

Supplementary Data

Figure S1. Box plots of baseline CT-ADP across the three study groups: mitral paravalvular leak (Group 1), prosthetic mitral valves without PVL (Group 2), and controls without prosthetic valves or valvular disease (Group 3).

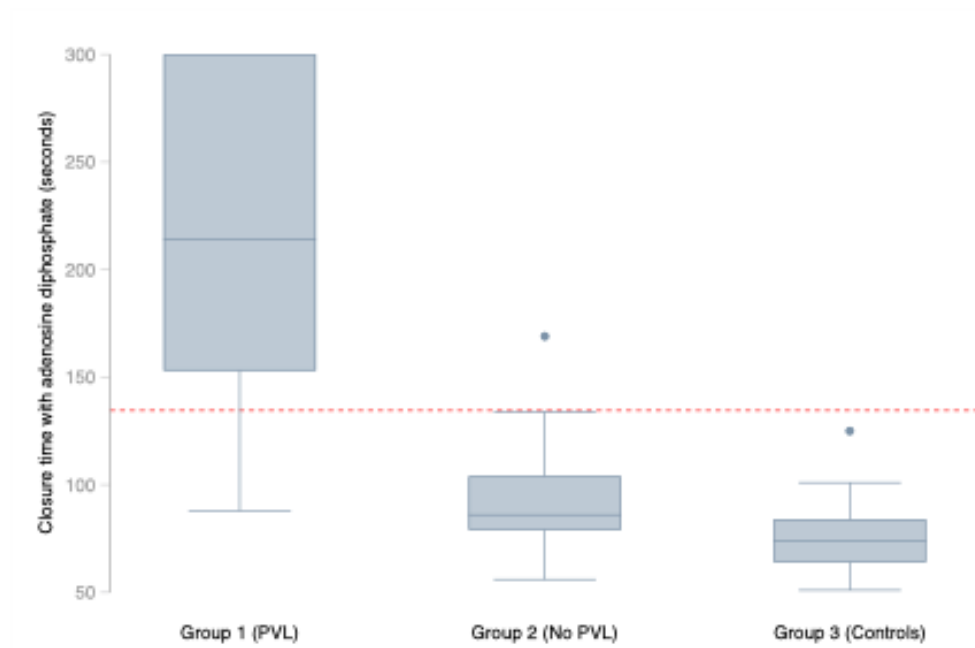


Figure S2. (A) ROC curve showing the diagnostic performance of biomarkers for detecting paravalvular leak. (B) ROC curve showing the diagnostic performance of biomarkers for detecting residual paravalvular leak after repair.

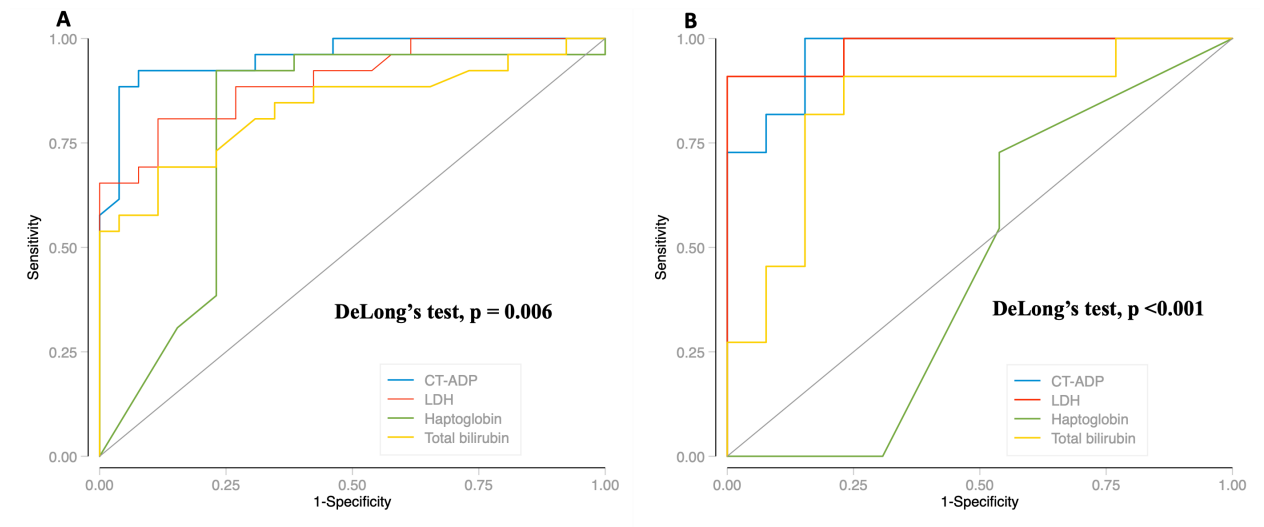


Table S1. Univariate regression analysis of clinical and biochemical predictors of CT-ADP across patient cohorts: Group 1 (Severe PVL), Group 2 (Prosthesis without PVL), and Group 3 (Healthy Controls).

Predictor	Group 1		Group 2		Group 3	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Age	0.001	1.0	-0.54	0.132	-0.203	0.625
Female	16.017	0.572	-17.413	0.032	-8.676	0.158
Diabetes Mellitus	-30.7	0.389	-13.4	0.24	4.93	0.403
Hypertension	7.55	0.822	-4.93	0.559	5.82	0.462
CKD (GFR < 60)	-8.19	0.773	-10.8	0.283	-4.87	0.448
Aortic prosthesis	-49.5	0.178	0.5	0.965		
Aortic gradient	0.716	0.527	0.633	0.448	1.3	0.319
LDH	0.04	0.073	-0.024	0.7	0.075	0.206
Total bilirubin	23.5	0.128	12.5	0.513	-3.96	0.702
Direct bilirubin	69.3	0.057	62.5	0.192	11.8	0.584
Haptoglobin	36.0	0.171	13.8	0.012	2.49	0.423
NT-proBNP	0.009	0.082	-0.004	0.217	0.001	0.669
CA-125	-0.068	0.775	-0.394	0.065	0.214	0.386
Hemoglobin	11.8	0.064	-3.39	0.09	1.32	0.399
Platelets	-0.412	0.063	-0.081	0.084	-0.038	0.165

CA-125: Cancer Antigen 125; CKD: Chronic Kidney Disease GFR: Glomerular Filtration Rate; LDH: Lactate Dehydrogenase; NT-proBNP: N-terminal pro-B-type Natriuretic Peptide.

Table S2. Linear regression analysis of echocardiographic and hemodynamic predictors of pre-procedural CT-ADP in patients with mitral paravalvular leak.

Predictor	Coefficient	95% CI	p-value	Adj. R²
Multiple leaks	33.46	-21.84 – 88.75	0.224	0.02
Number of leaks (2 vs. 1)	27.18	-35.26 – 89.62	0.378	-0.01
Indexed LA volume	0.14	-0.566 – 0.839	0.400	-0.04
Pulmonary artery pressure	-0.57	-3.01 – 1.87	0.629	-0.03
LA pressure	3.86	-0.005 – 7.73	0.050	0.14
LA V-wave peak pressure	2.66	0.86 – 4.46	0.006	0.29
Ratio V-wave/SBP	379.87	139.06 – 620.67	0.004	0.32
Mechanical prosthesis	12.82	-44.25 – 69.88	0.648	-0.031

CI: confidence interval; LA: left atrial; SBP: systolic blood pressure; SE: standard error.