Physician - Aortic (Thoracic) Pathologies and Surgery/Endovascular Interventions

[MÖB-05]

Comparative Retrospective Cohort Study of Carotid-Subclavian Bypass *vs. In Situ* Fenestration For Left Subclavian Artery Revascularization During Zone 2 Thoracic Endovascular Aortic Repair: A Single-Center Experience

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Objective: This study aimed to compare the carotid-subclavian bypass with in situ needle fenestration (ISNF) for left subclavian artery (LSA) revascularization and discuss the treatment approach.

Methods: All patients who underwent zone 2 thoracic endovascular aortic repair (TEVAR) with ISNF or carotid-subclavian bypass for LSA revascularization at our institution between February 2011 and February 2024 were retrospectively reviewed. Preoperative patient characteristics and primary outcomes, including operative mortality, transient ischemic attack or stroke, and spinal cord ischemia, were analyzed between groups.

Results: During the study period, 185 patients underwent TEVAR. Fifty-one of these patients underwent LSA revascularization with zone 2 TEVAR, with 32 of them being carotid-subclavian bypass and 19 of them being ISNF. The technical success rate was %100. There was no statistically significant difference between the groups regarding stroke, transient ischemic attack, spinal cord ischemia, and death (p>0.05).

Conclusion: Endovascular techniques, such as ISNF, have emerged as viable alternatives to traditional carotid-subclavian bypass for LSA revascularization in zone 2 TEVAR procedures. Our findings indicate that ISNF is a feasible and effective method, offering similar perioperative outcomes and mortality rates compared to carotid-subclavian bypass. After a precise patient selection process and under experienced hands, ISNF appears to be associated with similar perioperative outcomes and mortality rates with the carotid-subclavian bypass.

Keywords: *In situ* needle fenestration, carotid-subclavian bypass, zone 2 TEVAR, LSA revascularization.

Table 1. Outcomes

Mean Operation Time(min)		78 (52–124)	138 (64–248)	0.034
0–30 Days Mortality	5	2	3	0.603
1–24 Months Mortality	4	0	4	0.556
Total Hospital Duration	13.86 ± 22.97	10.36 ± 10.27	15.03 ± 25.75	0.116
Pre-op Hemoglobin Level (g/dL)	11.66 ± 1.89	12.27 ± 2.36	11.42 ± 1.66	0.452
Post-op Hemoglobin Level (g/dL)	10.42 ± 1.79	10.66 ± 2.07	10.32 ± 1.70	0.351
Pre-op Creatinine Level (mg/dL)	1.02 ± 0.50	1.04 ± 0.33	1.01 ± 0.56	0.140
Post-op Creatinine Level (mg/dL)	1.09 ± 0.58	1.23 ± 0.50	1.03 ± 0.61	0.68
Major Adverse Events in 30 days				
Stroke	3	1	2	0.807
Transient Ischemic Attack	1	1	0	0.273
Spinal Cord Ischemia	1	0	1	0.536
Endoleaks				
Type 1	3	0	3	0.551
Type 2	0	0	0	*
Type 3	0	0	0	*
Type 4	0	0	0	*
Patency During 24 Months	49	19	30	0.624
Necessity of Reintervention	5	2	3	0.915

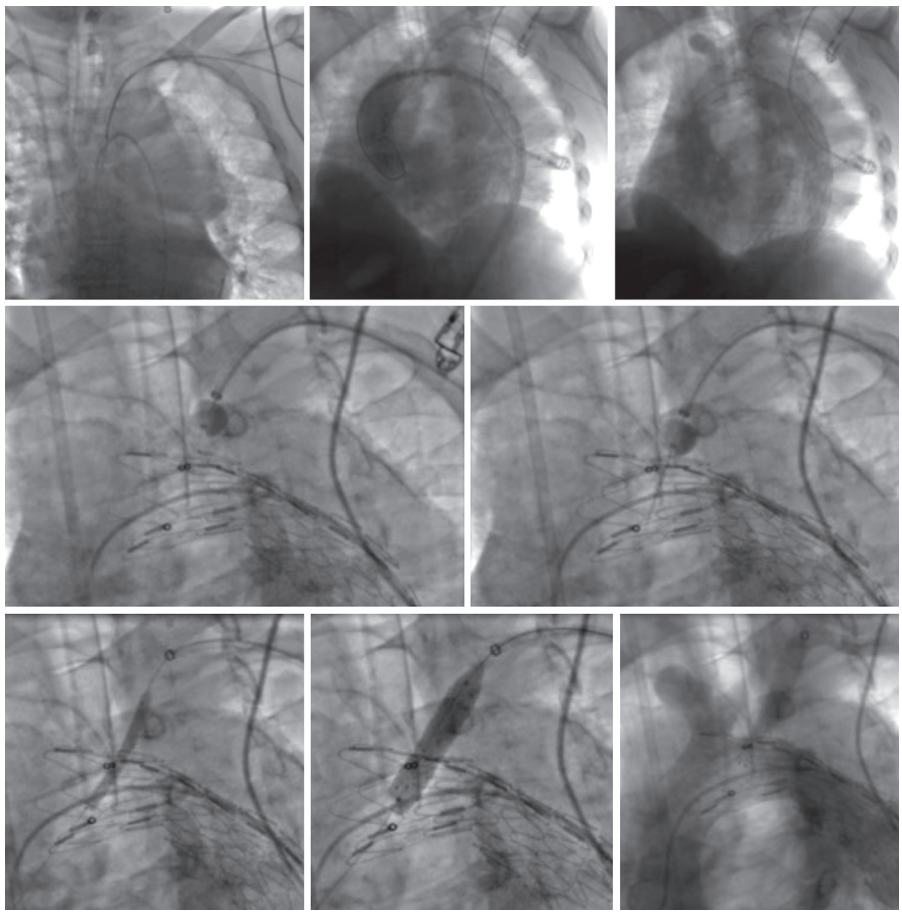

Figure 2. Angiographic images of left subclavian artery with *in situ* needle fenestration.

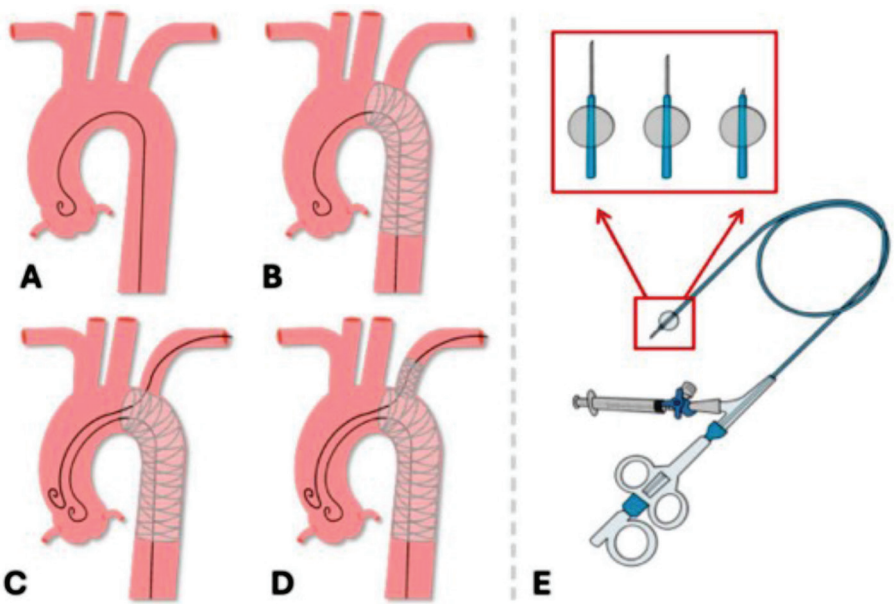

Figure 3. Operational details of left subclavian artery with *in situ* needle fenestration.