

Thoracic Branch Endograft Use in Emergent Blunt Aortic Trauma and Acute Aortic Syndrome



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Objectives

Endovascular treatment of traumatic thoracic aortic injuries and acute aortic syndrome in Zones 2 and 3 can require coverage of the left subclavian artery with a thoracic endograft. The recent commercial availability of thoracic branched endoprostheses (TBEs) allow preservation of the left subclavian artery. We present a single center experience of five emergent TBEs for blunt aortic trauma and acute aortic syndrome.

Methods

We retrospectively evaluated TBE cases with indications of blunt aortic trauma and acute aortic syndrome in 2023. Operative times and post operative complications were assessed. The TBEs placed were surplus devices from elective operations.

Results

Three complicated Type B aortic dissections (TBAD), a blunt traumatic aortic injury, and a penetrating thoracic aortic ulcer were treated with TBE. All cases were a technical success. Percutaneous upper extremity access was via the radial or brachial artery in four and one case, respectively. No cases had access site complications. Two surgeons were present in 80% of cases, and intravascular ultrasound was used in all dissection cases. The average procedure length ranged from 72-192 minutes. One patient developed an epidural hematoma after lumbar drain was removed, requiring laminectomy, and one patient developed celiac stenosis from encroachment of the distal thoracic graft requiring stent placement. There were no acute mortalities in our series, however there was one mortality at six months.

Diagnosis	Operative Time (minutes)	Upper Extremity Access	Complication	Additional Procedures
Complicated TBAD ^a	93	Radial	None	None
Complicated TBAD ^b	101	Radial	Celiac Artery Stenosis	Petticoat, Bilateral Iliac Stent
Blunt Aortic Injury ^c	192	Brachial	None	Left Femur Ex-Fix
Complicated TBAD	97	Radial	Epidural Hematoma	None
Penetrating Thoracic Aortic Ulcer ^d	72	Radial	None	None

Conclusions

Findings suggest that treatment of blunt thoracic aortic trauma and acute aortic syndrome with a thoracic branched endograft is feasible, expedient, safe, and effective in an emergency procedure setting.



66M with Complicated Type B Aortic Dissection^a



44F with Complicated Type B Aortic Dissection^b



56M with Symptomatic Penetrating Aortic Ulcer^d



50M with Grade III Blunt Aortic Injury^c