

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

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Safety and Efficacy of Endovascular Repair Using Multilayer Flow Modulators for Thoracic Aortic Aneurysms After Type 1 Aortic Dissection

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Objective: This study aimed to explore the outcomes of thoracic endovascular aortic aneurysm repair (TEVAR) for thoracic aortic aneurysms (TAAs) with or without concurrent endovascular abdominal aneurysm repair (EVAR) using multilayer flow modulator stents.

Methods: This study included 23 patients (16 males, 7 females; mean age: 64 years) who underwent acute type 1 ascending aortic dissection repair. Symptoms varied from chest and abdominal pain, dyspnea, and fatigue to asymptomatic cases. Multislice computed tomography (CT) angiography assessed all segments of the aorta. We identified TAAs in all patients, with four also having abdominal aneurysms. All patients underwent TEVAR, and EVAR was added when necessary, using a multilayer flow modulator. Control CT angiography was conducted one month after discharge.

Results: There were no deaths or major complications. The median interval between primary surgery and CT angiography was 19 months (range, 6 to 60 months). The median hospital stay was 4.2 days. Control angiograms demonstrated 100% technical success with patent aortic lumens and branches. The only complication was a superficial infection in the femoral region. No cases of aortic rupture, stent migration, thrombosis, or stent fracture were observed. One patient had an endoleak at proximal and distal aortic ends, which was addressed with an additional multilayer flow modulator.

Conclusion: Thoracic aortic aneurysms with or without abdominal aneurysms should be considered after type I aortic dissection surgery. We recommend it as an effective treatment method because it does not obstruct blood flow in the visceral arteries in patients with complex aortic aneurysms. Further randomized clinical trials are necessary to validate the effectivity of multilayer flow modulator stent.

Keywords: Endovascular treatment, multilayer flow modulator, thoracic aortic aneurysm.