

First in Man Explanation of Thoracic Branched Endograft for Infection

Fabian Jimenez Contreras, MD, MMCI; Griffin P. Stinson, BS; Patrick D. Kohtz MD Brian F. Gilmore MD, Gilbert Upchurch, MD Tomas D Martin, MD

*Department of Surgery, Division of Thoracic and Cardiovascular Surgery,
University of Florida, Gainesville, Florida*

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*Department of Surgery, Division of Vascular Surgery,
University of Florida, Gainesville, Florida*

Thoracic Branched Endoprosthesis (TBE)[®]

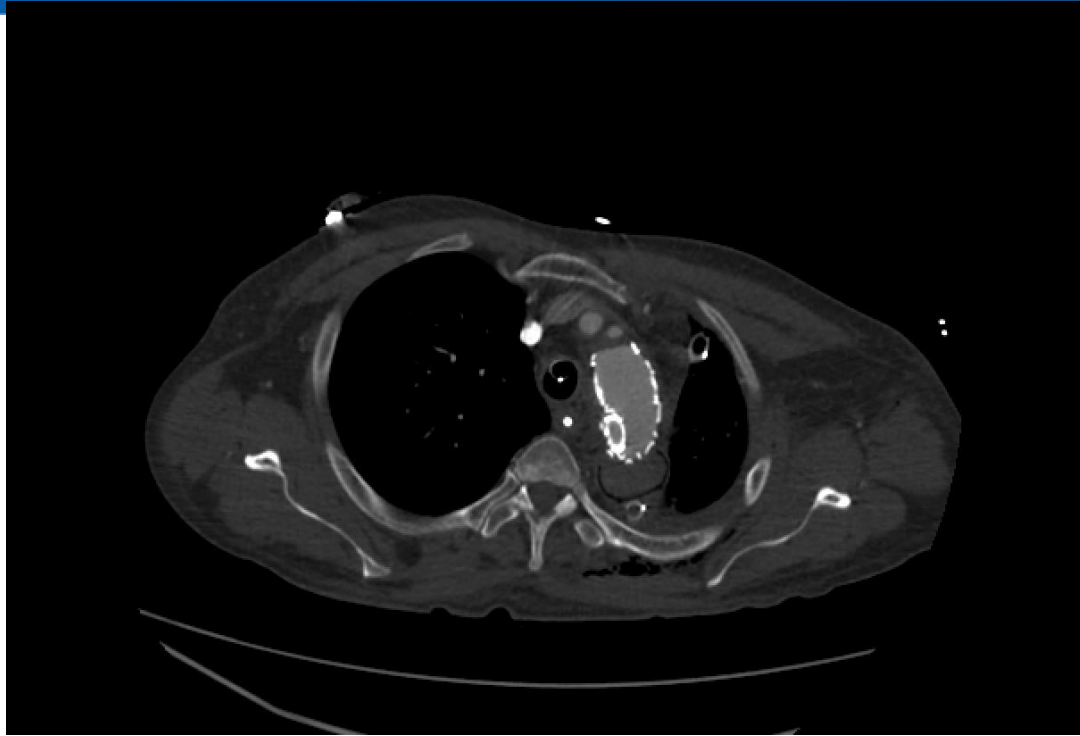
- GORE[®] TAG[®] Thoracic Branched Endoprosthesis (TBE, WL Gore & Associates, Flagstaff AZ) received FDA approval in May 2023
- Remains only branched thoracic stent graft available in United States.



First Case of TBE Explantation

- 67-year-old male underwent placement of a TBE for contained rupture/ PAU of distal aortic arch and thoracic aorta (outside institution).
- Two weeks following initial presentation, re-developed chest pain and was found to have a type 1a endoleak prompting proximal extension of his endograft.
- Following this re-intervention, he developed imaging evidence concerning for a mycotic thoracic aortic aneurysm
- The mycotic portion of the aneurysm eroded into the left lower lobe that resulted in hemoptysis. This required resection of his left upper lobe and ultimately prompting transfer to a quaternary care aortic center.

Pre-Operative CTA



At the level of the LSC TBE stent takeoff, adjacent non adherent sheath

Operative management

- Left common carotid to subclavian artery bypass.
- Patient was repositioned into right lateral decubitus position, cannulated for cardiopulmonary bypass and placed in deep hypothermic circulatory arrest.
- Thoracic aortic aneurysm was explored and main aortic component was removed
- A large abscess at base of left subclavian artery was explored and subclavian stent component was explanted as well, and then oversewn.
- The aorta was reconstructed with a 28 mm rifampin-soaked dacron graft with anastomoses in zone 2 and zone 5.

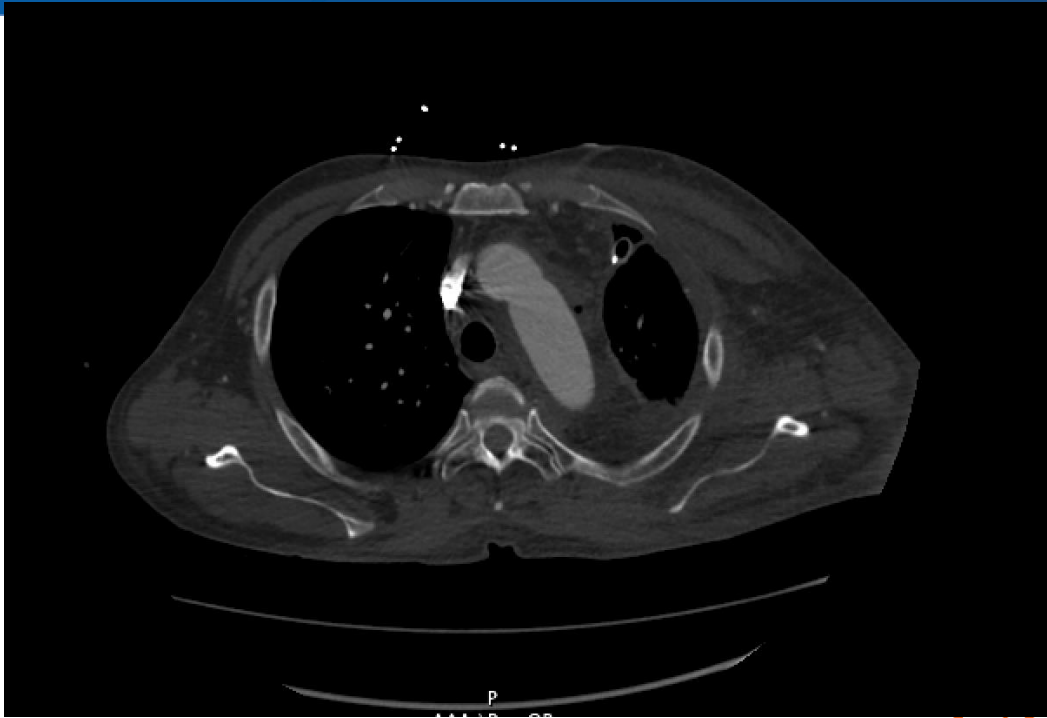
Explanted Thoracic and Subclavian Stent Grafts



Post-Operative Management

- Two additional washouts were required before an omental flap was used to obtain coverage of the aortic graft on post-operative day (POD) 6.
- As operative cultures grew methicillin-resistant *Staphylococcus aureus* the patient was treated with a course of vancomycin followed by suppressive doxycycline.
- After an otherwise uncomplicated course the patient was discharged on POD 18.

Post-Operative CTA



Showing excellent surgical result with ligated LSC and replaced distal aortic arch

Conclusion

- Explantation of an infected TBE is feasible with multidisciplinary care at an experienced aortic center.
- As time progresses, likely more infected TBEs will require explanation
- This experience will serve as a example of how to effectively manage this novel complex surgical challenge.

References:

1. Atkins AD, Atkins MD. Branched and Fenestrated Aortic Endovascular Grafts. *Methodist DeBakey Cardiovasc J.* 2023 Mar 7;19(2):15-23. doi: 10.14797/mdcvj.1200. PMID: 36910555; PMCID: PMC10000330.
2. van Bakel TM, de Beaufort HW, Trimarchi S, Marrocco-Trischitta MM, Bismuth J, Moll FL, Patel HJ, van Herwaarden JA. Status of branched endovascular aortic arch repair. *Ann Cardiothorac Surg.* 2018 May;7(3):406-413. doi: 10.21037/acs.2018.03.13. PMID: 30155420; PMCID: PMC6094020.