

ANNEXES TO CHAPTER 5

Clinical Question XIX. In the presence of stenosis in the native arteriovenous fistula, is there a significant difference between elective intervention and performing treatment after thrombosis?

No prospective studies have been found, randomised or otherwise, comparing the option of elective surgery to correct vascular access stenosis with the option of waiting and operating once access thrombosis develops. Two retrospective studies were found which compare outcomes of surgery for arteriovenous fistula stenosis without occlusion with surgery of fistulae with the thrombosis already developed (Lipari 2007; Cohen 2009). No prospective or retrospective studies have been found that analyse outcomes for these two surgical options in cases of stenosed grafts.

The retrospective study by Lipari (2007) provides result data for 64 patients with stenosis of the forearm fistula, 32 treated by elective surgery and 32 after thrombosis.
Access restenosis rate: 0.189 per fistula-year, the same for both types of surgery.
Loss of vascular access: rates of 0.016 per fistula-year for elective surgery group and 0.148 for surgery after thrombosis (p=0.048). However, they show in a figure in the article that there was one case of loss of access among the 32 elective surgery patients and two cases among the 32 who had surgery after thrombosis, although the difference is not statistically significant (p=0.62).
 The technical success was 100% for elective surgery and 84% for surgery after thrombosis.

Low quality

The retrospective study by Cohen (2009) reports on 43 patients with arm fistulae who had 48 interventions on stenosed fistulae and 15 in fistulae already thrombosed. No statistically significant differences were found in terms of patency of the access at 12 months:
Primary patency of the access at 12 months: 56% for AVF with stenosis and 64% for AVF already thrombosed (p=0.22).
Secondary patency of the access at 12 months: 64% for AVF with stenosis and 63% for AVF already thrombosed (p=0.75).
 The technical success of the surgery was 95% overall (60 out of 63; two failures in thrombolysis and one in the primary surgery for the stenosis).

Low quality

Summary of evidence

In fistulae complicated by stenosis, one retrospective study found no relevant significant differences between patients treated by elective surgery or surgery after thrombosis in relation to restenosis, but the rate of loss of access was lower for elective surgery. Another retrospective study found no differences between these two options in relation to primary and/or secondary access patency at twelve months.

Low quality

Spanish Clinical Guidelines on Vascular Access for Haemodialysis

No published studies on this subject in stenosed grafts have been identified.	
Patients' values and preferences <i>No relevant studies related to this aspect have been identified.</i>	
Use of resources and costs <i>No relevant studies related to this aspect have been identified.</i>	
No published studies on this subject in stenosed grafts have been identified.	
Recommendations [Proposal]	
Weak	In cases of vascular access stenosis, we cannot recommend either one of the two options, elective surgery or intervention post-thrombosis, over the other.
References	
<p>Cohen A, Korzets A, Neyman H, Ori Y, Baytner S, Belenky A, Kniesznik M, Bachar GN, Atar E. Endovascular interventions of juxtaanastomotic stenoses and thromboses of hemodialysis arteriovenous fistulas. <i>J Vasc Interv Radiol.</i> 2009 Jan; 20(1): 66-70.</p> <p>Hsieh MY, Lin L, Tsai KC, Wu CC. Radial artery approach to salvage nonmaturing radiocephalic arteriovenous fistulas. <i>Cardiovasc Intervent Radiol.</i> 2013 Aug; 36(4):957-63.</p> <p>Lipari G, Tessitore N, Poli A, Bedogna V, Impedovo A, Lupo A, Baggio E. Outcomes of surgical revision of stenosed and thrombosed forearm arteriovenous fistulae for haemodialysis. <i>Nephrol Dial Transplant.</i> 2007 Sep; 22(9):2605-12.</p> <p>Nguyen TH, Bui TD, Gordon IL, Wilson SE. Functional patency of autogenous AV fistulas for hemodialysis. <i>J Vasc Access.</i> 2007 Oct-Dec; 8(4):275-80.</p> <p>Simoni E, Blitz L, Lookstein R. Outcomes of AngioJet® thrombectomy in hemodialysis vascular access grafts and fistulas: PEARL I Registry. <i>J Vasc Access.</i> 2013 Jan-Mar; 14(1):72-6.</p>	

Table 1. STUDIES EXCLUDED

Study	Cause for exclusion
Hsieh 2013	Deals with salvage treatment for radiocephalic fistulae that do not mature.
Nguyen 2007	Does not analyse elective stenosis surgery versus surgery post-thrombosis. Compares brachiocephalic and radiocephalic fistulae.
Simoni 2013	All patients with thrombosed vascular.

GRADE TABLES

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Question: Should elective surgery vs post-thrombosis surgery be used in fistulas with stenosis?:

Bibliography: Lipari G, Tessitore N, Poli A, Bedogna V, Impedovo A, Lupo A, Baggio E. Outcomes of surgical revision of stenosed and thrombosed forearm arteriovenous fistulae for haemodialysis. *Nephrol Dial Transplant.* 2007 Sep; 22(9):2605-12;

Cohen A, Korzets A, Neyman H, Ori Y, Baytner S, Belenky A, Knieznic M, Bachar GN, Atar E. Endovascular interventions of juxtaanastomotic stenoses and thromboses of hemodialysis arteriovenous fistulas. *J Vasc Interv Radiol.* 2009 Jan; 20(1): 66-70.

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Elective surgery	Post-thrombosis surgery	Relative (95% CI)	Absolute		
Elective surgery: re-stenosis rate per fistula year (Better indicated by lower values)												
1	observational studies ¹	serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	32	-	-	-		CRITICAL
Post-thrombosis surgery: re-stenosis rate per fistula year (Better indicated by lower values)												
1	observational studies ¹	serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	32	-	-	-		CRITICAL
Elective surgery: loss of the access (Rate per fistula year) (Better indicated by lower values)												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	32	-	-	-		CRITICAL

Post-thrombosis surgery: loss of the access (Rate per fistula year) (Better indicated by lower values)												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	32	-	-	-		CRITICAL
Elective surgery: loss of the access												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	1/32 (3.1%)	-	-	-		CRITICAL
Post-thrombosis surgery: loss of the access												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	2/32 (6.3%)	-	-	-		CRITICAL
Elective surgery : Primary patency of the access at 12 months												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	27/48 (56.3%)	-	-	-		CRITICAL
Post-thrombosis surgery: Primary patency of the access at 12 months												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	10/15 (66.7%)	-	-	-		CRITICAL
Elective surgery: Secondary patency of the access at 12 months												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	31/48 (64.6%)	-	-	-		CRITICAL
Post-thrombosis surgery: Secondary patency of the access at 12 months												
1	observational studies ¹	very serious ²	no serious inconsistency	no serious indirectness	no serious imprecision	none	9/14 (64.3%)	-	-	-		CRITICAL

¹ case series

² High risk of patient screening bias.