

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

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Thrombus Localization and Its Impact on Aneurysm Sac Volume Shrinkage and Lumbar Artery Count After Endovascular Aortic Aneurysm Repair

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Objective: This study aimed to investigate the relationship between thrombus localization, sac volume shrinkage, and the number of patent lumbar arteries following endovascular aortic aneurysm repair (EVAR).

Methods: A total of 143 patients who underwent elective EVAR were included in the study. Preoperative and postoperative thrombus volume and localization were assessed, along with lumbar artery counts. Thrombus was categorized as either anterior, posterior, circular, or absent. A postoperative sac volume reduction $\geq 10\%$ was considered positive remodeling.

Results: Results demonstrated that patients with a posteriorly localized thrombus exhibited significantly more significant sac volume shrinkage ($p=0.017$) and fewer patent lumbar arteries (mean: 3.1 ± 1.6 ; $p=0.002$). In contrast, circular thrombus localization was associated with less sac shrinkage and a higher number of patent lumbar arteries, which likely impeded effective remodeling. The presence of more than three patent lumbar arteries ($p<0.001$) and thrombus occupying $\geq 25\%$ of the neck ($p=0.049$) were negatively correlated with sac shrinkage, suggesting an increased risk of secondary interventions.

Conclusion: These findings highlight the critical role of thrombus localization and lumbar artery count in determining sac remodeling outcomes after EVAR. Posterior thrombus placement may promote effective sac shrinkage by reducing blood flow through lumbar arteries, thus potentially lowering the need for secondary interventions.

Keywords: EVAR, lumbar arteries, sac volume shrinkage, secondary interventions, thrombus localization.