthritis in the elderly.*

PE 065. A RARE CAUSE OF SECONDARY PNEUMOTHORAX

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Introduction: Neurofibromatosis is a genetic disease that occurs by pathogenic variants in the NF1 gene. The most common features are the presence of café au lait spots and neurofibromas. In rare cases there may be pulmonary involvement, with the formation of pulmonary cysts.
Case report: The authors present the case of a 33-year-old patient, former smoker of 25 packs, worker in a concrete factory, who went to the emergency department for sudden onset of stabbing pain in the left hemithorax, which worsened during deep inspiration, without irradiation, starting 2 hours before. He denied fever, cough, sputum, wheezing or other symptoms. He had a personal history of neurofibromatosis and a family history of his mother with neurofibromatosis. On physical examination, the presence of multiple neurofibromas on the scalp and trunk and café-au-lait spots scattered throughout the trunk are highlighted. Pulmonary auscultation showed decreased breath sounds on the left and absence of adventitious sounds. Chest X-ray showed a pneumothorax on the left in need of drainage. An F16 thoracic drain was placed at the level of the 5th left ICS, anterior axillary line, with air outlet, which was uneventful. A CT scan of the chest was performed, which revealed moderate left pneumothorax, identifying a well-positioned drain in the pleural cavity. In the upper right paratracheal location, an oval, hypodense formation with regular limits is identified, measuring approximately 19 × 10 mm in axial diameter and 20 mm in longitudinal diameter, corresponding to a probable cystic structure. Refers to the presence of some subcutaneous nodular formations on the chest wall, probably in relation to neurofibromas, the largest on the left anterior chest wall measuring 17 × 10 mm. The patient kept the thoracic drain in place for 4 days, after which the pneumothorax was resolved by imaging, and the drain was removed uneventfully.
Discussion: This is a case of pneumothorax secondary to neurofibromatosis with pulmonary cysts that evolved favorably during hospitalization.

Keywords: *pneumothorax. Neurofibromatosis. Lung cysts.*

PE 066. PRIMARY OR SECONDARY PNEUMOTHORAX? – THAT IS THE QUESTION!

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Centro Hospitalar Universitário Lisboa Norte.

Introduction: Primary spontaneous pneumothorax is not infrequent, being more common in young smokers with a slim morphotype. The risk of suspicion must be high since it can present with a relatively nonspecific clinical presentation. In these age groups, secondary pneumothorax is not at all as frequent.
Case report: We present the clinical case of a 27-year-old young man, 7UMA smoker, self-employed, call center worker. It should be noted that the patient reported consumption of occasional concomitant hashish. He denied medical or surgical history or usual medication. The patient went to the SUC of the HSM because of chest discomfort and dyspnea after 1 month of evolution, with worsening pain in the precordial and right thoracic region. He also referred associated cough, with more than 2 weeks of evolution. Pulmonary auscultation revealed abolition of vesicular murmur on the right and hypertympanism on chest percussion. A chest Xray was performed, which documented pneumothorax on the right. Thoracic ultrasound is performed, showing the absence of pulmonary sliding and in M Mode barcode signal, to choose the best semiology site for placement of the drainage, which is why it was placed, a 16-gauge drain, in the 4th space intercostal in the mid-axillary line. No intercurrences during the procedure. With resulting oscillating and bubbling drainage. The chest X-ray after the procedure revealed hypotransparency in the right hemithorax, which raised suspicion of hematoma/contusion or possible re-expansion edema, which was not clinically compatible. Thus, he underwent chest CT, which revealed scattered areas of parenchymal densification/consolidation in the right lung field with air bronchogram, including ground glass, raising suspicion of an inflammatory process versus alveolar hemorrhage. Given the prolonged clinical situation, described by the patient, the most likely hypothesis was an eventual inflammatory/infectious process prior to the placement of the drain. Thus, on suspicion of community-acquired pneumonia and/or deposited hematic collection, he was hospitalized where he completed 7 days of effective antibiotic therapy (double intravenous antibiotic therapy). In a serial radiographic evaluation of the thorax, complete pulmonary expansion was documented, without appreciable fluid or blood drainage, without documented hemoptysis, although with evidence of a small amount of blood in the drain tube, without clinical repercussions. Simultaneously with the rapid resolution of the hypotransparency image on the right, which remains without full clarification of its etiology, raising the doubt of a possible pneumothorax secondary to a possible infectious process of the lung parenchyma.

Keywords: *Pneumothorax. Primary. Secondary. Consolidation. Diagnostic doubt.*

PE 067. IMPLEMENTATION OF THE INTENSIVE SMOKING CESSATION PROGRAMME IN A NORTHERN PORTUGUESE HOSPITAL CENTRE

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Introduction: STOP - Intensive Smoking Cessation Programme (ISCP) is a structured, intensive, smoker support programme lasting 6 weeks, which includes a set of behavioural and pharmacological approaches, based on a global understanding of the smoker, in the personal, family and professional context, as well as the motivations and barriers experienced in the process of change. The STOP programme is structured in 3 medical appointment and 4 teleconsultations carried out by the nurse or doctor. **Methods:** Type of study: descriptive and retrospective. Type of sampling: by convenience (individuals included in the STOP-ISCP between 1/05/2021 and 31/12/2022) Timing: 1st medical appointment - smoker assessment, discussion of therapeutic plan proposal and D-day scheduling. 1st teleconsultation - motivation reinforcement and answer to questions. 2nd medical appointment - D-day - first day that corresponds

to zero cigarettes. 2nd, 3rd and 4th teleconsultation - Reinforcement of motivation to continue without smoking, evaluation of adverse events and answer to questions. 3rd medical appointment - Evaluation and relapse prevention consultation to be carried out by the doctor. Reinforcement of the motivation to continue without smoking, evaluation of adverse events and answering questions. After 3 and 6 months telephone contact is made to evaluate the success of the Smoking Cessation Programme. Statistical analysis: IBM SPSS Statistics 26.0 software.
Results: The sample included (73%; n = 146) males with a mean age of 51.86 (± 10.82) and (27%; n = 54) females with a mean age of 40.80 (± 10.46). Of these, 43.72% (n = 87) stopped smoking. Single pharmacological treatment was used in 47.5% (n = 95), double in 46% (n = 92) and triple in 6.5% (n = 13). The drugs used were: varenicline (12.50%; n = 25), transdermal nicotine (38%; n = 76), citisinicline (35%; n = 70), nicotine gum (44.5%; n = 89), bupropion (6%; n = 12) and anxiolytics (12.5%; n = 25). The Mann Whitney U-test shows differences between the group that quit smoking and the group that did not, regarding dependence. Revealing less dependence in the Fagerström Test in those who quit smoking, but not in motivation (Richmond Test). There is a positive correlation with the number of cigarettes and continued smoking, but not with age or gender.
Conclusions: In our sample, there are statistically significant differences between individuals who quit smoking and those who did not, regarding nicotine dependence, but not in motivation. Individuals who quit smoking had lower values of nicotine dependence. In our study, age and gender did not influence smoking cessation, however dependence and number of cigarettes/day showed influence. The implementation of STOP-ISCP proved to be effective due to the high number of individuals who stopped smoking.

Keywords: *Smoking cessation. Programme. Consultation. Teleconsultation.*

PE 068. YOUTH HEALTHY MAN WITH DYSPNEA: A CLINICAL CASE

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Introduction: The increasing use of electronic cigarettes or vaping products, especially among young people, has led to the emergence of inflammatory lung injuries called EVALI (E-cigarette-or vaping-use-associated lung injury). EVALI is a new clinical condition that refers to lung damage associated with the use of electronic cigarettes or other similar vaping devices. It usually courses with dyspnea, fever, chills and respiratory failure.
Case report: A 26-year-old male, smoker of heated vaporized products, was admitted to the Multipurpose Intensive Care Unit (PICU) due to Bilateral Pneumonia. The imaging tests performed showed atypical radiological infiltrates and bilateral parenchymal infiltrates with a predominance of "crazy paving", which coursed with a picture of hypoxemic respiratory failure. There was a need for high-flow oxygen therapy and empirical antibiotic therapy was started with amoxicillin/clavulanic acid + azithromycin. Given the possibility of interstitial/allergic/autoimmune disease, fiberoptic bronchoscopy was performed, in which mucous and frothy secretions were observed. The bronchoalveolar lavage performed revealed a citrine yellow liquid suggestive of lipoid pneumonia, however, the definitive etiology remained unclear until the time of discharge. He started corticosteroid therapy. Given the progressive clinical and radiological improvement, he was discharged to the Pulmonology ward on the 5th day of admission to the PICU.
Discussion: The pathophysiology of EVALI is still not fully understood, and its diagnosis remains a diagnosis of exclusion, since there is no specific complementary test for its confirmation. The authors present this case because it is a serious situation that, although rare, can become increasingly frequent.

Keywords: *EVALI. Electronic cigarette. Dyspnea. Lung injury. Treatment.*

PE 069. CONSCIOUSNESS STATUS CHANGE SOLVED BY BRONCHOSCOPY

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Introduction: Foreign body (FB) aspiration occurs mainly in children, being rare in adults, with an estimated incidence of 0.2%. However, its incidence increases with age and also in patients with neurological or psychiatric pathologies, often not being witnessed or valued. Recognition of this entity requires clinical suspicion, given symptoms such as cough, dyspnea, wheezing, asphyxia or altered state of consciousness, with chest X-ray being the complementary initial diagnostic test. Bronchoscopy is the procedure of choice for FB removal, with a high success rate. During this procedure, the FB can be directly visualized, and granulation tissue, endobronchial stricture or edema – characteristic findings of tissue reaction – may be present. In children, rigid endoscopy is the procedure of choice for FB removal, given its ability to protect the airway, while flexible bronchoscopy can be used in adults, taking into account that in children, FBs are lodged mainly in the proximal tracheobronchial tree, which can be easily accessed by rigid bronchoscopy, while in adults FBs are often lodged in the distal tracheobronchial tree.
Case report: This clinical case reports a 59-year-old patient, totally dependent, institutionalized, but with a life of relationship, with history of chronic obstructive pulmonary disease and paranoid schizophrenia, with multiple psychotropic drugs and several recent hospitalizations for respiratory infections. He was taken to the emergency department due to dyspnea and peripheral desaturation, and was disoriented, dyspneic, in need of oxygen therapy at 4L/minute, with rude vesicular murmur, decreased in the lower third of the right hemithorax and bibasal fervors and scattered snoring. Analytically with increased inflammatory parameters and gasimetrically it showed global respiratory failure. Radiologically, the patient had hilar reinforcement, especially on the right, and hypotransparency in the lower third of the right hemithorax, suggestive of condensation, and empirical antibiotic therapy was started after cultural exams were taken. On the third day of hospitalization, the clinical status worsened, with prostration, scattered wheezing on auscultation and, due to respiratory acidemia, refractory to medical therapy, with hypercapnia as the probable cause of the neurological status, continuous non-invasive ventilation was started, which lasted for two days, with improvement in the respiratory and neurological condition. FB aspiration was confirmed by bronchofibroscopy, requested due to the worsening of the hypoxemic pneumonia initially admitted as a diagnostic hypothesis, which revealed food content, a pea, at the level of the right upper lobe, with inflammatory signs with associated abundant mucopurulent secretions. During the remaining hospitalization, the patient showed clinical improvement, with progressive and complete weaning of oxygen being possible.
Discussion: With this case we intend to recall the importance of the hypothesis of FB aspiration diagnosis, especially in the geriatric population, being necessary its differential diagnosis with pneumonia, exacerbation of COPD or asthma, lung cancer, among others, with persistent cough being the most common symptom. Highlighting the key role of fiberoptic bronchoscopy, a safe and effective test both in the diagnosis and treatment of this entity. Rapid diagnosis and intervention, guided by a high index of clinical suspicion, are essential to minimize potential severe complications of FB retention.

Keywords: *Aspiration. Foreign body. Bronchoscopy.*

PE 070. RECURRENT RESPIRATORY PAPILLOMATOSIS

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Introduction: Recurrent respiratory papillomatosis (RRP) is a rare manifestation of Human Papillomavirus (HPV) infection, mostly serotypes 6 and 11. RRP is characterised by the presence of large papillomas in the airways, which often recur, and treatment involves maintaining airway patency, often requiring multiple endobronchial procedures.
Case report: 68-year-old woman, ex-smoker (52 UMA), COPD GOLD E (FEV1 1.25 L - 35%) requiring O2 for ambulation, was referred to the technical appointment for persistent cough, haemoptoic expectoration (1 month of evolution) and dyspnoea at rest (mMRC4). She had imaging changes on chest CT with the presence of multiple polypoid masses in the distal trachea. Bronchofibroscopy, performed under general anaesthesia, revealed several papillomas in the distal trachea causing a narrowing of approximately 50% of the tracheal lumen, with no other changes notably in the oropharynx or vocal cords. Biopsies were taken and cryotherapy was used to destroy the lesions, as the patient was not a candidate for surgical resection. Histological examination subsequently showed several papillomatous structures with positive immunohistochemistry for human papillomavirus genotype 6.
Discussion: RRP is a chronic disease and difficult to treat due to its frequent recurrence rate and unpredictable aggressiveness. Although cryotherapy is not curative, it produces a rapid response with immediate improvement of symptoms and allows treating patients who are not candidates for surgery.

Keywords: *Papilloma. Cryotherapy.*

PE 071. A CASE FOR INTERVENTIONAL BRONCOLOGY

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Introduction: Foreign body aspiration in dental procedures is rare, with swallowing being far more common that aspiration.
Case report: We present a clinical case of a male, 76 years old. He was admitted to the ER after prosthetic drill aspiration during dental procedure, perceived by the patient, described as "object passing through the throat", without other symptoms. He was referred to the ER with chest X-ray documenting the presence of a foreign body in the left main bronchus. Subjected to rigid bronchoscopy with confirmation of prosthetic material allocated in the left main bronchus, promptly proceeding to its removal, without complications.
Discussion: Foreign body aspiration during dental procedures is rare but might be associated with serious complications. Although often asymptomatic, prompt identification and orientation by Interventional Pulmonology is crucial to prevent complications and unfavorable outcomes.

Keywords: *Foreign body aspiration. Dental procedure. Prosthetic drill.*

PE 072. NOT EVERYTHING THAT IS SUSPECTED IS MALIGNANT: AN UNLIKELY SURGICAL DIAGNOSIS!

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Introduction: Pulmonary tuberculosis is caused by *Mycobacterium tuberculosis* infection and remains one of the main causes of morbimortality worldwide. However, its prompt diagnosis is not always possible, since other pathologies may mask this identity, namely, organizing pneumonia, lung abscess, infection with nontuberculous mycobacteria, aspergillosis or malignancy.
Case report: We describe a case of a 52-year-old male patient, with chronic alcohol abuse and smoker (37.5 UMA), who went to the emergency room (ER) for right thoracalgia, with three days of evolution and progressive worsening of pain´s intensity at rest. He denied dyspnea, cough or palpitations. Reference to anorexia in the previous 15 days and weight loss of 2.5 kg in one week. He was eupneic in room air, SpO2 97% and hemodynamically stable. On pulmonary auscultation, vesicular murmur was maintained bilaterally, without adventitious noises. Regarding the complementary diagnostic tests performed in the ER, the X-ray showed hypotransparency in the right middle lobe and analytically presented leukocytosis, neutrophilia and C-reactive protein of 250 mg/L. He was hospitalized with diagnostic hypothesis of community-acquired pneumonia and completed empirical antibiotic therapy with amoxicillin/clavulanic acid and azithromycin. A thoracic computed tomography (CT) scan revealed "an area of consolidation of spiculated contours with central cavitation in the right upper lobe, 4 × 3.7 cm, and transcisural extension to the middle lobe and the apical slope of the right lower lobe. Solid pulmonary nodule with 7 mm in the left lower lobe and it is not possible to exclude contralateral secondary lesion. Centrillobular and paraseptal emphysema that predominate in the upper lobes and cylindrical tubular bronchiectasis in the right upper lobe.". When he was discharged, he was referred to the Pulmonology consultation to continue the study of the imaging finding. Abdominal and pelvic CT scans did not identify alterations and cranioencephalic magnetic resonance imaging excluded brain metastases. Subsequently, Positron Emission Tomography showed metabolically active disease limited to the right lung. He was submitted to CT-guided transthoracic needle biopsy and the anatomopathological result identified a solitary fibrous tumor. Respiratory function tests showed a mild obstructive ventilatory alteration, with FEV1/FVC ratio after bronchodilation of 69%, suggesting the diagnosis of chronic obstructive pulmonary disease, according to the GOLD criteria. After Therapeutic Decision Consultation, he was proposed for thoracic surgery and superior and middle bilobectomy was performed. The histology of the surgical specimens did not indicate signs of malignancy, however lymph nodes with reactive alterations and multiple epithelioid granulomas with central necrobiosis, macrophages, lymphocytes and positive Ziehl-Neelsen bacilli were identified, suggesting the diagnosis of tuberculosis. Molecular biology by Xpert MTB/RIF Ultra assay detected *Mycobacterium tuberculosi*s without resistance to rifampicin. The patient started directed treatment and is currently followed in the Pulmonology Diagnostic Center.
Discussion: Cavitary pulmonary disease can translate several etiological identities and this case proved to be challenging in demonstrating malignancy as a differential diagnosis of tuberculosis. The definitive diagnosis was obtained through the histology and molecular biology of the surgical specimens.

Keywords: *Neoplasm. Tuberculosis. Ziehl-Neelsen. Xpert MTB/RIF Ultra assay.*

PE 073. DRESS SYNDROME RELATED TO TUBERCULOSIS TREATMENT, A CLINICAL CASE

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Introduction: Tuberculosis remains one of the most relevant infectious diseases worldwide, and has a significant incidence in Portugal. The recommended first-line treatment consists of a combina-

tion of isoniazid (Iso), pyrazinamide (Pir), rifampicin (Rif) and ethambutol (Eta) for 2 months, followed by 4 months with Iso + Rif. The DRESS syndrome (Drug reaction with eosinophilia and systemic symptoms) is a severe and rare hypersensitivity reaction, induced by drugs, in the present case, tuberculostatic agents. The clinical presentation is variable, and skin rash, organ dysfunction, systemic symptoms, analytical changes, among others, may occur.
Case report: The authors present a clinical case of a male patient, aged 78 years, with no relevant personal history and without usual medication, diagnosed with pulmonary tuberculosis in May 2023, after performing bronchoscopy with bronchial aspirate. He started treatment with Iso + Rif + Pir + Eta + pyridoxine in June, with clinical and analytical reassessment after 1 week of treatment. In the reassessment, the patient showed marked asthenia and analitical elevation of transaminases (3-5 upper limit of normal - ULN), which led to interruption of the treatment. At home, the patient presented worsening of asthenia, and fell with head trauma, so he went to the Emergency Department (ER) on the 25th of June. Upon arriving at the ER, the patient reported experiencing a two-week period of asthenia, following the initiation of tuberculosis treatment. Acute traumatic intracranial lesions were excluded, however severe hyponatremia, hypokalemia, increased transaminases (3-5 ULN) and mild peripheral eosinophilia were detected. Due to liver toxicity secondary to tuberculostatic drugs, asthenia and hydroelectrolytic changes, the patient was admitted to the pulmonology service. From the 3rd day of hospitalization, he developed fever and generalized maculopapular rash, predominantly on the trunk. He had a gradual worsening of the general condition, with asthenia. He did not have any change on chest radiograph. He had worsening of cytolysis (AST and ALT > 10 ULN) and eosinophilia. An eosinophil-mediated hypersensitivity reaction was hypothesized. He presented atypical lymphocytes and HHV-6 positivity. The clinical case was discussed with Dermatology and Immunoallergology, and DRESS syndrome was assumed. He started treatment with systemic corticosteroid therapy (methylprednisolone 1 g 3 times a day, then oral prednisolone for 10 days) and antihistamines, with resolution of the rash, eosinophilia and normalization of transaminases. Epicutaneous and lymphocyte transformation tests were performed, with indeterminate results. An alternative treatment plan for tuberculosis was established with levofloxacin, amikacin and linezolid, with the local Pneumological Diagnostic Center. Three weeks after admission, the patient is clinically stable, without complications from the ongoing treatment, with corrected hydroelectrolytic changes. An antimicrobial susceptibility test of the second line tuberculosis treatment is being processed, and he is waiting to repeat the epicutaneous test, for gradual reintroduction of first-line tuberculostatics.
Discussion: DRESS Syndrome is a rare but potentially fatal complication associated with the tuberculosis treatment. An early diagnosis, with multidisciplinary involvement, the withdrawal of anti-tuberculosis drugs, use of systemic corticosteroids and antihistamines, have a strong prognostic impact.

***Keywords**: DRESS syndrome. Tuberculosis. Tuberculosis treatment. Hypersensitivity reactions.*

PE 074. A FORM OF PRESENTATION OF TUBERCULOSIS

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Introduction: Tuberculosis is a disease caused by *Mycobacterium tuberculosis* and typically affects the lungs, causing significant morbidity and mortality worldwide. It can present with symptoms such as fever, weight loss, productive cough, or night sweats and can spread to cause extrapulmonary tuberculosis, which can manifest as pleural, lymphadenitis, hilar lymphadenopathy, miliary, meningitis, pericardial, or adrenal tuberculosis.
Case report: The authors present the case of a 30-year-old man, from India, working as a waiter, non-smoker, with no known medical history. He presented to the Emergency Department with left-sided pleuritic chest pain, evening fever, and loss of appetite, evolving for 7 days, with no other complaints. He had previously visited the ED previously with a small left pleural effusion. On physical examination, no abnormalities were noted. Laboratory tests showed an elevation of inflammatory parameters, and HIV serology was negative. Chest X-ray revealed opacities in the left hemithorax. Thoracentesis was performed, and sero-hematic pleural fluid was drained, showing characteristics compatible with an exudate, suggestive of empyema, despite a predominance of lymphocytes. The patient started ceftriaxone and clindamycin, which he completed in 21 days. Chest CT showed "small volume bilateral pleural effusion and scarce gas bubbles in the chest wall along the course of the thoracic drain. Moderate volume pneumothorax (24 mm thickness) in the left lower pleural recess, likely iatrogenic. Dispersed bilateral micronodules in the lung parenchyma with non-specific appearance. Centrilobular micronodules in the right lung, suggestive of inflammatory or infectious dissemination. No consolidations." During hospitalization, a right pleural effusion appeared in the chest X-ray, and an ultrasound revealed a "moderate, highly septated pleural fluid collection, elevating the diaphragmatic dome, unsuitable for biopsies or thoracic drain placement." Influenza B was isolated in the respiratory virus panel, and the patient started oseltamivir. The first sputum examination showed isolation of Moraxella catarrhalis. No isolates were detected in blood cultures, urinary antigens, or bronchoalveolar lavage. Bronchoscopy didn't reveal any endobronchial lesions. The follow-up chest-CT showed "persistent empyema on the left with marked pleural thickening, suggesting strong loculation, causing atelectasis; increased right pleural effusion, occupying two-thirds of the lower hemithorax, with a thickness of 30 mm. Some centrilobular micronodules are scattered throughout the lobes, suggesting an active infectious process with endobronchial dissemination." Pleural biopsies revealed "pleural tissue and fibrin with a predominance of lymphohistiocytic infiltrate with Langhans-type multinucleated giant cells and non-necrotizing epithelioid granulomas." *Mycobacterium tuberculosis* complex was isolated in one of the sputum examinations and in the pleural fluid, and serum and pleural fluid ADA levels were increased. The diagnosis of pulmonary tuberculosis with bilateral pleural involvement was established, and the patient started antituberculosis treatment, which led to rapid improvement. He was referred to the CDP for further management.
Discussion: Pleural tuberculosis refers to various manifestations of pleural involvement by Mycobacterium tuberculosis and can present in different forms, such as pleural effusion, empyema, or pleuritis. It is the most common form of extrapulmonary tuberculosis. The objective of this clinical case is to present a form of presentation of pulmonary and bilateral pleural tuberculosis in an immunocompetent patient.

***Keywords**: Pulmonary tuberculosis. Pleural tuberculosis. Respiratory infection.*

PE 075. KNEE AND LUNG: JUST ONE ZIEHL-NEELSEN AWAY

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Introduction: Tuberculosis represents a disease with significant prevalence and impact worldwide, with pulmonary tuberculosis as

the most frequent form of presentation. Among cases of extrapulmonary tuberculosis, osteoarticular tuberculosis accounts for a prevalence of 10 to 35%.
Case report: A 35-year-old female patient, a passenger vehicle driver, presented to the Orthopedics appointment with complaints of knee pain, limited mobility and asymmetric swelling of the right knee with approximately 15 years of evolution. Inflammatory and degenerative changes were evident at the metaphyseal and intra-articular levels on a 2021 MRI scan, with a previously assumed diagnosis of villonodular synovitis. The patient denied constitutional symptoms (fever, night sweats, weight loss, fatigue, or anorexia) and respiratory symptoms (cough, sputum production, chest pain, or dyspnea) during this period. Due to functional and symptomatic worsening despite anti-inflammatory therapy and analgesia, total knee arthroplasty was proposed. From the analysis of intraoperative osteoarticular fragments stands out histopathological examination with synovial tissue and subsynovial fibrous connective tissue fragments showing lymphohistiocytic inflammatory infiltrate, associated with the formation of multiple granulomas. The cultural examination confirmed positivity for Mycobacterium tuberculosis complex. Consequently, the patient was referred to the Pulmonary Diagnostic Center (PDC) for further orientation. During evaluation at the PDC were detected positive direct mycobacteriological examination in sputum samples, positive Mycobacterium tuberculosis complex DNA detection, and chest CT scan with evidence of consolidations in both lung apices, associated with cavitation areas and multiple centrilobular micronodules with a "tree-in-bud pattern. Thus, the diagnosis of osteoarticular and cavitary pulmonary tuberculosis was established, and the patient started treatment with Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol. After 67 directly observed doses of the mentioned regimen and prior isolation sensitivity testing indicating susceptibility to all first-line anti-tubercular agents, the patient's treatment was switched to a maintenance regimen with isoniazid and rifampicin. Concurrently, physiatric treatment of the right knee was initiated. The patient completed a total of 12 months of treatment without complications, demonstrating clinical and radiological improvement during follow-up, and is currently under posttreatment surveillance at the PDC.
Discussion: This case highlights the diagnostic challenge posed by osteoarticular tuberculosis and the serious consequences of a delayed diagnosis, especially in a young patient. Given the diverse presentations of tuberculosis, maintaining a high degree of suspicion for rarer and atypical presentations is crucial, accompanied by an enlarged etiological investigation.

***Keywords**: Osteoarticular tuberculosis. Pulmonary tuberculosis.*

PE 076. A RARE CAUSE OF PERITONEAL IMPLANTS

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Introduction: The prevention, diagnosis and early treatment of tuberculosis are the key elements for the control of this pathology in the country and worldwide. However, the multiplicity of clinical manifestations can delay diagnosis.
Case report: A 38-year-old man, evacuated from Guinea-Bissau, was admitted to the emergency department. He denied known diseases and medication. He was a non-smoker. He reported a 3–4-week history of abdominal pain and diarrhoea with mucus but without blood. He denied constitutional symptoms. On physical examination, signs of malnutrition were evident, and abdominal examination revealed tenderness on deep palpation, mainly in the right hypochondrium and epigastrium, without signs of peritoneal irritation. Analytical evaluation revealed: anaemia Hb 9.8 g/dL, lymphopenia, elevated inflammatory markers, Creactive protein 1.77 mg/dL, hypokalaemia and hyponatremia; human immunodeficiency virus and hepatitis B and C virus were negative. A thoracoabdominopelvic CT scan was performed, which showed: tree-in-bud pattern in the upper lobe of the right lung; multiple supra and infradiaphragmatic adenopathies; colonic and small bowel distension, identifying multiple images of oval morphology within them. The patient was admitted for further investigation, and empirical antibiotic therapy with ceftriaxone was started after blood cultures and coprocultures. Due to intestinal occlusion, he underwent exploratory laparotomy, which revealed phytobezoar obstruction. During surgery, adenopathies and multiple peritoneal implants were observed and sent for study. Due to intestinal obstruction, he underwent an exploratory laparotomy, revealing obstruction caused by a phytobezoar. During surgery, peritoneal lymph nodes and multiple implants were observed and sent for further examination. Given the clinical presentation, the suspicion of disseminated Tuberculosis vs. Neoplasia (with peritoneal carcinomatosis) was raised. The bronchial secretions and the bronchoalveolar lavage, collected by bronchofibroscopy, revealed positive DNA research by PCR for Mycobacterium tuberculosis, without rifampicin resistance mutation. The anatomopathological results were negative for neoplasia, showing granulomatous disease in the peritoneal implants, with foci of central necrosis. A diagnosis of disseminated tuberculosis was made and therapy with isoniazid, rifampicin, pyrazinamide and ethambutol was initiated.
Discussion: The authors present this clinical case to remind that tuberculosis should be included in all differential diagnoses, since it can mimic other pathologies and have very diverse presentations depending on the organs affected. It is important to integrate demographic and epidemiological data along with the clinical presentation.

***Keywords**: Disseminated tuberculosis. Peritoneal implants.*

PE 077. DOES CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) IMPROVE THE EXERCISE CAPACITY OF ADULTS WITH EXPIRATORY CENTRAL AIRWAY COLLAPSE?

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Introduction: The spectrum of expiratory central airway collapse encompasses two distinct pathophysiologic entities: excessive (or expiratory) dynamic airway collapse of the posterior membrane (EDAC) and tracheobronchomalacia (TBM). A certain degree of invagination of the posterior membrane represents a physiologic process, but when this process is exaggerated the proposed term is EDAC. TBM is defined as excessive expiratory central airway collapse with luminal narrowing secondary to weakness or instability of the cartilaginous portion of the airway. This occurs secondary to either congenital disease involving connective tissue framework of the airway, or may be acquired, secondary to long standing mechanical, inflammatory airway injury or extrinsic compression.
Case report: The authors present the case of a 70-year-old man, former construction worker, nonsmoker, with diabetes mellitus, systemic hypertension, asthma, atrial fibrillation, heart failure and several respiratory infections in the past. Also diagnosed with severe obstructive sleep apnea 4 years ago, but non-compliant with adaptive positive airway pressure (APAP) therapy. He was admitted in the emergency department with productive cough and dyspnoea with several years of progression and worsening in the previous week. Chest X-ray was compatible with community acquired pneumonia and also demonstrated medium and lower lobes opacities suggestive of atelectasis. Those changes were confirmed by chest computed tomography (CT). Amoxicillin/clavulanate and clarithromycin were started and bronchofibroscopy (BFC) showed abundant

sputum that was aspirated with complete resolution of the atelectasis. During BFC it was also observed severe central airway expiratory dynamic collapse > 90% in trachea and main bronchi, compatible with combined TBM and EDAC, probably secondary to asthma and previous respiratory infections. Therefore, asthma treatment was optimized to high dose ICS/LABA and LAMA, APAP adherence was reinforced, and he was also prescribed mucolytic agent and airway clearance techniques exercises. Five months later the patient reported improvement of cough, but progressive worsening of dyspnea (mMRC1 to mMRC3). Treatment was discussed among colleagues: he was not candidate to endotracheal prothesis due to risk of aggravated secretions and diffuse airway and bronchial involvement and was not candidate to surgery due to comorbidities. A 6-minute walking test (6MWT) demonstrated a desaturation in the first five minutes of the test (SpO2 85%), with a Borg modified scale (BMS) of 5. A new 6MWT was performed using portable CPAP (12 cmH2O) throughout the test and no desaturation was observed (minimum SpO2 97%) and BMS 0. The patient was advised to use CPAP during exertion but is reluctant until this moment. Expiratory central airway collapse symptoms are nonspecific, often mislead to other chronic respiratory diseases, contributing to a delayed diagnosis. It is confirmed by dynamic chest CT imaging or bronchoscopic examination of the airways during respiration. Treatment is directed towards treating the etiology and keeping the airway patent, achieved by either CPAP, airway stenting or surgical measures.
Discussion: In this case report it was demonstrated that it is possible to control symptoms and exercise desaturation with CPAP. Although this brings logistic and quality of life questions and more studies are needed, this seems an appropriate therapy for those whose treatment options are currently extremely limited.

Keywords: *Central airways dynamic collapse. CPAP ventilation.*

PE 078. ENDOBRONCHIAL LESIONS AS A MANIFESTATION OF M. TUBERCULOSIS INFECTION – A CASE REPORT

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Introduction: Tuberculosis is one of the main causes of death by infectious disease in the world. The general symptoms associated with active disease make it difficult to quicky diagnose without a strong suspicion, delaying treatment. Patients with human immunodeficiency virus (HIV) are at a higher risk for active or latent disease because of the suppression and anergy of immunological response. This effect is reduced by early introduction of antiretroviral therapy (ART), even so, patients with HIV infection under ART are still at a higher risk of developing active disease when compared to the uninfected population.
Case report: A 55 year old female, with HIV infection with good compliance to ART, was admitted to the infectious disease department with dyspnea, asthenia, night sweats and involuntary loss of body weight (6 kg in 6 months). No improvement was seen after multiple rounds of empiric antibiotics. On chest radiograph, a micronodular pattern with bilateral distribution and a right parahilar consolidation with ipsilateral mediastinal shift could be seen. Computerized Tomography chest scan revealed micronodulation with apical-caudal distribution and a consolidation enveloping the right superior lobar bronchus and right middle lobar bronchus. On the blood work a slight elevation of cholestatic liver enzymes, lowering of total CD4+ count (376 cell/mm^3), undetectable viral load and negative Interferon- Release Assay (IGRA). The initial microbiological screening was negative. Because of the high suspicion of tuberculosis infection, videobronchoscopy was done and on endobronchial inspection several white, macular lesions with bilateral distribution but more numerous on the left bronchial tree could be seen. Biopsies (BB) of the lesions, bronchial alveolar lavage (BAL) done at the superior segment of the right lower lobar bronchus and bronchial aspirate (BA) was obtained. Invasive microbiological screening was negative, but histopathological analysis of BB and BA showed granulomas with epithelioid macrophages, Langhans giant cells and focal caseation necrosis. A diagnosis of active tuberculosis with high degree of certainty was made based on the presence of risk factors (ex: low CD4+ cell count; patient from a high incidence area – Angola -; husband with positive IGRA test) and suggestive symptoms, imagiological and histopathological findings. Treatment was initiated with 2HRZE/4HR protocol and supplementation with pyridoxine. A new videobronchoscopy was performed 4 weeks after start of treatment and total regression on the lesions previously described was seen.
Discussion: The diagnosis of *Mycobacterium tuberculosis* infection is usually done through direct microscopic observation of acid-alcoholfast-bacilli (AAFB) and/or a positive result on rapid molecular assays. Definitive diagnosis is made through positive growth on cultures. On the absence of positive tests in the setting of high clinical suspicion for TB, unsuccessful attempts to obtain adequate expectorated or induced sputum samples or urgent diagnostic information is needed, obtaining bronchoscopy specimens through bronchial/transbronchial biopsies, BAL and or BA should be considered. On this specific case, the presence of suggestive symptoms, imagiological and histopathological findings from BB and BA, even in the absence of positive microbiological screening, allowed the diagnosis of tuberculosis to be made and after starting treatment, total resolution of lesions initially found was observed.

Keywords: *Tuberculosis. Human immunodeficiency virus. Bronchoscopy procedures.*

PE 079. ANTIBACILLARY TOXICITY – THE RISK BENEFIT OF THERAPY

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Introduction: Although treatment with antibacillars is generally well tolerated, patients may experience antibacillar-related toxicity, some of these adverse effects having irreversible potential.
Case report: We present the clinical case of a 27-year-old man from Guinea-Bissau. He had a history of pulmonary tuberculosis in 2014, chronic kidney disease (CKD) stage 5, in hemodialysis, systemic lupus erythematosus and lupus nephritis, as well as chronic hepatitis B virus (HBV) infection. He had completed 6 months of treatment with antibacillars, which was not confirmed. He was polymedicated due to multiple comorbidities and immunosuppressed. He was referred to the Emergency Department of the Nephrology consultation for a 4-week history of dry cough predominantly in the afternoon, night sweats, anorexia and weight loss of 5 kg in 3 months. After exhaustive study in a patient with radiological changes in chest CT suggestive of active tuberculosis despite negative serial sputum smears, the diagnosis was confirmed by PCR for *Mycobacterium tuberculosis* and cultural examination in bronchoalveolar lavage. First-line antibacillary therapy with HRZE (isoniazid, rifampicin, pyrazinamide, ethambutol) was started, and HRZ was discontinued after 9 days due to liver toxicity. Ethambutol was maintained and amikacin was started, adjusted to renal function, and isoniazid was restarted in a phased manner with good tolerance. There was a new onset of hepatotoxicity with the introduction of rifampicin, which was discontinued after 3 days. After normalization of liver function, progressive introduction of pyrazinamide was performed without reappearance of toxicity, so amikacin was suspended after 11 days. He was discharged with HZE + levofloxacin and supplementation with pyridoxine 40 mg id with the aim of completing

12 months of treatment in an immunosuppressed patient. Due to complaints of decreased visual acuity, 2 months later he was observed by Ophthalmology, and ethambutol-related toxicity was assumed and the therapy was suspended. Therapy with HZ + levofloxacin and pyridoxine was maintained, with improvement of symptoms, despite some persistent alterations, as well as follow-up in ophthalmology and neurology consultations. Treatment was concluded with clinical and radiological improvement, with no other adverse effects afterwards.
Discussion: The complexity of this case shows that the pharmacological toxicity of antibacillars remains a challenge, especially in patients with multiple comorbidities where the risk of toxicity and drug interactions increases exponentially. Unlike hepatotoxicity which can be easily ruled out, ocular toxicity requires greater awareness in early detection of symptoms and in some cases specialty follow-up. Early diagnosis prevents the development of irreversible damage.

***Keywords**: Toxicity. Antibacillars. Decreased visual acuity.*

PE 080. UNG VOLUME VARIATION MONITORING BY ELECTRICAL IMPEDANCE IN NEUROMUSCULAR PATIENTS WITH SEVERE VENTILATORY DYSFUNCTION: A NEW TOOL FOR THERAPEUTIC OPTIMIZATION

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Introduction: Neuromuscular diseases (NMD) are characterized by global weakness of the respiratory muscles which is the main cause of the development of respiratory failure. These patients present with significant and progressive ventilatory dysfunction and are unable to cough effectively to expel airway secretions, requiring specific treatment strategies. For a better clinical assessment of the effectiveness of these strategies, new and updated monitoring tools are needed.
Objectives: This study has a proof-of-concept design and aims to evaluate the efficacy of monitoring tidal volume (VT), respiratory rate (RR) and minute ventilation (MV) with an electrical impedance device during daytime ventilatory support, air-stacking (AS) maneuver and mechanically assisted cough (MAC) in a group of neuromuscular patients with severe ventilatory dysfunction.
Results: We studied 5 patients with NMD (Congenital Myopathy, 2 with Amyotrophic Lateral Sclerosis and 2 with Duchenne Muscular Dystrophy). With the electrical bioimpedance device, we observed a trend of increase in mean VT in mouthpiece ventilation when compared to spontaneous breathing (580 68 versus 316.194 ml), as well as a trend to the same increase during AS maneuver (723 ± 285 ml) and MAC (674 ± 95 ml). We observed the same trend regarding mean MV, where higher values were recorded in mouthpiece ventilatory support when compared to spontaneous ventilation (9 ± 1.9 versus 6.5 ± 4.7 L/min), with no differences in the comparison of these values during the AS maneuver (8.6 ± 1.7 L/min) and MAC (mean 8.2 ± 1.6 L/min). Regarding respiratory rate, we did not observe significant differences, but a tendency to increase only in spontaneous breathing (17 ± 10 bpm) compared to mouthpiece ventilation (15 ± 2.6 bpm), AS (14 ± 3.3 bpm), and MAC (14 ± 3.6 bpm).
Conclusions: It is possible to measure real-time variations of VT, FR and MV with electrical impedance device during spontaneous breathing, during daytime mouthpiece ventilatory support, AS maneuver and MAC. The present study is a proof of concept and may open new research perspectives in this area for better titration of therapeutic parameters.

***Keywords:** Neuromuscular diseases. Lung volume. Respiratory failure. Cough. Ventilatory support.*

PE 081. FROM EXPOSURE TO INFECTION – REGARDING A CLINICAL CASE

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Introduction: Hypersensitivity pneumonitis (HP) is an immune-mediated inflammatory disease of the lung parenchyma. It can be phenotypically classified into fibrotic or non-fibrotic. The differential diagnosis is challenging and must include: complete exposition history, multidisciplinary discussion and sometimes, evaluation of lymphocytosis on bronchoalveolar lavage and histopathological findings.
Case report: A 73 years-old patient, male, former worker of wool textile industry and cheese manufactory. Referred to pneumology consultation, due to 1 month duration complains of cough, initially dry but now with mucous sputum and mild to moderate efforts fatigue (mMRC 2), worst after SARS-CoV-2 infection. The X-ray showed a reticular pattern on the upper half of the right lung and also on the superior one third of the left lung. He was treated with antibiotic and short corticotherapy cycle. The follow-up, 1 month later, showed clinical and radiological worsening. A thorax CT-scan was performed demonstrating a reticular pattern and ground glass opacities mainly on both superior lobes, some with honeycomb pattern and diminished lung parenchyma density. In view of these findings, the hypothesis of diffuse interstitial pneumonitis versus Post-Covid Organizing Pneumonia was equated, which is why a corticosteroid regimen was initiated. Although there was clinical improvement, 8 months later, the patient presented clinical worsening associated to deflazacort dose reduction leading to his hospital admission. In addition to repeating a chest CT scan, with images compatible with the findings described above, videobronchofibroscopy was performed, which revealed scattered inflammatory signs, friable mucosa and thick white secretions. Bronchoalveolar lavage was performed, a microbiological study and analysis of lymphocyte populations were requested, the results of which showed: 10% lymphocytes and 72% neutrophils (under corticotherapy). The following infectious agents were also identified: *Haemophilus Influenzae; Rhinovirus/Enterovírus; Parainfluenza* e *Pneumocystis jirovecii* (PJ). It should also be noted that, although the anamnesis did not determine exposure to birds, the lab results showed an increase in avian precipitins I (23.2 mg/L). In this context, the following diagnostic hypotheses were considered: Acute exacerbation of Hypersensitivity Pneumonitis versus *Pneumocystis jirovecci* Pneumonia. In terms of therapeutic approach, he started targeted antibiotic therapy with cotrimoxazole and systemic corticosteroid therapy with methylprednisolone in a regressive scheme, with evident clinical and radiological improvement.
Discussion: With this case we intend to demonstrate the challenge underlying the differential diagnosis between an acute exacerbation of hypersensitivity pneumonitis versus an infectious complication. It should be noted that, in addition to systemic corticosteroid therapy having immunosuppression as a potential adverse effect, it is, like interstitial lung diseases, a risk factor for PJ infections.

***Keywords:** Diffuse interstitial pneumonitis. Hypersensitivity pneumonitis. Organizing pneumonia.*

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CORRIGENDA TO ORAL COMMUNICATIONS, 39º CONGRESSO DE PNEUMOLOGIA 2023

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As seguintes comunicações:
The following communications:

ORAL COMMUNICATIONS

CO 004. Severe Toxicity to First-Line Anti-Bacillary Drugs – Experience in the Sintra Region
CO 021. Effect of preoperative home-based exercise training on quality of life after lung cancer surgery: a randomised controlled trial
CO 022. Concordance between anatomic staging and pathological staging in lung cancer
CO 023. Robotic-assisted thoracic surgery (rats) for lung cancer: a single center experience
CO 024. Lorlatinib in Pulido Valente Hospital: our experience

Comunicações não foram incluídos no momento da publicação e por isso não seguem a paginação.
Communications were not included at the time of publication and for that reason, they do not follow the pagination.

CO 004. SEVERE TOXICITY TO FIRST-LINE ANTI-BACILLARY DRUGS – EXPERIENCE IN THE SINTRA REGION

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Serviço de Pneumologia, Hospital Professor Doutor Fernando da Fonseca.

Introduction: Tuberculosis is a prevalent infection worldwide, whose treatment is crucial to reduce mortality and contagion. However, adverse reactions (AR) secondary to first-line anti-tuberculosis drugs are common and can be severe, leading to its suspension, which affects the effectiveness of the therapy and the course of tuberculosis.
Methods: Retrospective study of patients followed in the first 6 months (January-June 2023), after the opening of the Center for Pneumological Diagnosis (CPD) in Sintra, with severe AR secondary to first-line anti-tuberculosis drugs, in active and latent tuberculosis that required discontinuation of treatment.

Results: From 301 patients followed for tuberculosis (152 active and 149 latent) were identified in the first 6 months of 2023 at the Sintra CPD, with 7% (n = 20) presenting severe AR to first-line anti-tuberculosis drugs that led to their suspension. The majority were female (75%, n = 15), on average they were 53 years old, 35% (n = 7) were from a tuberculosis endemic country, and 15% (n = 3) had human immunodeficiency virus. In 70% (n = 14) of the cases they corresponded to latent tuberculosis (10 by contact with an index case, 2 by screening in the context of biological therapy and 2 by occupational health screening of health professionals). The remaining 30% (n = 6) had active tuberculosis: pulmonary (n = 3, 2 of them with cavitations), disseminated (n = 2) and ocular (n = 1). As for the cases of latent tuberculosis, treatment with isoniazid was discontinued in 100% of the cases, on average after 2.2 months of treatment: 12 due to hepatotoxicity (transaminases above 5 times the upper limit of normality), 1 due to musculoskeletal toxicity and 1 for skin toxicity (rash and angioedema of the lips). It is noteworthy that 42% of the

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patients who developed hepatotoxicity had risk factors: other hepatotoxic drugs (n = 2), alcoholic habits (n = 2), and infection with the hepatitis C virus (n = 1). Patients restarted rifampicin therapy a median 1.2 months later, uneventfully. Patients with active tuberculosis discontinued therapy, on average 2.8 months after initiation, in 50% of cases during the maintenance phase. Discontinuation occurred due to hepatotoxicity (n = 3, 1 case due to transaminases above 3 times the upper limit of normality and gastrointestinal symptoms), hematological toxicity (hemolytic anemia) and due to skin toxicity due to intense pruritus (n = 1) and hypersensitivity reaction after the first dose (n = 1), the latter requiring desensitization with hospitalization. Therapy was restarted after an average of 1.5 months, with good tolerance. It should be noted that hepatotoxicity to isoniazid (n = 2) and rifampicin (n = 1), hematological toxicity to isoniazid (n = 1), and skin toxicity to pyrazinamide (n = 1) were identified.
Conclusions: There was an important discontinuation rate of first--line anti-tuberculosis medications in a short period, most of which occurred after 2 months of treatment. Hepatotoxicity was the main cause of discontinuation of first-line anti-tuberculosis drugs, with isoniazid being the drug most frequently associated with complications. The delay found in the treatment of active and latent tuberculosis may constitute a public health risk.

Keywords: *Anti-tuberculosis drugs, Severe adverse reactions. Tuberculosis.*

CO 021. EFFECT OF PREOPERATIVE HOME-BASED EXERCISE TRAINING ON QUALITY OF LIFE AFTER LUNG CANCER SURGERY: A RANDOMISED CONTROLLED TRIAL

Pedro Machado, Sara Pimenta, Ana Luís Garcia, Tiago Nogueira, Sónia Silva, Claúdia Lares Dos Santos, Maria Vitória Martins, André Canha, Bárbara Oliveiros, Raul A. Martins, Joana Cruz

Center for Innovative Care and Health Technology (ciTechCare), School of Health Sciences of the Polytechnic of Leiria (ESSLei), Leiria, Portugal; University of Coimbra, Research Unit for Sport and Physical Activity (CIDAF, UID/PTD/04213/2019), Faculty of Sport Sciences and Physical Education, Coimbra, Portugal; Physioclem, Physical therapy clinics, Alcobaça, Portugal.

Introduction: Preoperative exercise training is strongly recommended to improve clinical outcomes after lung cancer surgery. However, its effectiveness to prevent the decline in postoperative quality of life (QoL) is unknown. This study aimed to investigate whether preoperative home-based exercise training (PHET) prevents the decline in QoL after lung cancer surgery.
Methods: A multicentre, randomised controlled trial was conducted at 4 hospitals in Portugal. Patients awaiting lung cancer surgery (clinical stage I-IIIA), were randomly assigned to PHET or control group (CG). The PHET combined aerobic and resistance training, with weekly telephone supervision. Primary outcome was global QoL assessed with the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire C-30 (EORTC QLQ C-30). Secondary outcomes were EORTC QLQ C-30 functioning and symptom subscales. Outcome assessments were conducted at three timepoints: baseline (i.e., before randomization) (T0), 1-5 days pre-surgery (T1) and 1-month post-surgery (T2). A factorial repeated measures analysis of variance (ANOVA) was conducted to compare groups over time. The proportion of patients with clinical deterioration after surgery was analysed based on the minimal importance difference and Chi-squared test.
Results: 38 patients (67.6 ± 9.2 years old, 65.8% male) were included (PHET n = 19, CG n = 19). The mean duration of the PHET was 3.6 ± 1.1 weeks. A significant group X time interaction was found on global QoL (p = 0.003). Significantly and clinically relevant differences between groups were observed on global QoL at pre-surgery (mean difference (MD) 13.1 points; 95%CI, 2.3–23.8; p = 0.019) and post-surgery (MD 13.6 points; 95%CI 1.8–25.5; p = 0.025), favoring the PHET. After surgery, the proportion of patients who reported a clinical deterioration was significantly lower in the PHET group compared with the CG on global QoL (PHET: 26.3% vs CG: n = 78.9%; p = 0.001), physical function (PHET: 21.1% vs CG: 73.7%; p = 0.003), role function (PHET: 10.5% vs CG: 52.6%; p = 0.005), social function (PHET: 15.8% vs CG: 52.6%; p = 0.017), pain (PHET: 26.3% vs CG: 63.2%; p = 0.022) and appetite loss (PHET: 5.3% vs CG: 36.3%; p = 0.017).
Conclusions: The integration of a home-based exercise training program in the preoperative care of lung cancer patients may improve symptom management and prevent the detrimental impact of surgery on QoL.

Keywords: *Lung cancer. Surgery. Exercise training. Quality of life.*

CO 022. CONCORDANCE BETWEEN ANATOMIC STAGING AND PATHOLOGICAL STAGING IN LUNG CANCER

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Introduction: Clinical staging (cTNM) is crucial in determining the therapeutic approach; however, it has limitations determined by the sensitivity of diagnostic tests. Pathological staging (pTNM) provides more accurate decisions regarding subsequent therapy and prognosis. An inaccurate staging can determine less appropriate therapeutic decisions with a loss of benefit for the patient.
Objectives: The aim of this study is to evaluate the concordance between cTNM and pTNM in patients undergoing surgery with curative intent for lung cancer.
Methods: Retrospective study that includes patients diagnosed with primary lung cancer and proposed for surgery with curative intent between January 2017 and December 2022. Data were collected through the review of clinical records, including multidisciplinary consultation meetings, complementary diagnostic tests, and anatomopathological reports. For patients who underwent neoadjuvant therapy, clinical restaging was considered after completing neoadjuvant treatment. The staging established in the 8th Edition of The TNM Classification for Lung Cancer was applied. The concordance between cTNM and pTNM was evaluated using the Cohen's Kappa Index.
Results: A total of 187 patients were included, with 108 (57.8%) being male and a median age of 68.0 [43-87] years. Histologically, 141 (75.4%) were adenocarcinomas, 31 (16.6%) were squamous cell carcinomas, and 15 (8.0%) were neuroendocrine tumors. cTNM staging was performed based on chest computed tomography (CT), positron emission tomography (PET/TC), and cranial imaging. Among them, 73 (39.0%) underwent Endobronchial Ultrasound (EBUS/EUSb). Regarding cTNM, 69.5% (n = 130) of cases were classified as stage I, 21.4% (n = 40) were stage II, and 9.1% (n = 17) were stage IIIA. Within the study sample, 144 (77.0%) patients underwent lobectomies, 30 (16.0%) had sublobar resections, 8 (4.3%) had bilobectomies, and 3 (1.6%) had pneumonectomies, all with associated lymphadenectomy. In 2 cases, surgery with curative intent was converted intraoperatively to exploratory thoracotomy due to the presence of pleural and/or pericardial implants (pTNM – stage IVA). The concordance between cT and pT is 69.2% (Kappa = 0.48), while the concordance between cN and pN is 81.1% (Kappa = 0.36). The overall concordance between cTNM and pTNM is 69.0% (Kappa = 0.43), with 11 (5.9%) cases being overstaged and 47 (25.1%) cases being understaged. Among the subgroup of patients who were understaged, 10 (5.3%) had pTNM of stage IIIB or IVA.

Conclusions: The concordance between cTNM and pTNM in the present sample is considerable, chowing values similar to those reported in the literature. However, a more accurate clinical staging could have led to different treatment decisions in 5.3% of the cases. This indicates that there is a need to improve the precision of clinical staging in these patients.

Keywords: *TNM staging. Lung cancer.*

CO 023. ROBOTIC-ASSISTED THORACIC SURGERY (RATS) FOR LUNG CANCER: A SINGLE CENTER EXPERIENCE

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Introduction: Robotic-Assisted Thoracic Surgery (RATS) has gained a foremost role in lung cancer surgical treatment. At present, when minimally invasive surgery is the accepted gold standard, this system is presented as an extension of the surgeon's hands to improve the precision of surgical procedures. The surgical gesture is translated by the robot, ensuring, after having overcome the respective learning curve, greater range of motion and tremor filtration, better technical accuracy during surgical dissection and suturing and high-quality 3D visualization. The primary endpoint of this study is to report our experience in the treatment of lung tumors through RATS surgical approach.
Methods: We retrospectively analyzed all patients with suspected malignant disease who underwent robotic-assisted thoracic surgery in our institution since the introduction of the surgical program in March of 2022 until June of 2023. To this day, a total of 49 RATS procedures were performed in our center.
Results: 16 patients were eligible, with female predominance (75%) and a mean age of 56,1 (± 17,8) years. Following complete oncologic evaluation, all tumors were classified preoperatively as stage I, according to 8th TNM classification, of which 81% were stage IA and the remaining were stage IB. Pulmonary function tests confirmed an overall normal respiratory capacity with mean values of FEV1 of 101% (± 45,9) and DLCO of 85% (± 41,6). Thus, patients were referred directly to surgery without requiring neoadjuvant treatment. RATS requires three ports for the robotic articulated arms and one port for the surgeon. 9 patients (56%) underwent lobectomy whereas 8 (44%) had segmentectomy. In 63% of patients, surgery was performed on the right lung. The procedures took a mean time duration of 188 (± 39,4) minutes and a median intraoperative blood loss of 50 mL (20-100 mL). The conversion rate to open surgery was 6% since one case required pulmonary artery plasty due to tumoral invasion. All patients had one pleural thoracic drain placed after the procedure. The mean drainage time was 2,0 (± 1,3) days and mean hospital stay was 2,2 (± 1,9) days. Pain control was achieved with oral medication after the first postoperative day. No evidence of mortality or major surgical complications were accounted. A complete surgical resection (R0) was achieved in 94% of cases. Pathology examination revealed 13 cases (81%) of non-small cell lung carcinomas and 1 case of breast cancer metastasis. In 2 patients, no malignant disease was found after careful assessment. As such, final oncologic staging detailed 8 tumors in stage IA, 1 tumor in stage IB, 3 in stage IIB e 1 tumor in stage IIIA (pT1aN2R0). Upstaging was registered in 3 patients (18,8%).
Conclusions: The launch of the RATS program in our center marked the start of its availability in the public health system and, after more than a year past, it showcases encouraging results. Our study reveals short drainage and hospitalization times, low blood loss, easy pain management and low morbidity, in accordance with literature. RATS is established as a safe and viable approach for lung procedures, demonstrating equivalent surgical time-efficacy when compared to VATS.

Keywords: *Lung cancer. Robotic-Assisted Thoracic Surgery. Minimally invasive surgery. Operative outcomes.*

CO 024. LORLATINIB IN PULIDO VALENTE HOSPITAL: OUR EXPERIENCE

Rúdi Fernandes, Andrea Machado, Filipa Ferro, Ana Sofia Vilariça, Direndra Hasmucrai, Paula Alves

Hospital Prof. Doutor Fernando Fonseca.

Introduction: Lorlatitnib is a selective third-generation tyrosine kinase inhibitor (TKI) of anaplastic lymphoma kinase (ALK) and c-ros oncogene 1 (ROS1) with good CNS penetration and activity against most known ALK-resistance mutations.
Objectives: Evaluate the efficacy and safety of Lorlatinib in the treatment of patients with advanced non-small cell lung cancer (NSCLC), ALK or ROS1 mutated, followed at the center.
Methods: A retrospective analysis of clinical records of patients that were submitted to treatment with Lorlatinib was performed. This study evaluated the epidemiological characteristics of population and assessed the response and tolerance of the treatment according to the targe mutation, using the JAMOVI statistical software (V2.4.1).
Results: Eleven patients with advanced NSCLC, all adenocarcinomas, 8 with ALK rearrangement (73%) and 3 with ROS1 rearrangement (27%) were included. At baseline, they presented a mean age of 54.8 ± 15.3 years and an ECOG performance status (PS) between 0-2. Most patients were female (n = 7, 64%) and only 3 reported significant previous smoking habits (27%, CT > 15 UMA). All patients were previously submitted to at least one treatment with another TKI. Among the "ALK-positive" patients: 3 were previously treated with Alectinib alone (37%); and 5 with at least two TKIs (63%). The overall objective response rate (ORR) was 38%, with no significant difference between the 2 groups (p > 0.05 in the Fisher's exact test). An intracranial response (OIRR) was obtained in 60% of patients with brain metastases at baseline. Median progression-free survival (PFS) was 4.7 months (95%CI, 2.8-NA months). Most cases developed systemic progression (71%, 5 out of 7 cases). Median overall survival (OS) was 8.7 months (95%CI, 4.8-NA months), with a calculated 1-year survival rate (SR) of 43% (3 of 7 cases). All "ROS1 positive" patients previously underwent Critozinib with or without chemotherapy and/or immunotherapy. In this group, the ORR to Lorlatinib was 33%, and it was not possible to calculate the OIRR due to the absence of brain metastases. PFS of disease was 19.1 months (95%CI, 13.6-NA months). The OS of this group was 19.1 months (95%CI, 13.6-NA months) and the 1-year SR was 100% (2 out of 2 cases). There was at least one treatment-related adverse reaction in 91% of patients (n = 10), most of which were mild to moderate (70% NCI CTCAE Grade 1-2). The most common serious adverse reactions (Grade 3-4) were due to changes in lipids metabolism (n = 5, 46%) and psychiatric disorders (n = 3, 27%), leading to discontinuation of treatment in one case (4%) and its interruption in two others (9%).
Conclusions: The results of our analysis are based on a small number of patients as a limitation in their extrapolation but overlapped with the studies that led to the approval of Lorlatinib in ALK-positive patients. In ROS1-positive patients who progress after Crizotinib the therapeutic options are limited, however Lorlatinib may represent a viable option. More prospective and multicentric studies are desirable to confirm these data and to optimize future therapeutic lines.

Keywords: *Lorlatinib. Lung cancer. ALK And ROS1.*

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As seguintes comunicações:
The following communications:

EXPOSED POSTERS

PE 007. Met complex alterations and met exon 14 skipping and eml4-alk fusion in adenocarcinoma and metastasis - Two cases report
PE 008. Exploring pulmonary cavitation - A clinical case
PE 009. Do nódulo hepático ao adenocarcinoma do pulmão
PE 010. Time to catch a deep breath - A case report of a complex tracheal stenosis
PE 011. A rare encounter: giant solitary fibrous tumor of the pleura - Case report
PE 012. Giant emphysematous bulla - A success case
PE 013. Pleural plaques - Why we can forget asbestos
PE 014. Hazards of the home environment
PE 015. Diffuse alveolar hemorrhage
PE 016. Acute pulmonary thromboembolism as the first manifestation of primary antiphospholipid syndrome (APS)
PE 017. Diffuse alveolar hemorrhage a rare complication of cannabinoid abuse
PE 018. Hyperventilation syndrome - An extrapulmonary cause of hypocapnia
PE 019. Severity classification of restrictive ventilatory changes by FEV1 versus TLC Z-score
PE 020. When inhalation takes your breath away
PE 021. A paradoxical case of bronchodilator therapy
PE 022. A rare case of lung abscess by Serratia marcescens
PE 023. Lung abscess in a young patient: the importance of a multidisciplinary approach
PE 024. A lung at the knife's edge - An unusual agent and manifestation of pneumonia
PE 025. The many faces of air-fluid levels - Diagnostic challenge of infected lung cavities
PE 026. Repeat respiratory infections: diagnostic march in an immunocompetent patient and a rare agent
PE 027. Legionnaires using CPAP - An unlikely combination?
PE 028. Mediastinal mass - Unlikely diagnosis obtained by EBUS-TBNA
PE 029. Pulmonary actinomycosis and the diagnostic challenge
PE 030. Necrotizing pneumonia due to Streptococcus constellatus: regarding an unusual clinical case

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PE 031. Necrotizing pneumonia in the young adult – A case report

PE 032. Coronavirus, a clarifier or confounding element?

PE 033. Drug hypersensitivity syndrome in a patient with lung abscess secondary to Streptococcus pneumoniae

PE 034. A case of giant cell arteritis complicated with methotrexate-induced pneumonitis and Pneumocystis jirovecii pneumonia

PE 035. Fungal pneumonia of rare etiology

Comunicações não foram incluídos no momento da publicação e por isso não seguem a paginação.

Communications were not included at the time of publication and for that reason, they do not follow the pagination.

PE 007. MET COMPLEX ALTERATIONS AND MET EXON 14 SKIPPING AND EML4-ALK FUSION IN ADENOCARCINOMA AND METASTASIS – TWO CASES REPORT

Ana Filipa Ladeirinha, Ana Alarcão, Maria Reis Silva, Teresa Ferreira, Catarina Eliseu, Maria Viseu, Vânia Almeida, Guilherme Fontinha, Daniela Madama, Fernando Barata, Vítor Sousa

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Introduction and objectives: MET mutations and/or amplifications are primary oncogenic drivers, in pulmonary carcinomas concerning mechanisms linked to anti-EGFR/ALK therapies resistance. Among MET mutations METex14 skipping is one the most frequent. Broad ranges of molecular alterations lead to METex14 skipping and concomitant growth factor mutations are possible.
Methods: Woman – solid adenocarcinoma. Mutation analysis – NGS (Genexus, Oncomine Precision Assay Panel, Thermo Fisher Plataform). Macrodissection performed and nucleic acid extraction carried out with the MagMAX FFPE DNA/RNA Ultra Kit. For MET gene the Oncomine Precision Assay Panel search: DNA Hotspots (SNVs/Indels), CNVs (polysomy/amplification), intergenetic and intragenetic fusions. Woman – right intracranial temporal brain pulmonary adenocarcinoma metastasis. Mutational study by next-generationsequencing (Genexus, Oncomine Precision Assay Panel, Thermo Fisher Plataform). Manual macrodissection performed and nucleic acid extraction carried out with MagMAX FFPE DNA/RNA Ultra Kit.
Results: MET-MET.M13M15.1 variant – corresponds to MET exon 14 skipping. Two other mutations: c.3082+1G>A;p.? (47,5%) and c.3082+1_3082+2insA;p.? (25,8%), formed protein still unknown. MET gene amplification (copy number: 4.45) was also identified. MET-MET.M13M15.1 variant – corresponds to MET exon 14 skipping. ALK gene fusion with partner being the gene EML4 (EML4-ALK. E13A20) and ALK expression imbalance. RET gene: nonsense mutation c.2689C>T;p.(Arg897*) identified.
Conclusions: Patient started systemic chemotherapy in February with Carboplatin and Pemetrexed, and since March with Pemetrexed. MET exon 14 skipping mutation is associated with response with MET TKIs. Classification in high-level MET amplification is evolving and may differ according to the assay used for testing. According to the same Guidelines, for results obtained by NGS; a copy number greater than 10 is consistent with the classification of high-level MET amplification. Patient started Brigatinib therapy for ALK rearrangement in October 2022. No other therapy was registered prior to the study. The patient is clinically well with a good Performance Status (PS = 0). MET exon 14 skipping is associated with response with MET TKIs. ALK gene fusion associates with response to ALK tyrosine kinase inhibitor therapy. There is no literature reference to ALK expression imbalance. The mutation c.2689C>T;p.(Arg897*) in RET gene lacks relevant evidence in public data sources included in relevant therapies protocols: EMA/ESMO/NCCN. The emergence of complex cases is becoming frequent, due to actual advanced and informative technologies. Multidisciplinary therapeutic decision meetings are informative for tumoral mutations discussing and interpretation in patients therapy to follow higher drugs/clinical trials in progress as well as prognosis precision.

Keywords: *MET Exon 14 Skipping. EML4-ALK Fusion. Met Gene Amplification. NGS.*

PE 008. EXPLORING PULMONARY CAVITATION – A CLINICAL CASE

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Introduction: Lung cavitations (LC) are gas-filled spaces within a consolidation, mass, or lung nodule, whose wall thickness may vary. Their differential diagnosis is extensive, including infections, systemic diseases (such as vasculitis), and cancer. We present a case of LC that required an extensive study and proved to be a real challenge in the etiological diagnosis.
Case report: A 64-year-old woman, former smoker since 2018 (30 pack-years), working in a typography. She has a history of degenerative changes in the spinal column and left breast cancer treated with mastectomy and adjuvant radiotherapy in 2010. No other significant exposures, denies any contact or personal history of tuberculosis. She has been followed up in the Pulmonology clinic since 2017 for Asthma-COPD overlap, with functional respiratory testing revealing moderate bronchial obstruction, hyperinflation, and positive bronchodilation test. A chest CT in 2017 showed chronic thickening of the bronchial airways. In 2022, due to worsening dyspnea, she repeated a chest CT in June, which described a new lesion in the right upper lobe that had mixed density with a subsolid border and an interior cavitary, measuring 2 cm in its greatest axis. Analytically, there was no leukocytosis, neutrophilia, or eosinophilia, negative CRP, total IgE within normal values, negative IgE and IgG for *Aspergillus* spp, and negative autoimmune study. Sputum cultures were negative for microbiology. She underwent bronchoscopy, which showed no endobronchial abnormalities. Bacteriological, mycobacteriological, mycological, DNA of *Mycobacterium tuberculosis*, Galactomannan antigen, and cytological examination of bronchoalveolar lavage were all negative. A follow up CT scan of December still showed the LC. A PET-CT in March 2023 revealed no abnormalities. The case was discussed in a multidisciplinary oncology meeting, where it was suggested that, due to worsening osteophytosis of the cervical vertebrae, the LC might be related to lung parenchymal traction changes.
Discussion: Despite risk factors for cancer (former smoker, history of previous neoplasia), and this being the most likely diagnostic hypothesis, the presence of degenerative bone changes in the spinal

column can explain the appearance of the LC. This case highlights the importance of conducting an extensive investigation to rule out other potential causes of LC.

Keywords: *Pulmonary cavitation.*

PE 009. DO NÓDULO HEPÁTICO AO ADENOCARCINOMA DO PULMÃO

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Caso clínico: Doente de 74 anos, sexo feminino, antecedentes de dislipidemia medicada com estatina de baixa potência, não fumadora, reformada da Agricultura, foi encaminhada ao Serviço de Urgência por quadro de náuseas, anorexia, astenia e desconforto abdominal com 2 semanas de evolução. Associadamente, referia perda ponderal de 2 Kg em 1 mês, bem como, queixas de tonturas com igual tempo de evolução. Apresentou ainda 1 pico febril, vespertino, de 38.9 ºC que cedeu após toma única de paracetamol. Analiticamente, anemia normocítica, normocrómica estabilizada em Hb 12,7 g/dL. Realizou ecografia abdominal que revelou sinais de heptopatia crónica incipiente, provável hemangioma hepático com 13 × 13 mm no segmento VIII e derrame pleural esquerdo de pequeno volume. Neste sentido, realizou TC-Torácico que revelou pequeno derrame pleural à esquerda, aparentemente septado com espessura máxima de 1,5 cm, a que se associa consolidação parcial com um foco de atelectasia do lobo inferior esquerdo, de aspecto inespecífico. Observavam-se múltiplos micronódulos dispersos em todos os pulmões de etiologia indeterminada. Registavam-se ainda alguns pequenos gânglios linfáticos mediastínicos, inespecíficos. Nas imagens em que se abrangeu parcialmente o abdômen superior identificam-se múltiplos nódulos hipodensos hepáticos, que no contexto sugerem a possibilidade de lesões secundárias. Verificou-se ainda um trombo determinando marcada redução da permeabilidade de ramo da artéria lobar inferior direita (TEP). Completou estudo com TC-Abdomino Pélvico valorizando a presença de nódulos hepáticos (o maior dd de 1.8 cm) e esplénicos (o maior de 0,8 cm), sem outras alterações valorizáveis. Realizou ainda TC-Crânio e RM-Cerebral, sem alterações. Neste sentido, e com intenção de presseguir estudo, realizou biópsia a nódulo hepático de 1,8 cm cujo resultado histológico revelou metastização hepática de adenocarcinoma primário de pulmão, padrão tubulo-glandular com estroma desmoplásico. Perante isto, foi realizada broncofibroscopia cujo resultado foi inconclusivo, negativa para exame micobacteriológico. Realizou ainda PET-TC que concluiu foco hipermetabólico no lobo inferior esquerdo (e lobo inferior direito) suspeito de envolvimento neoplásico maligno de alto grau metabólico, com metastização ganglionar laterocervical inferior e mediastino-hilar bilateral, hepática múltipla e óssea. Focos hipermetabólicos no lobo esquerdo da tiroide e no colon ascendente. Assim, completou estudo com endoscopia digestiva alta e baixa, com adenoma viloso de displasia de alto grau e fez ainda estudo NGS com fusão do ALK, variante 3a/b. Neste sentido, orientada para consulta de Oncologia onde iniciou tratamento de primeira linha com Alectinib 600 mg 12-12h.

Discussão: O interesse do presente caso clínico assenta na compreensão de que, nem sempre a clínica dos nossos doentes é linear e é este o desafio da Medicina prática. Nem sempre os sintomas são os típicos, e por isso, a aplicabilidade do "nem sempre nem nunca" na nossa prática clínica. Assim, devemos optar por uma visão holística no sentido de irmos ao encontro do diagnóstico para podermos instituir terapêutica atempada e conseguir aumentar a esperança de vida aos nossos doentes.

Keywords: *Nódulo hepático. Adenocarcinoma pulmão.*

PE 010. TIME TO CATCH A DEEP BREATH – A CASE REPORT OF A COMPLEX TRACHEAL STENOSIS

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Introduction: Tracheal stenosis can derive as a complication of potential life-saving procedures such as endotracheal intubation and tracheostomy in patients with severe respiratory failure. This condition results from mucosa and cartilage damage and an exacerbated inflammatory reaction that leads to granulation tissue formation and fibrosis, with consequent circumferential stenosis. The incidence rate of post-intubation laryngotracheal stenosis reaches 10 to 22% although only 2% of patients seem to develop an important clinical presentation. In cases of complex stenosis with extensive cartilage destruction, surgical resection of affected tracheal segments is well established as the definitive and most effective method. Less invasive therapeutic approaches including bronchoscopy dilatation, laser treatment or stent placement allow for temporary symptomatic relief and may serve as an alternative, in unfit patients. Hence, we present a case of complex post-intubation tracheal stenosis and the surgical strategy employed for decisive treatment.

Case report: A previously healthy 24-year-old female from Cape Verde suffered from a car accident with resulting extensive injuries and severe brain trauma, requiring prolonged ICU stay and, mechanical ventilation support for a duration of 25 days without tracheostomy. She was discharged after a hospital stay of 60 days, showing no signs of difficulty breathing. Two months after the initial discharge, the patient presented in the emergency department with gradual onset of dyspnea and fever and was diagnosed with pneumonia. Further investigation through CT scan of the neck and thorax revealed a newly identified tracheal stenosis. The patient was transported to Portugal and admitted in our surgical center, four months after the established diagnosis. On observation, functional status was poor. The patient displayed cognitive deficits and was greatly emaciated, requiring a nasogastric feeding tube. Furthermore, she sustained recurrent bouts of stridor although generally maintaining a normal oxygen saturation past these periods. Bronchoscopy demonstrated a fixed subglottic stenosis, extensive inflammation, and drainage of purulent fluid from the left main bronchus as well as showcasing a poor response to inflatable dilatation. Surgery was proposed and carefully planned amongst Thoracic Surgery, Otorhinolaryngology and Anesthesiology. During the procedure, there was evidence of a 3 cm long stenosis, constraining the airway lumen around 2 cartilage rings below the cricoid cartilage. A resection of six tracheal rings was performed through transverse cervicotomy with end-to-end anastomosis of healthy mucosa. Successful extubation took place on the 2nd postoperative day while ICU stay was 6 days for careful surveillance. Bronchoscopy performed 1 week and 1 month after surgery, both confirmed the integrity of the anastomosis and absence of granulation tissue formation. Recovery was uneventful and the patient experienced significant clinical improvement.

Discussion: Benign tracheal stenosis most commonly arises from prolonged mechanical ventilation or tracheostomy. In cases of complex stenosis, tracheal surgery remains the preferred definitive treatment. However, it is an intrinsically challenging procedure, and a multidisciplinary surgical approach will allow for the best long-term results. This case reinforces literature evidence that tracheal resection and reconstruction can be performed safely and effectively in cases of post-intubation tracheal stenosis.

Keywords: *Tracheal stenosis. Endotracheal intubation. Mechanical ventilation. Tracheostomy. Surgery. Tracheal resection. Anastomosis.*

PE 011. A RARE ENCOUNTER: GIANT SOLITARY FIBROUS TUMOR OF THE PLEURA – CASE REPORT

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Introduction: Solitary fibrous tumor of the pleura (SFTP) is a rare mesenchymal neoplasm representing less than 5% of all pleural tumors. Although most of the cases are asymptomatic, when they reach large sizes, patients may develop non-specific respiratory symptoms such as dyspnea, cough, and chest pain. Typically presents as a homogeneous, well-defined, and noninvasive soft-tissue mass on imaging studies. Complete surgical resection is the preconized treatment. It is generally benign but nearly 30% may show malignant histological features and, consequently, a worse prognosis.
Case report: We report a case of a 56 years-old male, without significant medical history, that presented to the emergency room with chest pain with onset the night before. Additionally, the patient complained of asthenia, dry cough, and unintentional weight loss in the last month. A computed tomography (CT) scan of the chest revealed a bulky (16 × 9 × 13 cm), heterogeneous, and well-defined soft-tissue mass occupying the left pleural cavity. Magnetic resonance imaging showed no clear signs of invasion of the nearby structures. Bronchofibroscopy showed extrinsic compression of the left inferior lobar bronchus without endobronchial growth. A percutaneous CT-guided biopsy was conducted, and a histopathological examination suggested the diagnosis of SFTP without features of malignancy. The patient underwent anterolateral thoracotomy with complete resection of the tumor. The postoperative course was uneventful, and he was discharged home on the fifth postoperative day. Tumor histopathology was consistent with a high-risk SFTP and all resected margins were tumor-free. At the follow-up appointment two months after surgery, the patient remains asymptomatic and awaiting a reassessment CT scan.
Discussion: Diagnosis of SFTP may be suspected based on imaging and clinical features. However, these are unable to distinguish benign forms from malignant ones and a definitive diagnosis requires histologic confirmation. Preoperative biopsies may provide limited sampling and not accurately demonstrate histologic evidence indicative of a high risk of aggressive behavior as we have seen in this case. Complete surgical resection is not only required for accurate histopathologic evaluation but is also the cornerstone of treatment and the most important prognostic factor. The choice of surgical approach is based on tumor size and the difficulty of removing the tumor with free margins. Recurrence of SFTP is highly associated with incomplete surgical resection and/or characteristics of malignancy like high mitotic rate, presence of tumor necrosis, and tumor sizehigher than 10 cm, the last two seen in our case. Long-term follow-up is crucial to monitor for potential recurrence or metastasis. This case report highlights the importance of considering SFTP in the differential diagnosis of pleural tumors especially when imaging studies reveal lesions with the features described above. Multidisciplinary collaboration, accurate histopathological assessment, and surgical planning are essential for successful management and optimal patient outcomes.

Keywords: *Solitary fibrous tumor of the pleura. Thoracic surgery. Case report. Giant pleural tumor.*

PE 012. GIANT EMPHYSEMATOUS BULLA – A SUCCESS CASE

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Introduction: Pulmonary bullae are focal regions of emphysema, with a diameter greater than 1 cm, affecting 12% of adults. They are mainly found in a subpleural region and are typically wider at the lung apices. Sometimes, they can cause compression of adjacent lung tissue. When these bullae occupy at least one-third of the hemithorax volume, they are termed giant bullae and may mimic a pneumothorax.
Case report: The authors present the case of a 44-year-old man, a store employee, and a regular exerciser. He was a smoker with a smoking history of 30 pack-years, had an anxiety disorder, and no known respiratory diseases. He was referred to the Pulmonology consultation due to a diagnosed right apical emphysematous bulla, seen on a chest X-ray. He denied any respiratory complaints, such as dyspnea, cough, or hemoptysis, as well as constitutional symptoms like weight loss or fatigue. On physical examination, he had a slender physique, and pulmonary auscultation revealed decreased vesicular murmur in the right apex, but peripheral oxygen saturations were above 95%, with no other abnormalities. Laboratory tests, including alpha-1-antitrypsin, HIV, HCV, and HBV serologies, renal and hepatic function, thyroid function, and testosterone levels, showed no abnormalities. The chest X-ray highlighted an emphysematous bulla in the right upper lobe projecting inferiorly. Chest CT showed "bilateral emphysematous changes, mild on the left and moderate on the right, with centrilobular emphysema bullae present in both apical regions and along the posterior segment of the right upper lobe. Paraseptal emphysema bullae were more numerous on the right, some coalescing to form a larger apical bulla with approximate dimensions of 11.2 × 6.6 cm (evaluated in the coronal plane). No suspicious focal parenchymal lesions or systematized alveolar consolidation of inflammatory/infectious nature were observed bilaterally. No pleural effusion or other significant alterations." Pulmonary function tests were within normal limits. The patient started bronchodilator therapy and was proposed for surgery to resect the bulla, which was performed without complications. After quitting smoking, the patient remained asymptomatic during follow-up visits. Post-surgery chest CT showed "high-density sequelae suggesting the intervention on the dominant right apical emphysematous bulla. Bilateral paraseptal and centrilobular emphysema, with a predominance in the upper lobes. No suspicious pulmonary parenchymal nodules. No pleural effusion or other relevant alterations."
Discussion: This clinical case aims to present a successful resection of an emphysematous bulla. It is commonly associated with tobacco, cocaine, or marijuana use, but it can also be linked to alpha-1-antitrypsin deficiency, Marfan syndrome, Ehlers-Danlos syndrome, or HIV presence. Treatment options vary based on the degree of emphysema, symptoms, and concomitant conditions and include bronchodilator therapy, respiratory rehabilitation, bulla resection surgery, and lung transplantation.

Keywords: *Emphysematous bulla. Smoking habits. Volume reduction surgery.*

PE 013. PLEURAL PLAQUES – WHY WE CAN FORGET ASBESTOS

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Introduction: Asbestos are a silica-rich group of minerals which are naturally organized in microscopic fibbers, that when in contact to the respiratory system of an individual can cause a diversity of pulmonary disorders. Pleural Plaques are thickening of the pleurae, which almost universally signify exposure to asbestos. Asbestosis consists in lung fibrosis caused by exposure to asbestos. Patients exposed to asbestos have higher risk of Lung cancer mainly if the

patients are actively exposed to smoking simultaneously. Pleural Mesothelioma is a malignant neoplasm of the pleura, exclusively connected to asbestos.
Case report: Male, age 80, was a manutention technician with 30 years of exposure to asbestos, used to smoke (5 pack-year). Alcoholic consumption is mild to moderate, denies exposure to birds or other animals, without exposure to fungi. Is medicated with inhalers long acting beta2-adrenergic agonist and muscarinic antagonist. Asymptomatic and without findings in pulmonary auscultation. Spirometry without obstruction, restriction or diminished diffusion. Thoracic High Resolution Computerized Tomography observes bilateral pleural thickening, some with big calcifications, dense fibrotic striations or with other words is reporting Pleural Plaques partially calcificated and possible incipient Asbestosis.
Discussion: Even after the substitution of many equipment with asbestos in their composition, there are still remaining many points of exposure to asbestos that need removing, such as in the workplace. In order to avoid the damaging effects to the health of the world population, the exposure should be decreased as much as possible. Following the Company Managing guidelines and Protection Equipment usage, Individual or Collective, are protective measures to reduce as much as possible the exposure of the workers to this aggressive element. The high latency period until the development of lung disease is an obstacle to the diagnosis and highlights the importance of a complete and careful anamnesis.

Keywords: *Asbestos. Occupational medicine*.

PE 014. HAZARDS OF THE HOME ENVIRONMENT

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Introduction: Hypersensitivity pneumonitis is a lung disease caused by an exaggerated immune reaction to inhaled allergens, such as mold spores. This clinical case describes the condition of a 77-year-old woman, a non-smoker, retired as a clerk, seeking pulmonary care due to progressive shortness of breath during light activities and worsened productive cough at night. Clinical findings and complementary exams suggest subacute hypersensitivity pneumonitis.
Case report: The patient, a 77-year-old woman, sought medical attention due to progressive shortness of breath during light activities and a productive cough that worsened at night. She had no history of smoking and presented as clinically stable during the physical examination, with no detectable abnormalities. The initial investigation included a chest computed tomography (CT) scan, which revealed the presence of rare centrilobular ground-glass nodules in the upper lobes. Arterial blood gas analysis did not show respiratory insufficiency, and bronchofibroscopy did not reveal macroscopic changes. However, bronchoalveolar lavage showed lymphocytosis, with 82% lymphocytes and an elevated CD4/CD8 ratio of 7.73, suggesting an inflammatory process. Cytological analysis of the lavage did not reveal neoplastic cells, and microbiological exams were negative. However, blood analysis revealed elevated precipitins for Aspergillus, with a concentration of 71.6 mg/dL. Autoimmunity tests and angiotensin converting enzyme (ACE) levels were within normal limits. After a careful analysis of symptoms and complementary exams, the diagnosis of subacute hypersensitivity pneumonitis was considered, due to the association between exposure to mold in the domestic environment (specifically in the patient's bedroom) and the presence of precipitins for Aspergillus in peripheral blood.
Discussion: This clinical case illustrates hypersensitivity pneumonitis in an elderly non-smoking female exposed to mold in her home, specifically in her bedroom. The disease manifested as progressive shortness of breath and nocturnal cough (likely due to mold exposure occurring at night), with radiological and bronchoscopic findings consistent with the clinical picture. The elevated lymphocytosis in the bronchoalveolar lavage and increased precipitins for *Aspergillus* were consistent with the diagnosis of hypersensitivity pneumonitis. Treatment was initiated with guidance to avoid exposure to mold and other inhaled allergens, along with corticosteroid therapy to reduce the exaggerated inflammatory response. The patient showed gradual improvement in respiratory symptoms, and follow-up radiological exams demonstrated reduction in pulmonary changes. This case emphasizes the importance of considering hypersensitivity pneumonitis in patients with atypical respiratory symptoms and exposure to environmental allergens. Early diagnosis and appropriate treatment can lead to significant improvement in the patient's quality of life and prevent long-term complications. It is essential for healthcare professionals to be aware of this diagnostic possibility, to consider it during the evaluation of patients with interstitial lung disease, and especially to inquire about the patient's environmental exposures.

Keywords: *Hypersensitivity pneumonitis.* Aspergillus. *Exposure*.

PE 015. DIFFUSE ALVEOLAR HEMORRHAGE

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Introduction: Diffuse alveolar hemorrhage (DAH) is a syndrome characterized by intra-alveolar bleeding originating from the alveolar capillaries, resulting from the rupture of the alveolar-capillary basement membrane. It is caused by injury or inflammation of the arterioles, venules, or capillaries of the alveolar septum (alveolar or interstitial wall). Three different histopathological patterns can be observed: pulmonary capillaritis, bland pulmonary hemorrhage, and diffuse alveolar damage. Hemoptysis is the most frequent symptom; however, it is not always present, even when the hemorrhage is severe. It can present with anemia, diffuse pulmonary infiltrates on chest radiography, and respiratory failure. Treatment should be directed at the underlying etiology of DAH.
Case report: A 43-year-old man, with no relevant medical history, presented to the Urgent Care due to arthralgia persisting for over a year, with the addition of myalgia and a 17.6% weight loss in the past 2 months. He reported hemoptysis for about 2 weeks, accompanied by dyspnea and chest pain. On physical examination, fine inspiratory crackles were heard on the right hemithorax, and his tympanic temperature was 37.2 ºC. Laboratory tests showed normocytic and normochromic anemia (Hb 11.2 g/dL), elevated C-reactive protein (5.05 mg/dL), and erythrocyte sedimentation rate (81 mm/h), hyponatremia (133 mmol/L), elevated d-dimers (1,914 ng/mL FEU), slightly prolonged prothrombin time (14.2 s) and increased INR (1.23), type 1 respiratory failure (pO2 56 mmHg), urine analysis with traces of hemoglobin and proteinuria (30 mg/dL), and positive Anti-PR3 ANCA. Chest radiography revealed bilateral diffuse alveolar infiltrates, more pronounced on the right side, consistent with diffuse alveolar hemorrhage on chest CT scan.
Discussion: Therapy with induction of remission using prednisolone and rituximab was initiated, leading to clinical improvement and normalization of laboratory parameters. It is important to emphasize the significance of ANCA-associated vasculitis as a possible cause of DAH, as early initiation of induction therapy is associated with improved survival.

Keywords: *Diffuse alveolar hemorrhage. ANCA vasculitis.*

PE 016. ACUTE PULMONARY THROMBOEMBOLISM AS THE FIRST MANIFESTATION OF PRIMARY ANTIPHOSPHOLIPID SYNDROME (APS)

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Introduction: Antiphospholipid syndrome (APS) is an autoimmune disease, characterized by thrombosis (arterial, venous or vasculopathy) and gestational morbidity, accompanied by elevated titers of antiphospholipid antibodies (AAF), such as anticardiolipin antibody and/or anti-beta 2-glycoprotein I and/or by lupus anticoagulant (LAC) positivity. Pulmonary thromboembolism (PTE) is one of the most serious manifestations of APS and occasionally may be the first clinical presentation of the disease.
Case report: A 63-year-old man, non-smoker, with a history of pulmonary tuberculosis and chronic venous insufficiency of the lower limbs. He was referred to a pulmonology consultation after hospitalization for acute pulmonary thromboembolism. Due to the absence of an identifiable risk factor, he was discharged from the hospital ward with Edoxaban. An expanded thrombophilia study was requested at the consultation, with evidence of increased factor VIII and positive lupus anticoagulant (confirmed 12 weeks later). The autoimmune study was negative and the VQ scintigraphy was favorable for the presence of total pulmonary reperfusion. Given the presumptive diagnosis of APS, the patient was referred to the autoimmune disease consultation. Six months after referral the patient was admitted with a diagnosis of ischemic stroke and discharged on acetylsalicylic acid. After multidisciplinary meeting discussion, given the clinical criteria of 2 thrombotic events (venous and arterial) and laboratory criteria, the patient was diagnosed with APS and started on anticoagulant therapy with warfarin.
Discussion: In the absence of a transient or reversible risk factor, the study of thrombophilias should be performed when assessing the risk of recurrence of venous thromboembolism after an acute pulmonary embolism. Early detection of antiphospholipid antibodies may allow appropriate treatment and prevention of recurrent thrombotic complications. Awareness of this clinical association is critical for effective management and improved clinical outcomes.

Keywords: *Pulmonary embolism. Antiphospholipid syndrome.*

PE 017. DIFFUSE ALVEOLAR HEMORRHAGE A RARE COMPLICATION OF CANNABINOID ABUSE

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Introduction: Diffuse alveolar hemorrhage (DAH) is due to disruption of the alveolar-capillary basement membrane. It's a serious and life-threatening disease. Illicit drug use are among the different etiologies of DAH, being cocaine abuse the most frequently described, although there are few cases in the literature associated with cannabinoids abuse. The authors present the actual case to review the approach to DAH with particular focus on an etiology not commonly described.
Case report: We hereby report a men with 35 years old, an oven demolisher who commonly used individual protective equipment while working. For the last 15 years he has been a consumer of 10 to 20 hashish cigars on a daily basis without other toxic expose or relevant diseases. For 4 days he presented a pleuritic thoracic pain and hemoptysis (1-2 spoons of reddish blood with some clots). He denied dyspnea, asthenia, fever and other systemic symptoms. At the Urgency Room he was with normal blood pressure, normocardic, without alterations on lung auscultation and without blood gas alterations. Chest CT showed bilateral dense consolidations suggestive of hemorrhage. It was performed bronchoscopy with bronchoalveolar lavage (BAL) that confirmed the presence of bloody secretions, with sequential BAL revealing progressive bloody aliquots, supporting DAH diagnosis. The microbiologic, autoimmunity, echocardiogram and respiratory virus panel were normal. It was started aminocaproic acid 3g 8/8H without the need of corticotherapy. There wasn't recrudescence of hemoptysis. It was assumed that the DAH resulted from an important consumption of hashish.
Discussion: With this case report, the authors pretend to alert for the importance of taking into account the toxic habits when investigating the different etiologies, in particular DAH. The clinical presentation is important in diagnosing DAH but bronchoscopy with BAL is the gold standard for DAH diagnosis. The present case describes the association between cannabinoids abuse and DAH, despite the most frequent complications are pneumomediastinum, subcutaneous emphysema, pneumothorax, and pulmonary aspergillosis. With the global increased consumption of cannabinoids and their derivates, and the existence of non-criminalizing laws we are aware of the increasing atypical adverse reactions related with the intake of this drugs, being DAH one of those.

Keywords: *Diffuse alveolar hemorrhage. Cannabinoids. Hashish.*

PE 018. HYPERVENTILATION SYNDROME – AN EXTRAPULMONARY CAUSE OF HYPOCAPNIA

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Introduction: Hypocapnia is associated with multiple pulmonary and less frequently extrapulmonary causes. It occurs mainly in association with hyperventilation, which can be acute, as in cases of pneumothorax, pulmonary thromboembolism, pneumonia, asthma/COPD exacerbation; or intermittent/episodic which includes extrapulmonary causes such as heart failure, angina, pain, hyperthyroidism or hyperventilation syndrome.
Case report: 74-year-old woman, with a previous history of asthma, unresectable stage III-B thymic carcinoma (T4N0M0), submitted to radiotherapy (terminated 8 months before admission) and chemotherapy (terminated 3 months before admission), post-deep vein thrombosis status (three years before admission), fibromyalgia and anxiety. She was admitted at the Emergency Department due to dyspnea, wheezing, tiredness and cough with mucopurulent sputum with a week of evolution. On admission, she was hemodynamically stable, polypneic (RR 30-35 cpm), SpO2 96% (FiO2 21%), scattered wheezing on pulmonary auscultation. Gasometry showed uncompensated respiratory alkalosis and associated hypokalemia (pH: 7.65; PaCO2: 22 mmHg; PaO2: 77 mmHg; HCO3: 26 mmol/L; K+ 3.0 mEq). Analytical evaluation presented without elevation of inflammatory parameters. The patient underwent chest angio-CT, which showed areas of ground-glass opacity in the medial aspect of both lungs and discrete micronodular and tree-in-bud outlines in the left lower lobe, showing radiation pneumonitis, with no evidence of progression of the neoplastic disease, without pulmonary thromboembolism. Due to the presented symptoms and infectious suspicion, the diagnoses of asthma exacerbated by acute tracheobronchitis and radical pneumonitis were assumed. She underwent antibiotic therapy, initially with amoxicillin/clavulanic acid and azithromycin, which, due to the isolation of *Pseudomonas aeruginosa* in sputum, was escalated to piperacillin/tazobactam. She also underwent corticosteroid therapy, oxygen therapy for respiratory failure in the first 5 days of hospitalization and CPAP. She also performed potassium replacement due to hypokalemia. On the 15th day of hospitalization, despite no longer presenting changes on pulmonary auscul-

tation and no analytical worsening, she maintained polypnea, respiratory alkalemia, hypocapnia (PaCO2: 15-20 mmHg) and hypokalemia (K+ 2.9-3.1 mEq/ L) requiring daily potassium replacement. Considering the optimized treatment from the respiratory point of view, she underwent a cranioencephalic CT to exclude a central etiology, which did not show alterations. Endocrinological, cardiac, upper airway and neurological alterations were excluded. After extensive exclusion of organic causes and taking into account the associated anxiety, she was observed by Psychiatry, with optimization of antidepressant and anxiolytic therapy. She also initiated psychological therapy, which lead to hyperventilation improvement with resolution of hypocapnia and hypokalemia.
Discussion: This is a case of hyperventilation syndrome, a diagnosis difficult to achieve. The persistence of difficult-to-manage polypnea, respiratory alkalemia and hypokalaemia, even after control of the underlying pulmonary pathology and exclusion of other causes, led to this diagnosis, that is undervalued in Pulmonology. This syndrome usually occurs in patients with predisposing psychological factors (anxiety, depression) potentiated by stressful situations, due to hyperreactivity of the brainstem reticular activation system, culminating in lack of ventilatory control, hypocapnia, alkalemia and, consequently, hypokalemia, which can lead to fatal consequences when undiagnosed. Treatment is essentially based on ventilatory control with cognitive-behavioral therapy, use of benzodiazepines and antidepressants.

Keywords: *Hypocapnia. Hyperventilation. Respiratory alkalemia. Radical pneumonitis.*

PE 019. SEVERITY CLASSIFICATION OF RESTRICTIVE VENTILATORY CHANGES BY FEV1 VERSUS TLC Z-SCORE

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Introduction: Restrictive-type pulmonary ventilatory disorders comprise a range of thoracic pathologies, divided into intrinsic and extrinsic causes. Its diagnosis is based on the use of plethysmography, which defines restrictive ventilatory abnormality as a decrease in the total lung capacity (TLC) below the lower limit of normality (LIN < 5th percentile) compared to the 2012 Global Lung Function Initiative (GLI) reference equations for lung volumes. Since 2022, its severity has been defined according to the z-score, expressed in standard deviations. Currently, the z-score relative to FEV1 is used to define the severity of ventilatory change. However, the use of the TLC z-score for this same classification is under discussion in countries where the GLI reference equations for lung volumes are approved.
Methods: Data were collected from 100 plethysmographs (between March and June 2023) showing the presence of restrictive ventilatory changes. Simple and complex restrictions that met acceptability and reproducibility criteria were included in the collection. From these 100 examinations, pediatric patients and patients without pulmonary or extrapulmonary pathology characteristic of restrictive disease were excluded. In cases where obesity was the only diagnosis justifying lung function changes, only patients with a BMI greater than 40 kg/m^2 were considered.
Results: Thus, a total of 79 examinations were analyzed and the three-level system was applied to assess the severity of ventilatory change using FEV1 and TLC z-score values. A z-score > -1.645 was considered normal, between -1.65 and -2.5 mild, between 2.5 and -4 moderate and <-4 severe. Of the 70 tests analyzed, 63 (79.7%) corresponded to intrinsic restrictions, including 51 pulmonary interstitial diseases, eight chronic fibrotic changes after COVID-19 and four cases of restrictive changes due to pulmonary tuberculosis sequelae. On the other hand, 16 (20.3%) corresponded to restrictions of extrinsic cause, with 4 patients with neuromuscular pathology, 2 with ankylosing spondylitis, 3 with thoracic spine deformities and 7 with morbid obesity. Regarding classification, there was a change in severity category in 68 (86.1%) patients, 62 (78.5%) of whom had an increase in severity when classified according to the TLC. It should be noted that in 40 of the cases, although classified as restrictive ventilatory pattern, if the classification were based on the FEV1 z-score they would have no ventilatory change (FEV1 z-score > -1.645). In these cases, taking into account the TLC z-score, 19 became mild and 21 moderate. Of the six patients with a higher classification of severity according to FEV1 z-score, three (50%) had neuromuscular disease. Although this classification is not yet a direct recommendation of the various societies, it may be an option in countries the use of GLI lung volume reference equations is approved.
Conclusions: As it is not a defining factor of a restrictive ventilatory disorder, the use of FEV1 in the classification of its severity may lead to over/underestimation. Further studies are therefore needed on the potential of using the TLC z-score to classify the severity of restrictive ventilatory changes.

Keywords: *Restrictive ventilatory alteration. Z-Score. Total lung capacity.*

PE 020. WHEN INHALATION TAKES YOUR BREATH AWAY

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Introduction: Poppers are considered a recreational drug containing alkyl nitrites and their inhalation can cause serious and even fatal effects. The toxicity associated with its consumption can result in severe methemoglobinemia, respiratory and cardiovascular failure, coma and even death. Methaemoglobin (MetHb) is a form of oxidized haemoglobin and unlike normal haemoglobin, it has no oxygen binding capacity. Methemoglobinemia is defined as a methemoglobin level > 2%. Patients with acute toxic methemoglobinemia may have severe hypoxia despite administration of supplemental oxygen.
Case report: A 22-year-old male patient with a history of hypothyroidism and bipolar affective disorder, active smoker. The patient was referred to the emergency department for progressive worsening dyspnea over 2 days. No fever, cough or chest pain. He reported consumption of the recreational drug poppers (class of inhaled nitrites) in the last 2 days, with a temporal relationship to the symptoms. On objective examination, the patient was alert and oriented, hemodynamically stable, polypneic with supraclavicular rales, with a peripheral O2 saturation of 91% under FiO2 40% by Venturi mask, on lung auscultation he had a decreased vesicular murmur bilaterally, without adventitious noises. He performed an arterial blood gas under 40% FiO2 with mild hypercapnia of 49.2, a pO2 of 115.6 and a MetHb value of 15.2%. Chest X-ray revealed no changes suggestive of pleuroparenchymal pathology. Analytically, a slight leukocytosis of 11,000 with slight neutrophilia and negative C-reactive protein. Given the clinical condition, the patient was admitted with the suspicion of acute toxic methemoglobinemia, in the context of drugs with inhaled nitrites. During the hospitalization, clinically progressed well and was discharged after 3 days, without any symptoms and with normalized MetHb values - 0.6%.
Discussion: The presentation of this clinical case aims to alert to the potential toxic effects of this recreational drug increasingly used among young people, which may be the cause of dyspnea and hypoxemia in patients. Early clinical suspicion and evaluation are essential to identify methemoglobinemia, since although it is a rare situation, with this increasing use of poppers it may become more common and even fatal.

Keywords: *Methemoglobinemia. Hypoxemia. Poppers.*

PE 021. A PARADOXICAL CASE OF BRONCHODILATOR THERAPY

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Introduction: Bronchodilators act through their direct relaxing effect on smooth muscle cells. These belong to three pharmacological classes: 2-adrenergic receptor agonists, methylxanthines (rarely used nowadays) and muscarinic or anticholinergic antagonists. In the parasympathetic motor system that regulates bronchomotor tone, stimulation of M1 and M3 receptors mediates the bronchoconstrictor effect, while stimulation of the M2 receptor antagonizes this effect, inhibiting the release of acetylcholine. Muscarinic antagonists, or inhaled anticholinergics, widely used in the treatment of obstructive pathologies, namely COPD with an antagonistic effect on the aforementioned process, generally have few side effects, most commonly dry mouth, urinary retention and headache, with rare cases of paradoxical bronchospasm of this pharmacological class of bronchodilators.
Case report: We present the clinical case of a 65-year-old male patient, former smoker 20 UMA, followed in Outpatient Pulmonology with a diagnosis of COPD GOLD 2A, medicated with LAMA for about 6 months, describing recently worsening progressive dyspnoea and tiredness. Reassessment respiratory function tests were requested for functional characterization after initiation of targeted therapy, with a significant decrease in FEV1 and FVC after administration of ipratropium bromide (approximately 500 mL in each of the parameters) compared to pre-BD values., which is why Salbutamol was administered in an attempt to return to baseline values, even observing an improvement in the baseline value after administration of SABA. In this context, inhalation therapy was changed to LABA, with clinical improvement reported by the patient himself, who is currently awaiting a reassessment appointment.
Discussion: This clinical case stands out due to the rarity of this paradoxical adverse effect, alerting us to the possible iatrogenesis of this and other pharmacological classes in general, also highlighting the importance of a specialized and optimized respiratory function laboratory for each individual patient.

Keywords: *Paradoxal bronchospasm. LABA. Iatrogeny. Respiratory function.*

PE 022. A RARE CASE OF LUNG ABSCESS BY *SERRATIA MARCESCENS*

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Introduction: Serratia marcescens is a facultative anaerobic gram-negative bacillus, currently recognized as an important opportunistic agent. The incidence of lung abscesses caused by this bacterium is very low and typically occurs in immunocompromised patients, in the presence of severe comorbidities and in a nosocomial context. A rare clinical case is presented.
Case report: A 90-year-old woman, partially dependent on activities of daily living, with a history of asthma, hypercalcemic hyperparathyroidism, stage IIIb chronic kidney disease, hypertension and dyslipidemia, went to the emergency department (ER) due to a productive cough and dyspnea with two weeks of evolution with gradual worsening, associated with fever with one day of evolution. Single episode of small amount of hemoptysis occurred in the ER. On physical examination, she was tachypneic, tachycardic, feverish (T 38.9 ºC), with peripheral oxygen saturation of 96% with inspired oxygen fraction of 21%, pulmonary auscultation with present vesicular murmur, but impaired by transmission noise. Analytically with anemia (hemoglobin 8.2 g/dL), leukocytosis (20.5 × 10^9/L) with neutrophilia (16.91 × 10^9/L), creatinine of 1.39 mg/dL and high c-reactive protein of 20.85 mg/dL. Negative serologies. Computed tomography of the chest showed a large cavitated lesion in the apico-posterior segment of the right upper lobe (6.8 × 6 cm in the largest axial axes) with a thick and irregular wall (12 mm thick) communicating with the right main bronchus at two points due to probable fistulization, with consequent atelectasis of the entire right upper lobe, and which contacts with trachea, esophagus, superior vena cava and right pulmonary artery, which remain permeable. Empiric antibiotic therapy with piperacillin/tazobactam was started. In the second sputum collection there was isolation of *Serratia marcescens* sensitive to piperacillin/tazobactam, cefotaxime, cotrimoxazole and ceftriaxone. Flexible bronchoscopy identified purulent secretions, absence of segmentation of the right upper lobe by a large cavity, which made it impossible to perform bronchoalveolar lavage. Bronchial aspirate without isolation of microorganisms and cytology compatible with an acute inflammatory process. The patient completed 12 days of piperacillin/tazobactam, then switched to third-generation cephalosporin and metronidazole, with clinical, analytical and radiological improvement.
Discussion: This case reflects a very rare situation of a community-acquired infection by *Serratia marcescens* with lung abscess its forms of manifestation. The present case serves to highlight the importance of including infection by *Serratia marcescens* in the differential diagnoses for the etiology of the lung abscess.

Keywords: Serratia marcescens. *Lung abscess. Infection.*

PE 023. LUNG ABSCESS IN A YOUNG PATIENT: THE IMPORTANCE OF A MULTIDISCIPLINARY APPROACH

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Introduction: A lung abscess is defined as an infection of the lung parenchyma, with pus or necrosis, circumscribed and generally has an indolent course. In about half of the patients, the pathogenic agent is not isolated and the treatment generally involves long term antibiotic therapy, requiring long hospital stays. About 10% of lung abscesses do not resolve with antibiotic therapy alone, requiring drainage or surgical intervention.
Case report: We bring the case of an Angolan 28-year-old woman, evacuated to Portugal in July 2022 due to thoracic endometriosis diagnosed in the context of pelviperitonitis (2018) and two episodes of right hemothorax undergoing pleural drainage in Angola (2018 and 2019). She was awaiting observation of Thoracic Surgery and Gynecology. The patient went to the Emergency Department of a University Hospital in January 2023 due to dyspnea, cough with yellow sputum and fever in the last week. Clinically, the vesicular murmur was decreased on the right hemothorax, blood test showed elevation of inflammatory parameters, chest x-ray showed opacification of the right hemithorax with ipsilateral mediastinal shift, chest CT demonstrated a complete atelectasis of the right lung due to a probable lung abscess measuring 16 × 8 × 4 cm, and chest ultrasound supported the finding of an abscess pulmonary. The patient underwent fiberoptic bronchoscopy where a decrease in the lumen of the right segmental bronchi was observed and an aspiration of bronchoalveolar lavage was performed with negative microbiological examination. The young woman was admitted to the Pulmonology ward and antibiotic therapy was started with piperacillin/tazobactam and clindamycin for 8 weeks, while participating on a respiratory rehabilitation program, with clinical and laboratory improvement but imagiological stability. Given the lack of resolution of the lung abscess with prolonged

antibiotic therapy (8 weeks), the case was discussed with Thoracic Surgery and the patient underwent a successful right pleuropneumonectomy and discharged home on the eighth postoperative day, referred to surgery consultation chest, pulmonology, respiratory rehabilitation and gynecology. The pathological anatomy revealed lung parenchyma with lymphoid follicles, scattered bronchopneumonia foci, some in pattern of organizing pneumonia; the pleura was compatible with an abscess wall without isolation of microorganisms.
Discussion: The multidisciplinary approach to lung abscess is of particular importance and the development of in-hospital protocols for approaching this pathology is crucial for patients to have the best treatment.

Keywords: *Lung abscess. Pleuropneumonectomy.*

PE 024. A LUNG AT THE KNIFE'S EDGE – AN UNUSUAL AGENT AND MANIFESTATION OF PNEUMONIA

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Introduction: *Mycobacterium lentiflavum* is a slow-growing nontuberculous mycobacterium that is most commonly associated with cases of cervical lymphadenitis in the pediatric population. Its pulmonary involvement, particularly in immunocompetent adults and as necrotizing pneumonia, is rare.
Case report: A 73-year-old man, former smoker (10 pack-years), with no known lung disease or immunosuppressive medication, is evaluated at the urgent care service for a 7-day history of symptoms following a Mediterranean cruise trip. He presents with high fever (39 ºC) associated with productive cough and right-sided posterior chest pain that did not improve after taking amoxicillin/clavulanic acid + azithromycin. On examination, there are no signs of respiratory distress, but decreased breath sounds are noted in the lower right lung. Laboratory work-up show evidence of elevated inflammatory markers with a white blood cell count of 17,870 × 10^6/L and C-reactive protein of 19.26 mg/dL. Chest imaging (CT scan) reveals extensive consolidation in the lower right lobe involving all the basal segments, with mild homolateral pleural effusion and enlarged lymph nodes at the paratracheal and subcarinal levels. In this context, the patient is admitted to the hospital and cultures are collected. He is treated empirically with piperacillin/tazobactam, and a flexible bronchoscopy is performed, revealling extrinsic compression and infiltration at the common trunk of the right basal segments in the bronchial tree. Bacteriological and cytological examination of the bronchoalveolar lavage (BAL) is negative, and the biopsies are consistent with pneumonia. On the 15th day of hospitalization, with clinical and analytical improvement, the patient is discharged with follow-up in an outpatient clinic, with ongoing results. On the 2nd day after discharge, the patient experienced recurrence of high fever (39.5 ºC) along with worsening inflammatory parameters and overlapping imaging abnormalities. Viral studies (SARS-CoV-2, viral panel, HIV) were negative, as well as cultures and autoantibodies. A repeat flexible bronchoscopy with new bacteriological and cytological examinations also yielded negative results. Further tests for acid-fast bacilli (AFB) and nucleic acid amplification test (NAAT) for *Mycobacterium tuberculosis* were negative. Due to complete destruction of the lower right lobe without possibility of recovery and lack of response to the antibiotic initiated, the patient underwent a right lower bilobectomy. The histology of the resected tissue was consistent with extensive necrotizing granulomatous disease. During hospitalization, it is revealed from the mycobacteriological examination of the bronchoalveolar lavage (BAL) obtained during the first bronchoscopy that *Mycobacterium lentiflavum* was identified. This same microorganism was again identified in the BAL from the second bronchoscopy. The proposed therapeutic regimen included Clarithromycin 500 mg every 12 hours + Moxifloxacin 400 mg once daily + Rifampicin 10 mg/kg/day + Ethambutol 15 mg/kg/day for 9 months due to ethambutol toxicity, with follow-up at the Pneumology Diagnostic Center where gradual improvement of the symptoms was observed.
Discussion: This case presents a rare pneumonia cause, as well as an uncommon presentation of infection by *Mycobacterium lentiflavum* in an immunocompetent adult. It provides further understanding of the pulmonary involvement of this poorly known agent and alerts us that when faced with a refractory course to broad-spectrum antibiotic, it is essential to consider less common etiologies, even in immunocompetent patients.

Keywords: Mycobacterium lentiflavum. *Nontuberculous micobacteria.*

PE 025. THE MANY FACES OF AIR-FLUID LEVELS – DIAGNOSTIC CHALLENGE OF INFECTED LUNG CAVITIES

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Introduction: Chest X-ray plays an essential role in the initial assessment of patients with respiratory symptoms, and therefore its proper interpretation is extremely important, with diagnostic and therapeutic implications. Air-fluid levels can be easily recognized on chest X-ray, however their interpretation can be quite challenging, as this finding can be associated with several pathologies.
Case report: We present a case of a 79-year-old male, Caucasian, ex-smoker (63 pack/year) and medical history of COPD (FEV1 21%), global respiratory failure under BiPAP for a month, pulmonary hypertension, and alcoholism in abstinence. The patient was taken to the emergency department due to moderate exertion dyspnea (mMRC 3), intermittent chest pain, and self-limited hemoptysis within the last three days. A chest X-ray is performed in posteroanterior view, in orthostatism, and in profile view, which revealed a significant air-fluid level next to the right lung base, in a close-to-cardiac margin. To better clarify the finding, a right lateral decubitus chest x-ray was performed, with gravitational horizontalization of the level. The chest CT scan confirmed the presence of an air space with slightly thickened but regular wall, with an air-fluid level, in the lower right basal lung, measuring 8 × 9 × 6 cm. There was also a consolidation in the right lower lobe, and another air-fluid level posterior to the right major fissure. Additionally, there was a relevant centrilobular and bilateral paraseptal emphysema, affecting the lung fissures. The patient was hospitalized for therapeutic course and clinical surveillance, having undergone videobronchofibroscopy, which revealed a normal bronchial tree with bloody secretions. In bronchoalveolar lavage the agent Acinetobacter baumannii was isolated. The patient evolved favorably under levofloxacin, clindamycin, and kinesitherapy, and was discharged after 15 days, with improvement in imaging findings.
Discussion: In this case we emphasize the importance of careful interpretation of air-fluid levels on chest X-rays, which in this case could suggest various diagnoses of pulmonary origin, diaphragmatic hernia, or even abdominal pathology. Emphysema is a pathological finding frequently present in patients with COPD, particularly when there is an important obstructive component of the distal airways. Fluid retention in large emphysema bulla can be misinterpreted as lung abscesses or empyema, especially when associated with a nearby consolidative component, as in this case. Retrospectively

evaluating a previous chest X-ray of the same patient, we noticed the existence of emphysema bulla in the same area. The infection resolution, with fluid-level clearance, without the need for invasive measures, is favorable for infected emphysema bulla in contiguity, as diagnosis. However, emphysema bulla usually have thin walls, and this slight thickening makes lung abscess an alternative diagnosis. It should be noted that emphysematous bulla may contain liquid in the absence of an infectious process, usually due to inadequate clearance or, rarely, due to hemorrhage. *Acinetobacter baumannii* is an aerobic Gram-negative coccobacillus commonly associated with nosocomial infections in mechanically ventilated patients. In this case, COPD, smoking and alcoholism history and ventilation therapy, were identified as risk factors.

Keywords: *Air-fluid levels. Abscess. Chest X-ray. Computed tomography. Emphysema.*

PE 026. REPEAT RESPIRATORY INFECTIONS: DIAGNOSTIC MARCH IN AN IMMUNOCOMPETENT PATIENT AND A RARE AGENT

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Introduction: Nocardiosis is an uncommon infection, of unknown prevalence in Europe, and with about 500-1,000 cases per year in the United States. It is typically an opportunistic infection, with only 1/3 of cases in immunocompetent individuals. The lungs are the primary site of infection. More than half of all lung infections spread hematogenously, often to the brain, or contiguously to adjacent structures.
Case report: A 62-year-old woman, smoker, with a history of anaphylaxis to penicillin (previous glottic edema), COPD GOLD A, mild OSAS. She presented with recurrent respiratory infections in the context of bronchiectasis in 2015-2016, without isolation of etiological agents and with good response to antibiotic therapy. In July/2022, he developed a new respiratory infection, associated with weight loss of 7 kg, objectified for 6 months, with poor improvement after clarithromycin. Imaging: "centrilobular micronodular infiltrate, bilateral cavitated nodular images, especially in the apical segment of the LSD and mediastinal adenomegalies". Bronchofibroscopy was performed with bronchoalveolar lavage, without identification of a bacteriological agent, although abundant bacterial flora was visualized. In November, due to continued coughing with mucopurulent sputum and fatigue on moderate exertion, he was treated with Levofloxacin only with self-limiting improvement and no evolutionary changes on re-evaluation chest CT. Symptomatology remained, and a new chest CT was repeated in January 2023, which showed "persistence of countless bilateral multisegmental, centriacinar and juxtobronchial micronodules, associated with brochiectasis in both apexes", so the patient was referred to home hospitalization to start intravenous antibiotic therapy with levofloxacin, with partial improvement. After discharge, in February 2023 he had a new respiratory infection and was prescribed antibiotic therapy with ciprofloxacin and azithromycin. Repeated chest CT scan showed evolution of the condition with "greater satellite exudation, coalescence of diffuse micronodularity, practically miliary and subpleural condensing foci, although cavitations were absent". BF with BAL was repeated in April, with isolation of colonies of Nocardia cyriacigeorgica. In view of the isolation, an etiologic study of immunodeficiencies was performed, which proved negative. A CT scan and transthoracic echocardiogram were performed, without alterations, and blood cultures were sterile. Thus, after discussion with the infectious diseases department, elective hospitalization was chosen to start intravenous antibiotic therapy with imipenem, cilastin and cotrimoxazole, which was followed for 20 days with good clinical response. Subsequently, due to significant clinical and imaging improvement, he was placed on oral cotrimoxazole alone, which he has maintained to date, with an indication to continue for at least 3 months.
Discussion: Correct identification of the nocardiae species is important in deciding its clinical relevance and approach. Two characteristics of nocardiosis are the ability to spread to any organ, and the tendency to relapse or progress despite appropriate therapy. Due to the relapsing nature of Nocardiosis, antibiotic therapy should be maintained for 3-6 or 6-12 months, depending on whether the patient is immunocompetent or not. Given the possibility of dissemination to other organs, exclusion of extra-pulmonary involvement is crucial for a good prognosis.

Keywords: *Pulmonary nocardiosis. Repeat infections. Immunocompetent.*

PE 027. LEGIONNAIRES USING CPAP - AN UNLIKELY COMBINATION?

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Introduction: Legionnaires' disease, a pneumonia caused by gram-negative bacilli of the Legionella genus, represent the most common clinical presentation caused by these bacteria. The severity varies from mild infections to severe pneumonias requiring invasive ventilation and potentially leading to a fatal outcome. As an agent that predominantly inhabits aquatic environments and is transmitted through aerosols, sources of aerosols (air conditioning systems, steam baths, cooling towers) are the primary vectors of human infection. Given that these aerosol-generating sources are usually located in areas with large population clusters (hotels, cruises, hospitals), Legionnaires' disease often emerges in the form of outbreaks, highlighting the importance of notification and epidemiological investigation by public health authorities. However, it is also essential to consider other possible, less common sources of infection.
Case report: A 41-year-old man, computer technician, overweight, with obstructive sleep apnea syndrome under non-invasive positive pressure ventilation through continuous positive airway pressure (CPAP) with a humidifier for 2 years. He presented to the emergency department with a 5-day history of malaise, myalgia, and progressively worsening dyspnea on exertion, as well as high fever (39 ºC) with chills, dry cough, and left scapular pleuritic chest pain in the preceding 2 days. He denied recent travel history. On examination, he was hemodynamically stable but tachycardic and polypneic, with peripheral oxygen saturation of 92%. Pulmonary auscultation revealed subcrepitant crackles in the left hemithorax, predominantly in the upper third. After admission, hypoxemia worsened, requiring high-flow oxygen therapy and admission to the intermediate care unit. Notable findings from the tests included neutrophilic leukocytosis of 15,000 × 10^6/L and elevated C-reactive protein of 42 mg/dL. Chest radiography showed extensive consolidation in the left upper lobe with air bronchogram. Empirical antibiotic therapy was initiated with amoxicillin/clavulanic acid and azithromycin. After positive urinary antigen testing for Legionella pneumophila and negative blood cultures, the antibiotic was changed to levofloxacin during the emergency department stay (which was continued for 10 days). Progressive clinical, laboratory, and imaging improvement was observed from the 3rd day of hospitalization.During the hospital stay, due to poor hygiene conditions of the CPAP equipment and suspicion, the case was reported through the National Epidemiological Surveillance System (SINAVE), leading to an epidemio-

logical investigation suggesting contamination of the CPAP's humidifier water. The consumables were replaced, and the equipment underwent complete replacement. The patient was discharged on the 12th day, clinically better and without the need for supplementary oxygen therapy.
Discussion: *Legionella pneumophila* infection is caused by inhaling aerosols from contaminated water, making epidemiological investigation crucial. Contamination of the CPAP water is a rare infection source. Therefore, this case alerts us to possible but unexpected sources of contamination and infection, particularly ventilatory devices, emphasizing the need for proper hygiene and maintenance of the equipment and its consumables.

Keywords: Legionella pneumophila. *Non-invasive ventilation. Pneumonia.*

PE 028. MEDIASTINAL MASS – UNLIKELY DIAGNOSIS OBTAINED BY EBUS-TBNA

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Introduction: Lesions in the middle mediastinum are often lymphadenopathies and, less commonly, cystic masses, vascular aneurysms, or esophageal tumors. The majority of mediastinal lymphadenopathies have a neoplastic origin (lymphoma, metastasis from lung cancer), inflammatory origin (sarcoidosis), or, less frequently, an infectious origin (tuberculosis, mononucleosis, etc.). Such infections can lead to local fibrosis and calcification even after resolution, resulting in a scar-like appearance.
Case report: A 22-year-old Brazilian woman, previously healthy, sought medical attention due to severe anterior chest pain radiating posteriorly, evolving for 1 week, worsened by dorsal decubitus, deep inspiration, and anterior chest palpation. She also reported asthenia, dysphagia with a sensation of obstruction at the thoracic level, night sweats, and fever for the past 48 hours. She had previously been treated with azithromycin and ibuprofen for suspected laryngitis but did not experience improvement. Relevant medical history includes an upper respiratory tract infection (URTI) 6 weeks prior. Chest CT scan revealed a large infracarinal mediastinal mass, solid, heterogeneous, with extension to the pulmonary hila, and coarse calcifications, measuring approximately 53 × 36 × 49 mm. Laboratory findings showed anemia (11.8 g/dL), elevated erythrocyte sedimentation rate (ESR) of 69 mm/h, eosinophilic predominant leukocytosis (19,320/L), LDH of 294 U/L, and elevated C-reactive protein (CRP) of 189 mg/dL (normal < 5). Immunoglobulins, complements, and ACE levels were normal, and serology was negative for HIV, HBV, HCV, EBV, and CMV. Bronchoscopy and endobronchial ultrasound (EBUS) were performed, revealing carina widening with slightly granulated mucosa and mild reduction in the caliber of the right lower lobar bronchus due to likely extrinsic compression. Carinal biopsy and bronchoalveolar lavage (BAL) from the middle lobar bronchus were performed. An adenopathy in the subcarinal region measuring 17 mm in its smallest axis was identified, with indistinct margins, heterogeneous, lacking a central hilar structure, and vascularized. The cytology of the adenopathy showed a lymphoplasmacytic inflammatory infiltrate, without evidence of granulomas or malignant cells; immunophenotyping showed no abnormalities, and microbiology identified *Streptococcus pyogenes* and *Cutibacterium acnes* while ruling out mycobacteria. The patient completed 24 days of targeted antibiotic therapy with cefixime and clindamycin, resulting in clinical and radiological resolution.
Discussion: Mediastinal lymphadenitis is rare in young immunocompetent adults; however, it can occur after upper respiratory tract infections (URTI). EBUS-TBNA allows for its diagnosis and identification of microbiological agents, which is crucial for successful treatment. *S. pyogenes* has been associated with mononucleosis-like syndromes, responsible for cases of mediastinal lymphadenopathies. *C. acnes* is rarely pathogenic; however, some cases of adenitis caused by this agent have been described, and studies suggest a possible association with sarcoidosis, as it is often isolated in these patients.

Keywords: *Mediastinal lymphadenitis.*

PE 029. PULMONARY ACTINOMYCOSIS AND THE DIAGNOSTIC CHALLENGE

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Introduction: Pulmonary actinomycosis is a rare condition, accounting for 15% of the *Actinomyces* spp disease burden. Its diagnosis is difficult to make and usually late, being most of the times confused with other suppurative pulmonary diseases or with malignant diseases.
Case report: The authors report the case of a 36-year-old man, active smoker (10 pack units/year), with history of generalized anxiety disorder and without previous occupational exposure or respiratory pathology. On the last 4 months, he presented cough with purulent sputum and fetid smell, unresponsive to multiple cycles of antibiotic therapy on an outpatient basis. He performed a chest computed tomography (CT) scan, which showed an area of cavitation in the left upper lobe, with air-fluid levels and a small area of associated consolidation. The patient was referred to the "Centro de Diagnóstico Pneumológico" and Pulmonary Tuberculosis was excluded with sputum and bronchoalveolar lavage culture. Due to the worsening of the complaints, he was admitted to the Pulmonology Department, with a diagnosis of Necrotizing Pneumonia, without microbiological isolation, with good evolution under antibiotic therapy with moxifloxacin, which he complied with for 21 days. Evidence of poor oral hygiene during hospitalization, having referred to his assistant dentist. After completing the treatment he returned to the ER due to fever, cough and dyspnea. Chest CT angiography was performed, which excluded pulmonary thromboembolism and confirmed extensive consolidation of the lingula and the apico-posterior segment of the left upper lobe, with air-fluid level, simple left pleural effusion and small multilobar ground-glass areas. Evolution with septic shock and severe respiratory failure, requiring aminergic support and high-flow oxygen therapy, starting empiric antibiotic therapy with imipenem and being admitted 4 days in the ICU. No microbiological isolations in blood cultures or sputum. Due to clinical and analytical improvement, the patient was again taken care of by Pulmonology, where he continued his investigation. The multidisciplinary discussion with Infectiology and Microbiology raised the suspicion of infection by less frequent anaerobic microorganisms. The patient repeated bronchofibroscopy with bronchoalveolar lavage, whose product was sent for *Actinomyces* spp PCR test. After microbiological confirmation of infection by *Actinomyces* spp, the antibiotic therapy was changed to Penicillin G, with excellent clinical, analytical and radiological response. The patient was transferred to the Home Hospitalization Unit for continuation of intravenous treatment for 6 weeks, after which he should switch to oral amoxicillin for a total of 6 to 12 months of treatment.
Discussion: Pulmonary actinomycosis usually results from aspiration of oropharyngeal secretions into the lower respiratory tract. Periodontal disease is the main risk factor. Its clinical course is typically indolent, but it can result in severe organ dysfunction

if not properly treated. This case reinforces the diagnostic difficulty of this condition, which one should be aware of, and the importance of interdisciplinary discussion of challenging clinical cases.

Keywords: *Lung. Actinomycosis. Infection.*

PE 030. NECROTIZING PNEUMONIA DUE TO *STREPTOCOCCUS CONSTELLATUS*: REGARDING AN UNUSUAL CLINICAL CASE

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Introduction: The imaging detection of lung cavitation requires an extensive differential diagnosis. Necrotizing pulmonary infection is mostly polymicrobial and can also result from secondary infection of pre-existing lung cavities, septic embolism, or direct extension from local infections. Necrotizing pneumonia is a rare but severe complication of bacterial pneumonia, associated with high mortality. *Streptococcus constellatus*, a commensal bacteria found in the oral cavity and upper airway, is rarely pathogenic but potentially relevant in individuals with multiple comorbidities. Thus, addressing these diagnostically challenging cases in clinical practice is crucial, especially concerning the usual associated risk factors and clinical manifestations of the disease, in order to improve diagnostic accuracy and provide early treatment for these patients.
Case report: A 49-year-old man with a history of intravenous drug use, periodontal disease and previous hepatitis C presented to the emergency department with left-sided pleuritic chest pain that had been ongoing for a week, accompanied by weight loss for over a month. Upon examination, the patient exhibited pale and dehydrated mucous membranes, weight loss, and tachypnea. Initial investigations upon admission revealed mild hypoxemic respiratory failure, leukocytosis (19,820/uL) with neutrophilia (88%), and elevated C-reactive protein (20.9 mg/dl). Chest computed tomography showed scattered bilateral lung consolidations, some of which were cavitary, along with left-sided lobar parenchymal consolidation and ipsilateral small pleural effusion. Septic screening was performed, and empirical antibiotic therapy was initiated. No bacterial or mycobacterial agent was isolated from bronchial secretions. Due to persistent fever and considering the patient's risk factors, the antibiotic therapy was changed, presuming septic embolism from infectious endocarditis, which was later ruled out by ultrasound examination. As the pleural effusion increased, thoracentesis was performed, draining pleural fluid suggestive of empyema (pH < 6.8, three Light's criteria). Percutaneous drainage followed by intrapleural fibrinolysis was initiated. *Streptococcus constellatus*, susceptible to multiple antibiotics, was isolated from the pleural fluid sample. A diagnosis of complicated necrotizing pneumonia with empyema was made. The patient continued directed antibiotic therapy for 6 weeks, showing sustained clinical, analytical, and radiological improvement.
Discussion: This case emphasizes the various diagnostic possibilities that can lead to constitutional symptoms associated with lung consolidation and cavitation. Despite the importance of early antibiotic therapy, investigation should continue to identify the infectious agent. *Streptococcus constellatus* is rarely pathogenic except in the presence of multiple risk factors and comorbidities. In this case, the patient exhibited several risk factors, including male gender, malnutrition, intravenous drug use, periodontal disease, and previous hepatitis C. The differential diagnosis of such cases is complex, highlighting the importance of early antibiotic therapy and control of the focus of infection to avoid delays in treatment and optimize the prognosis.

Keywords: *Necrotizing pneumonia. Empyema.* Streptococcus constellatus.

PE 031. NECROTIZING PNEUMONIA IN THE YOUNG ADULT – A CASE REPORT

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Introduction: Community-acquired Pneumonia can be caused by a variety of microbiological organism, but it's usually caused by a small set of agents: *Streptococcus pneumoniae*, *Mycoplasma pneumoniae*, *Haemophilus influenzae* or respiratory viruses. This case report illustrates that often patients don't fit exact clinical patterns as described in the literature – it is the clinicians' job to have a high degree of suspicion.
Case report: Man, 24 years old, with no known personal history of illness and a smoking habit of 6 packs/year, attended the emergency department with a hemoptoic cough lasting for 8 days, fever, left pleuritic chest pain, and asthenia for the past 5 days. On physical examination, he was eupneic at room air, normotensive, tachycardic and feverish (38 ºC) and had a peripheral oxygen saturation of 99% at room air. The pulmonary auscultation revealed no findings. The chest radiograph showed the presence of 2 circular images in the left lung base with hypotransparent contours, apparently pneumatized and the arterial blood gas analysis showed a hypoxemic respiratory failure. Blood analyzes showed a marked leukocytosis (36×10^9/L), neutrophilia (30.2×10^9/L) and an elevated CRP - 291,3 mg/L. Acid-fast bacteria were searched on sputum (negative) and a microbiological culture was done (negative). Respiratory viruses were searched (negative) as was Legionella urinary antigen (negative) and blood cultures (left pending) and then the patient was started on empirical antibiotic therapy with amoxicillin + clavulanic acid and azithromycin. To further clarify the radiograph findings, a thoracic CT-scan was done, showing: "an area of parenchymal consolidation in the segments of the left inferior lobe surrounded by areas of ground-glass densification. Inside this area, at least 3 cavitation zones can be identified, the largest having a diameter of approximately 3,5 cm. We can also identify in the right inferior lobe two nodular images with a transparent center, measuring less than 5 mm... several mediastinal lymphadenopathies". He was admitted for surveillance, having started respiratory kinesitherapy and on the 4th day of hospitalization the blood culture came back positive for *Staphylococcus aureus* and linezolid was initiated, according to antibiotic sensitivity test, maintaining coverage for possible anaerobic organisms and a possible mixed infection. HIV 1 and 2 serology was also performed (negative). An optic bronchofibroscopy was performed as soon as possible revealing generalized inflammatory findings, bronchial secretions were collected and a bronchoalveolar lavage directed to the left inferior lobe was performed. Microbiological culture of the samples came out positive for *S. aureus*. After the start of targeted antibiotic therapy, the patient improved significantly and was discharged a on the 19th day, referred to a pulmonology consultation, continuing the antibiotic regime for 4 weeks with no complications.
Discussion: *S. aureus* is a pneumonia agent often associated with nosocomial pneumonias (ICU) and/or patients with risk factors (e.g. HIV infection). However, *S. aureus* should not be overlooked as a possible community-acquired pneumonia organism even in risk free patients, particularly if nodular cavitated infiltrates are present on

chest radiograph which can represent necrotic lesions that might evolve to form abscesses or bronchopleural fistulae.

Keywords: *Necrotizing pneumonia.* Staphylococcus aureus. *Cavitation abscess.*

PE 032. CORONAVIRUS, A CLARIFIER OR CONFOUNDING ELEMENT?

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Introduction: Diffuse alveolar hemorrhage (DAH) is due to disruption of the alveolar- capillary basement membrane, and is most frequently associated with hemoptysis. The most frequent etiologies are systemic vasculitis, rheumatic diseases, certain drugs, toxins and infectious diseases. In this case we present an immunocompetent patient with coronavirus 229E who developed DAH.
Case report: The authors present the case of a 44 year old women, born in Brazil, real estate agent, non smoker, with Graves' disease taking tiamazol since 2016 (10 mg twice daily), without another relevant diseases. She had 2 doses of vaccination against COVID-19, and past infection by SARS-CoV-2 two years before the present case. The patient presented to the Emergency Department with sudden pleuritic pain, dry cough and 3 moderate hemoptysis. She denied wheezing dyspnea and fever. On physical examination was with tachycardia, normal blood pressure, and bilateral crackles on lung auscultation. Chest CT Angiography showed bilateral dense consolidations (suggestive of alveolar hemorrhage), without signs suggestive of pulmonary thromboembolism. On blood analysis there was a neutrophilic leucocytosis, D-dimers increase, and high levels of thyroid hormone. The rest of the study (hemogram, renal function, autoimmunity, complement levels) was within the normal range. A molecular respiratory virus panel was performed, which came positive do coronavirus 229E. As far as therapeutics is concerned, tiamazol was suspended and the patient started corticotherapy (3 days of methylprednisolone 1 g/day followed by prednisolone 1 mg/kg/day for one week with progressive tapering over 4 weeks), with resolution of hemoptysis there was no need of broncofibroscopy, with a favorable clinical and radiologic evolution. Initially it was assumed that the DAH was an iatrogenic effect of tiamazol, but after detection of coronavirus 2293, it was presumed to be multifactorial.
Discussion: With this case description the authors intend to reinforce the importance of exploring the different etiologies of DAH, with special attention to drug interactions and infectious diseases. In literature all the cases related to antithyroid drugs are associated to positive ANCA vasculitis. There is only one report of HAD associated with coronavirus 229E. In this post pandemic era, the authors aim to demonstrate the importance of the molecular respiratory virus panel, with the acknowledgement of other coronavirus other than SARS-CoV-2 as coronavirus 229E.

Keywords: *Diffuse alveolar hemorrhage. Hemoptysis. Coronavirus.*

PE 033. DRUG HYPERSENSITIVITY SYNDROME IN A PATIENT WITH LUNG ABSCESS SECONDARY TO *STREPTOCOCCUS PNEUMONIAE*

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Centro Hospitalar de Setúbal.

Introduction: A lung abscess is a circumscribed, purulent infection contained within the lung parenchyma. Lung abscess can be classified as primary (when they result from direct infection of the pulmonary parenchyma in an otherwise healthy person), or secondary (when there is a predisposing condition to infection). Treatment is based on prompt institution of an empiric antibiotic regimen followed by an adjusted one, usually with a prolonged course of therapy determined by clinical and imagiologic evolution. Some antibiotics are related with adverse effects sometimes with multisystemic involvement and potentially life-threatening, as in the case of drug rash with eosinophilia and systemic symptoms syndrome (DRESS Syndrome). The aim of this work is to report a case of lung abscess complicated by DRESS Syndrome.
Case report: The authors describe a case of a woman 47 year old, with asthma since childhood (not taking inhaled corticosteroids), smoker of 40 pack/year and probable Asthma/COPD. She presented cough for 2 days occasionally with hemoptysis, and started a short course of oral corticosteroids and antibiotics with azithromicin. She presented do the Emergency Department (ED) a month later due to persistence of cough, 4 Kg weight loss, despite resolution of hemoptysis. In the ED she was febrile and no respiratory failure was documented. On blood analysis there was a slight increase of inflammatory parameters and on chest radiograph a unilateral consolidation with cavitation assumed to be a lung abscess. Urinary antigen testing for pneumococcal pneumonia was positive and she had no isolates in hemocultures, sputum or bronchoalveolar lavage. Antibiotics was empirically started with piperacillin/tazobactam 4.5 g 6/6H, with good clinical, radiologic and laboratorial evolution till the 18th day, when the patient presented with fever and a non-pruritic erythematous maculopapular rash without lymphadenopathy, an increase in inflammatory markers and hepato-renal failure. According to DRESS diagnosis criteria (Score RegiSCAR), the patient had 3 points assuming the diagnosis of DRESS as possible. Piperacillin/tazobactam was assumed to be the culprit and was replaced for meropenem 2g 8/8H and linezolid 600 mg 12/12H, oral corticosteroids were stared (3 day methylprednisolone 550 mg/day, followed by prednisolone 1 mg/kg/day with progressive tapering for 8 weeks). On chest radiograph the cavity resolved.
Discussion: The lung abscess diagnosis depends on clinical and radiologic examination, supported by routine laboratory tests (blood analysis and microbiologic investigation) and with a variable response to antimicrobials. The authors want to reinforce the importance of adverse reactions to antimicrobial, which despite being rare, can be life-threatening. 15 to 37% of all cases of DRESS syndrome are caused by drugs, being beta-lactams account for 23% of these cases. In conclusion, a correct and timely diagnosis is crucial for prompt treatment and increase in patients' survival.

Keywords: *Lung abscess.*

PE 034. A CASE OF GIANT CELL ARTERITIS COMPLICATED WITH METHOTREXATE-INDUCED PNEUMONITIS AND *PNEUMOCYSTIS JIROVECII* PNEUMONIA

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Introduction: Interstitial pneumonitis is the most common type of methotrexate-associated pulmonary toxicity and is characterized by lymphocytic infiltration of the interstitium, with epithelial cell hyperplasia, small granulomas, and occasional eosinophilic infiltration. In advanced methotrexate pneumonitis, interstitial fibrosis with a honeycomb pattern may be seen. On the other hand, methotrexate, especially when associated with systemic corticosteroid therapy, may compromise the immune response and increase the risk of infections by opportunistic agents, such as *Pneumocystis jirovecii*. Although not frequent, overlapping of both entities can be observed.

Case report: 75-year-old Caucasian woman, autonomous in daily life activities and residing in Lisbon. With a personal history of giant cell arteritis (GCA) under corticosteroid therapy in the weaning phase and recently introduced methotrexate 15 mg/week, arterial hypertension (medicated with nifedipine 60 mg), diabetes mellitus induced by corticosteroid therapy and dyslipidemia (medicated with simvastatin 20 mg). Went to the Emergency Department due to fatigue that had lasted for several months, worsening in the previous 3 days, for minimal efforts, associated with dyspnea and productive cough with mucous sputum, having denied other systemic symptoms. On observation, she was found to be polypneic, in need of supplemental oxygen therapy with a maximum supply of 4 L/min, and on pulmonary auscultation, she had crackling fevers throughout the entire length of both hemithoraxes. Analytically, with an increase in inflammatory parameters, with leukocytosis, neutrophilia and CRP of 8.31 mg/dl, as well as an increase in LDH (966 mg/dl). Blood cultures and antigenuria were negative. Imagiologically, with evidence of bilateral reticulointerstitial infiltrate on chest X-ray, having subsequently performed chest CT, which showed the presence of subpleural reticular opacities with a bilateral and diffuse distribution, as well as thickening of the interlobular septa. Given the more likely diagnosis of methotrexate hypersensitivity pneumonia, she suspended the same and performed bronchofibroscopy with a culture of bronchoalveolar lavage, which highlighted globally hyperemic and edematous mucosa, whose lung biopsy did not allow for histopathological evaluation. After a multidisciplinary meeting and considering the clinical and imaging findings that suggested the hypothesis of hypersensitivity pneumonitis, corticosteroid therapy was increased. However, on the 7th day of hospitalization, *P. jirovecii* was isolated from the BAL, and antibiotic therapy with cotrimoxazole was associated. During hospitalization with progressive clinical and analytical improvement, with the possibility of weaning from supplemental oxygen therapy, she was discharged after 14 days of directed antibiotic therapy, with the need for corticosteroid therapy in a higher dose than the previous one, given the impossibility of maintaining corticosteroid-sparing in the time. In the reassessment chest CT, already in an outpatient setting, the patient presented complete resolution of the imaging alterations initially presented, remaining without methotrexate therapy and under prophylaxis with cotrimoxazole.
Discussion: The differential diagnosis of methotrexate-induced lung injury includes opportunistic infection, the underlying disease itself, and eventual neoplasia (eg, lymphangitic tumor or lymphoproliferative disease). In the absence of appropriate antibiotic therapy, mortality from *P. jirovecii* pneumonia is 90 to 100%, so it is imperative to include the possibility of pulmonary infection by this agent in the diagnostic process.

Keywords: *Methotrexate. Hypersensitivity pneumonia.* Pneumocystis jirovecii. *Giant cell arteritis.*

PE 035. FUNGAL PNEUMONIA OF RARE ETIOLOGY

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Case report: The authors present the case of a 74-year-old female patient, non-smoker, with a history of pulmonary tuberculosis in the previous year for which she underwent treatment, osteoporosis and dyslipidemia. She was sent to primary care consultation for complaints of cough with moderate amount of mucoid sputum, exertional dyspnea (mMRC 3). She denied fever, weight loss, anorexia, wheezing, or other complaints. On physical examination, she was eupneic on room air, without desaturation, without changes in pulmonary auscultation and without peripheral edema. A CT scan of the chest was requested, showing evidence of an area of pulmonary consolidation, with an air bronchogram in the upper segment of the right lower lobe, some opacity in the middle lobe and upper right lobe, and bilateral bronchiectasis, with some parietal thickening, but no signs of impaction. mucoid. Videobronchofibroscopy was requested with bronchoalveolar lavage, which did not show endobronchial lesions and showed only mucopurulent secretions in moderate amounts in the right bronchial tree. Microbiological examination of bronchoalveolar lavage and bronchial aspirate showed fungal isolation of an *Ochroconis galopava*. An immunodeficiency study was carried out, which was negative both for acquired immunodeficiencies and for genetic immunodeficiencies. The case was discussed with infectiology, given that the isolated agent can be pathogenic, especially in situations of associated immunosuppression. Taking into account the symptoms and structural changes in the lungs, the decision was made to value the result, with the initiation of antifungal treatment with posaconazole in a loading dose, then maintaining a dose of 300 mg per day, which should be complied with for 8 weeks, with clinical improvement.

Keywords: *Fungal pneumonia.* Ochroconis galopava.

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CO 016. Bronchoscopic approach to benign laringo-tracheal stenosis – one center experience

CO 034. Measurement properties of the portuguese version of the King's Brief Interstitial Lung Disease (KBILD) in interstitial lung disease

CO 035. Measurement properties of the portuguese version of Pulmonary Functional Status and Dyspnea Questionnaire – modified version (PFSDQ-M) and the Canadian Occupational Performance Measure (COPM) in interstitial lung disease

CO 036. Serum metalloproteinase 7 as a biomarker of progressive pulmonary fibrosis

Comunicações não foram incluídos no momento da publicação e por isso não seguem a paginação.

Communications were not included at the time of publication and for that reason, they do not follow the pagination.

CO 016. BRONCHOSCOPIC APPROACH TO BENIGN LARINGO-TRACHEAL STENOSIS – ONE CENTER EXPERIENCE

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Introduction: Benign laringo-tracheal stenosis (BLTS) results mainly from iatrogenic events, including tracheotomy, endotracheal intubation or trauma, and represents a major therapeutic challenge. Although surgical approach remains the standard of treatment, no clear consensus exists about the right approach in tracheal stenosis of nonmalignant cause. Interventional bronchoscopy can be a less invasive option.
Objectives: To evaluate the experience of a Bronchology Unit in treating BLTS secondary to various etiologies, analyzing the treatment methods used, long-term relapse rates, follow-up time and complications.
Methods: A retrospective study was performed, including patients diagnosed with BLTS, who were referred to the bronchology department and submitted to rigid bronchoscopy (RB) between January 2020 and December 2022. Patients without follow up after bronchoscopic intervention were excluded.
Results: In total, 25 patients with BLTS were included. The majority were women (n = 17; 68%) with a mean age of 56.2 ± 18.9 years. All the patients had acquired BLTE, mostly duo to previous endotracheal intubation (n = 13) or post-tracheostomy (n = 6). The remaining patients had BLTE related to vasculitis, pos-radiation therapy, infectious or idiopathic etiology. Stenosis characterization was made with 36% patients (n = 9) presenting with simple and 64% (n = 16) with complex stenosis; 60% (n = 15) with subglottic stenosis and 40% (n = 10) with tracheal stenosis; mean degree of obstruction was 64% (5 in grade 1, 15 in grade 2 and 5 in grade 3 at Cotton-

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Meyer grading system). 16 patients were treated with mechanical dilation alone, 5 associated with laser therapy and 4 with endotracheal stent placement. Neither complications or mortality related to RB were observed. Relapse was detected in 72% (5 with simple and 13 with complex stenosis) patients after a mean follow-up of 29 months [1-132]. This led to the need of reintervention in all patients, with a mean of 2.2 per patient. 4 patients (16%) were submitted to laryngotracheal surgery after endoscopic treatment, without associated mortality or signs of relapse. Most of the patients continued to be followed up until today (49.5 ± 39.1 months). **Conclusions:** Management of BLTS depends on characteristics of the stenosis (type and extent) and patient comorbidities. Bronchoscopic approach, including mechanic dilation, laser or endotracheal stent, seems to have a lower cure rate and requires a greater number of procedures compared to surgery. However, surgical resection requires an experienced surgical team and can only be applied in well-selected cases. Bronchoscopic approach is a safe modality that can be performed as primary treatment and is an option in patients not eligible for surgery. Treatment of choice should always be discussed using a multidisciplinary approach.

Keywords: *Laringo-tracheal stenosis. Benign airway pathology. Rigid bronchoscopy.*

CO 034. MEASUREMENT PROPERTIES OF THE PORTUGUESE VERSION OF THE KING'S BRIEF INTERSTITIAL LUNG DISEASE (KBILD) IN INTERSTITIAL LUNG DISEASE

Raquel Vilar Marinho, Cátia Paixão, Luís Lázaro, M. Aurora Mendes, Tiago Alfaro, Sérgio Campainha, Melanie Teixeira, J. Joaquim Alvarelhão, Alda Marques

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Introduction and objectives: People with interstitial lung diseases (ILD) present a decline in functional status and health-related quality of life (HRQoL). There are several instruments to assess these patient-centered outcomes, however, their measurement properties for specific populations are often unknown. The aim of this study was to assess the reliability and validity of the King's Brief Interstitial Lung Disease (KBILD) for Portuguese adults with ILD.
Methods: An observational study was conducted with people with ILD recruited from routine pulmonology appointments. Sociodemographic and clinical data [lung function and 6-minute walk test (6MWT)] were retrieved from participants' medical notes and/or gathered with a structured specific questionnaire. At baseline, the KBILD, the St. George's Respiratory Questionnaire for idiopathic pulmonary fibrosis (SGRQ-I) and the London Chest Activities of Daily Living (LCADL) were first collected face-to-face, in an interview form. The KBILD was repeated 48h-72h after, via phone call, by two raters (2nd moment and 2nd rater). Reliability measures included Cronbach's to test internal consistency, intraclass correlation coefficient (ICC2,1) and respective 95% confidence intervals (95%CI) for test-retest and inter-rater reliability, Bland & Altman 95% limits of agreement (95%LoA) to test the agreement, standard error of measurement (SEM) and minimal detectable change (MDC95) for test-retest measurement error. Validity was assessed with the Spearman correlation coefficient (rho): criterion validity between SGRQ-I and KBILD and construct/divergent validity between lung function, 6MWT and KBILD and between LCADL and KBILD. Floor and ceiling effects were explored by quantifying the number of participants who scored at the maximum (ceiling) or at the minimum (floor) of each questionnaire. If more than 15% were at the maximum or minimum, the questionnaire was considered to have ceiling or floor effect, respectively.
Results: 167 people with ILD (63.6 ± 13.8 years old; 48.5% male; FVCpp 86.5 ± 19.7; DLCOpp 61.7 ± 21.0) participated. KBILD showed good to excellent internal consistency (= 0.74 for chest symptoms, = 0.87 for breathlessness and activities, = 0.89 for psychological and = 0.92 for total score), good to excellent test-retest (ICC2,1 = 0.79, 95%CI [0.70;0.85] for chest symptoms, ICC2,1 = 0.83, 95%CI [0.76;0.88] for breathlessness and activities, ICC2,1 = 0.78, 95%CI [0.67;0.86] for psychological and ICC2,1 = 0.83, 95%CI [0.73;0.89] for total score) and inter-rater (ICC2,1 = 0.95, 95%CI [0.92;0.97] for chest symptoms, ICC2,1 = 0.89, 95%CI [0.83;0.93] for breathlessness and activities, ICC2,1 = 0.89, 95%CI [0.82;0.93] for psychological, and ICC2,1 = 0.93, 95%CI [0.88;0.95] for total score) reliability, and good agreement between moments (mean = -3.97, 95%LoA [- 24.16;16.21]) and raters (mean = -0.27, 95%LoA [-14.42;13.88]) for total score, without evidence of systematic bias. The SEM and MDC95 were: 0.40 and 1.10 for chest symptoms, 0.57 and 1.59 for breathlessness and activities, 0.46 and 1.29 for psychological, and 1.16 and 3.22 points for total score. Correlations between KBILD and: i) SGRQ-I were significant, negative, and moderate to high (= -0.54 to -0.86; $p < 0.01$); ii) LCADL were significant, negative, and moderate to high (= -0.47 to -0.71; $p < 0.01$); iii) lung function and 6MWT were significant, positive, and small to moderate (= 0.23; $p < 0.05$ to 0.49; $p < 0.01$). No floor nor ceiling effects were found. **Conclusions:** KBILD has good reliability and validity indicators to assess HRQoL in Portuguese adults with ILD.

Keywords: *Interstitial lung disease. King's brief interstitial lung disease. Health-related quality of life. Validity. Reliability.*

CO 035. MEASUREMENT PROPERTIES OF THE PORTUGUESE VERSION OF PULMONARY FUNCTIONAL STATUS AND DYSPNEA QUESTIONNAIRE – MODIFIED VERSION (PFSDQ-M) AND THE CANADIAN OCCUPATIONAL PERFORMANCE MEASURE (COPM) IN INTERSTITIAL LUNG DISEASE

Raquel Vilar Marinho, Cátia Paixão, Luís Lázaro, M. Aurora Mendes, Tiago Alfaro, Sérgio Campainha, Melanie Teixeira, J. Joaquim Alvarelhão, Alda Marques

Respiratory Research and Rehabilitation Laboratory (Lab3R), School of Health Sciences (ESSUA), University of Aveiro.

Introduction and objectives: There are several instruments to assess functional status, however, their measurement properties for specific populations are often unknown. The aim of this study was to assess the reliability and validity of the Pulmonary Functional Status and Dyspnea Questionnaire - modified version (PFSDQ-M) and the Canadian Occupational Performance Measure (COPM) for Portuguese adults with interstitial lung disease (ILD).
Methods: An observational study was conducted with people with ILD. Sociodemographic and clinical data [lung function and 6-minute walk test (6MWT)] were retrieved from participants' medical notes. At baseline, the PFSDQ-M, the COPM, the St. George's Respiratory Questionnaire for idiopathic pulmonary fibrosis (SGRQ-I) and the London Chest Activities of Daily Living (LCADL) were first collected face-to-face, in an interview form. PFSDQ-M and COPM were repeated 48h-72h after by two raters, via phone call. Reliability measures included Cronbach's to test internal consistency, intraclass correlation coefficient (ICC2,1) and respective 95% confidence intervals (95%CI) for test-retest/intra-rater and inter-rater reliability, Bland & Altman 95% limits of agreement (95%LoA), standard error of measurement (SEM) and minimal detectable change (MDC95) for test-retest measurement error. For COPM, two raters classified all activities mentioned by the International Classification of Functioning, Disability and Health (ICF) second level classification. Inter-rater agreement was assessed through Cohen's kappa. Validity was assessed with the Spearman correlation coefficient (rho): criterion validity between LCADL and PFSDQ-M and COPM, and construct/divergent validity between lung function, 6MWT, SGRQI and PFSDQ-M

and COPM. Floor and ceiling effects were explored and considered existing If more than 15% of participants were at the maximum or minimum score.
Results: 167 people with ILD (64 ± 14 years old; 49% male; FVCpp 87 ± 20; DLCOpp 62 ± 21) participated. PFSDQ-M showed excellent internal consistency (= 0.92 a = 0.97), good test-retest and inter-rater reliability (ICC2,1 = 0.76-0.87, 95%CI [0.65,0.91] and ICC2,1 = 0.84-0.87, 95%CI [0.75,0.92], respectively), and good agreement between moments (mean = 7.47, LC95% [-46.06, 61.00]) and raters (mean = -0.24; LC95% [-52.63; 52.14]), without evidence of systematic bias. SEM and MDC95 ranged from 0.56-2.38 e 1.56-6.60, respectively. Correlations between PFSDQ-M and: SGRQ-I and LCADL were significant, positive, and moderate to high (= 0.59 to 0.82, p < 0.01; lung function and 6MWT were significant, negative, and small to moderate (= -0.23 a -0.44; p < 0.01). COPM showed good to excellent test-retest/intra-rater and inter-rater (ICC2,1 = 0.78-0.86, 95%CI [0.66,0.91] and ICC2,1 = 0.73-0.92, 95%CI [0.58,0.95], respectively) reliability, and good agreement between moments (mean = -0.07 e - 0.33; LC95% [-2.12; 1.98] and [-3.32; 2.66]) and raters (mean = -0.04 e -0.29; LC95% [-1.42; 1.35] and [-3.27; 2.69]) for total scores, without evidence of systematic bias. SEM and MDC95 ranged from 0.25-0.32 and 0.70-0.88, respectively. Inter-rater agreement for the COPM's classification using ICF two-level was almost perfect (k = 0.86). Correlations between COPM and: SGRQ-I and LCADL were significant, negative, and moderate (= -0.47 to -0.65, p < 0.01); lung function and 6MWT were non- significant (p < 0.05), except for performance and 6MWT distance, FEV1 e FVC (= 0.26 to 0.36, p < 0.01) and for satisfaction and FEV1 and FVC (= 0.22 and 0.24, p < 0.05). Floor effects were found in PFSDQ-M.
Conclusions: PFSDQ-M and COPM have good reliability and validity indicators to assess HRQoL in Portuguese adults with ILD.

Keywords: *Interstitial lung disease. Pulmonary functional status and dyspnea questionnaire - modified version. Canadian occupational performance measure. Functional status. Validity. Reliability.*

CO 036. SERUM METALLOPROTEINASE 7 AS A BIOMARKER OF PROGRESSIVE PULMONARY FIBROSIS

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Introduction: Progressive pulmonary fibrosis (PPF) is defined as an Interstitial Lung Disease (ILD), other than Idiopathic Pulmonary Fibrosis (IPF), with clinical, physiological and/ or radiological evidence of disease progression resembling IPF behavior. The matrix metalloproteinases (MMPs) have been implicated in the pathogenesis of lung fibrosis and MMP-1 and MMP- 7 have been suggested as an IPF diagnostic biomarker.
Objectives: To investigate MMP-1 and MMP-7 in the identification of fibrotic non-IPF ILD patients at risk for PPF.
Methods: We measured MMP-1 and MMP-7 serum levels in 79 fibrotic non-IPF ILDs patients: 35 Connective Tissue Disorder-ILD, 23 Fibrotic Hypersensitivity Pneumonitis, 13 Sarcoidosis, 6 Nonspecific Interstitial Pneumonia and 2 Unclassified Fibrotic ILD. PPF was defined according with the ATS/ERS/JRS/ALAT Clinical Practice Guideline.
Results: The mean age was 62 years, 75.9% females. PPF criteria was met by 33 (41.7%) patients. MMP-7 (but not MMP-1) was significantly higher in the PPF group (p = 0.01). Using the binary logistic regression model MMP-7 was independently associated with PPF (OR = 1.263; 95%CI 1.029-1.551, p = 0.026), remaining significant after adjusting for sex, age and smoking history; the cutoff of 3.526 ng/mL presented a sensitivity of 61% and a specificity of 74% for PPF.
Conclusions: MMP-7 was significantly higher in the group of patients with PPF. This may be considered and further explored as a possible biomarker to identify those fibrotic ILDs patients at risk of PPF.

Keywords: *Serum metalloproteinases. Progressive pulmonary fibrosis.*

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PE 036. Complicated pneumonia in immunocompetent patient

Comunicações não foram incluídos no momento da publicação e por isso não seguem a paginação.
Communications were not included at the time of publication and for that reason, they do not follow the pagination.

PE 036. COMPLICATED PNEUMONIA IN IMMUNOCOMPETENT PATIENT

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Introduction: Necrotizing pneumonia is a rare complication of community-acquired pneumonia (CAP), characterized by necrosis and cavitation within an area of parenchymal consolidation. Risk factors include smoking, alcoholism, advanced age, diabetes, chronic lung disease or liver disease. The etiological agents most frequently involved are *Staphylococcus aureus, Streptococcus pyogenes, Klebsiella pneumoniae* and *Streptococcus pneumoniae*.
Case report: Patient admitted to the ER on 02/17 due to fever and cough within a week. On admission, she was hypotensive, tachypneic, tachycardic and hypoxemic, with decreased right vesicular murmur and scattered crackles. Chest X-ray showed condensation in the right middle and lower lobe. Laboratory tests showed a significant rise in inflammatory parameters and Acute Kidney Injury KDIGO 2. ABG analysis with type 1 respiratory failure. Patient presented unfavorable clinical evolution with admission to the Intensive Care Unit on 02/19. Antibiotic therapy was started with Amoxicillin/Clavulanic Acid and Azithromycin. Regarding diagnostic tests performed: Weakly positive pneumococcal antigenuria, negative blood cultures, bacteriological examination of secretions was negative. Thoracic CT scan showed extensive right lobar condensation, atelectasis and minimal pleural effusion. Due to clinical stability, the patient was transferred to the Internal Medicine Service on 02/25. Clinical improvement and progressive negative titration of O_2 to ambient air were observed. Imagiologically with evolution with cavitation in chest X-ray and reassessment chest CT performed on 02/28. For exclusion of underlying etiology, she underwent bronchofibroscopy on 03/02, with no evidence of occult neoplasia. Pathological anatomy without the presence of neoplastic cells. Culture examination of bronchial secretions, bronchoalveolar lavage, bronchial biopsy and mycobacteria search were all negative. An immunosuppressive state exclusion study was carried out, considering the severity and complicated evolution with cavitation: negative autoantibodies (ANA, antids-DNA, ANCA, ASMA); C3, with C4 and CH50 within the normal range, no immunoglobulin deficit, lymphocyte populations without alterations. The patient completed rehabilitation with kinesiotherapy and 21 days of antibiotic therapy with amoxicillin-clavulanic acid and 5 days of antibiotic therapy with azithromycin. Clinical and

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imagiological improvement was observed, with reduction of cavitation on the chest X-ray at the time of discharge on 09/03. She was discharged home, referred for consultation on Pulmonology department for reassessment and orientation.

Discussion: CAP complicated by cavitation is rare, especially in patients without risk factors, with Streptococcus pneumoniae being a frequently associated microorganism. Underlying etiologies, such as neoplasm and/or immunosuppressive state, must be excluded. Early recognition and therapy are essential to reduce the morbidity and mortality of these patients.

Keywords: *Community acquired pneumonia. Cavitation.*