



# Delayed C-Loop Intercostal Patch Aneurysm in Marfan Syndrome Treated with Endovascular Salvage

Aleksandra Vrvilo BA, Taylor Stevenson MD, Tiffany Lian MD, Anthony Estrera MD,  
Claire Kaufman MD, Sherene Shalhub MD MPH

---

*Houston Aortic Symposium — March 7, 2025*



# Disclosures

- No financial disclosures

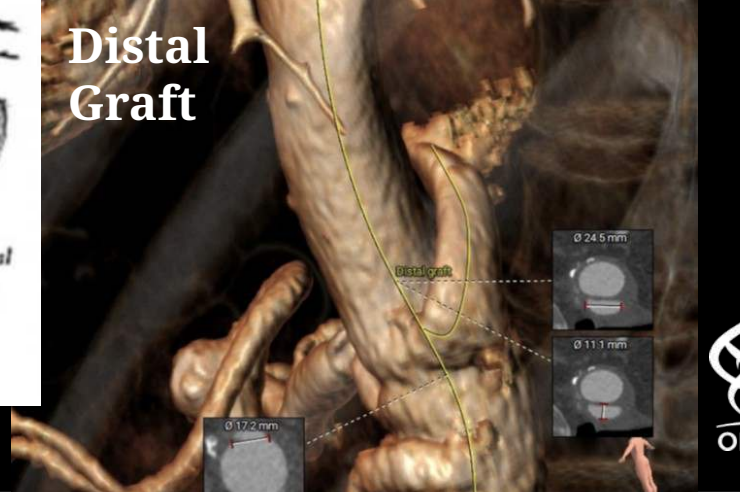
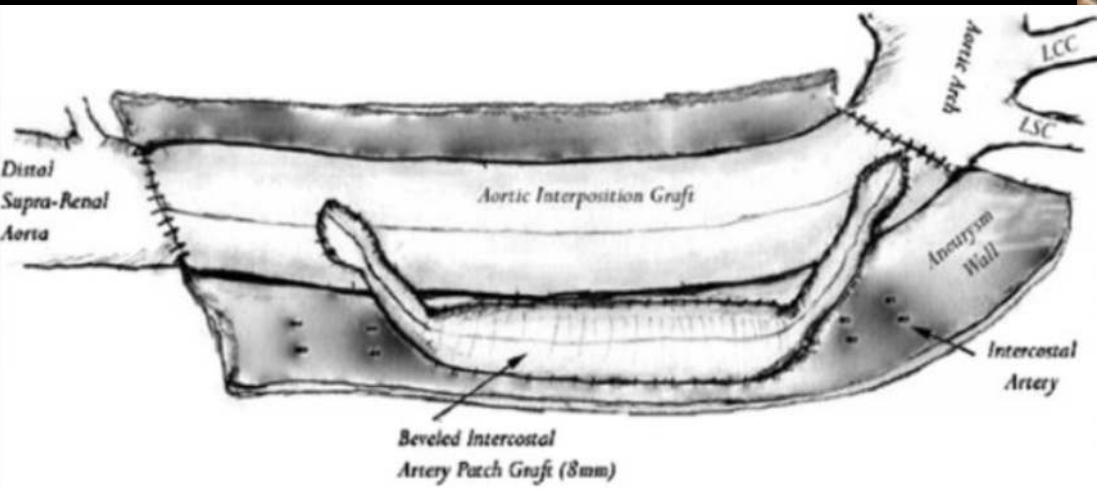
- 73 y/o M with Marfan syndrome (*FBN1* c.1847A>G, p.Glu616Gly) was found to have a progressively enlarging thoracic intercostal patch aneurysm 11 years after open extent II TAAA repair
- History included:
  - Bentall procedure with mechanical aortic valve replacement at age 42
  - Type B aortic dissection complicated by renal malperfusion requiring stenting at age 57
  - Open extent II TAAA repair at age 62



SURGEON	1ST ASSISTANT	2ND ASSISTANT	DATE OF OPERATION
Hazim J. Safi, M.D.	A. Estrera, M.D.	J. Dubose, M.D. R. Alfifi, M.D.	01/31/14

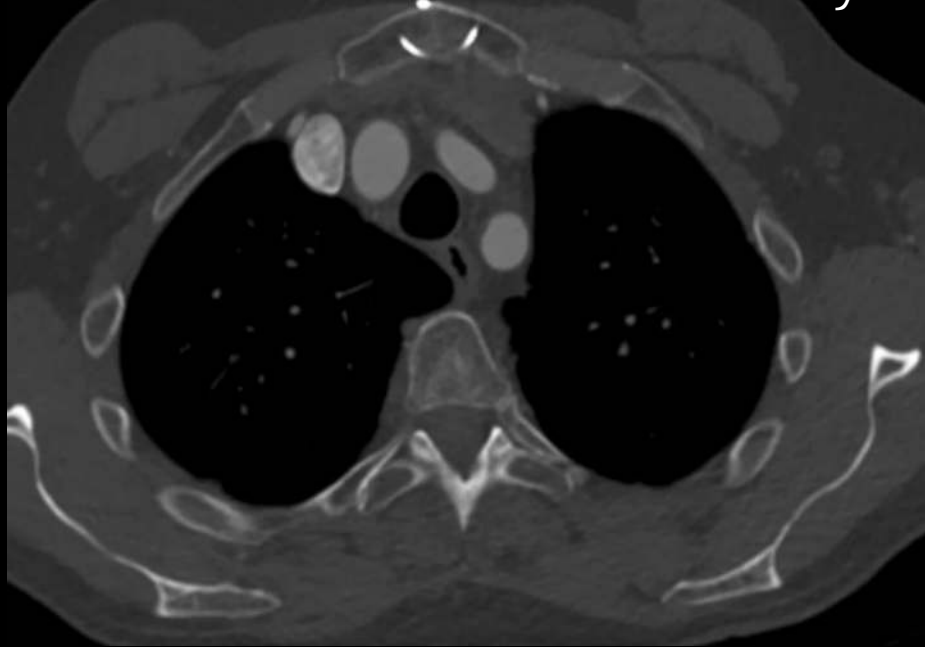
# Open Extent II TAAA Repair

- Intraoperative neurophysiologic monitoring demonstrated loss of motor evoked potentials following proximal aortic clamping, prompting reimplantation of intercostal arteries T8-T12 with a 14-mm Dacron C-loop graft



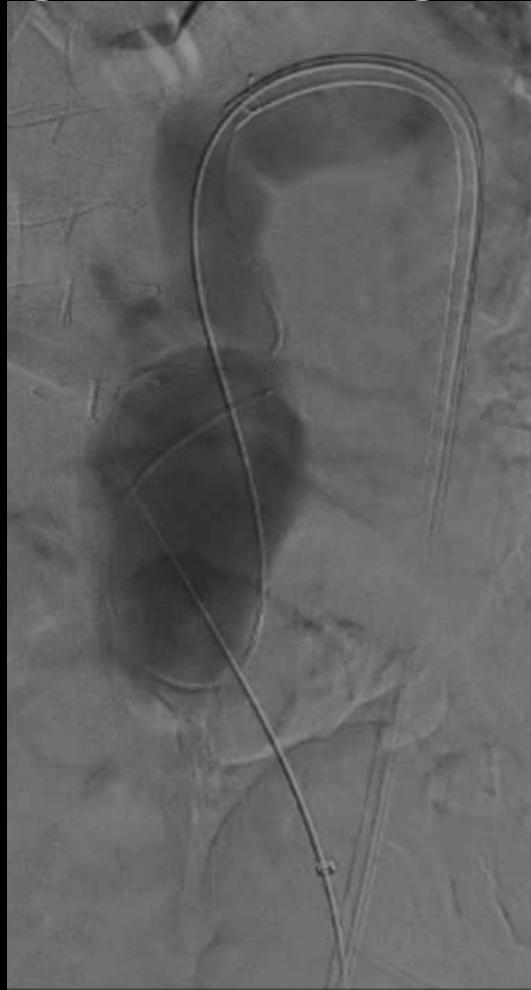
# Patch Aneurysm

- Surveillance imaging over a decade later showed progressive aneurysmal degeneration of residual native aortic wall incorporated into the C-loop anastomosis
  - 34 x 24 mm → 72 x 47 mm over one year



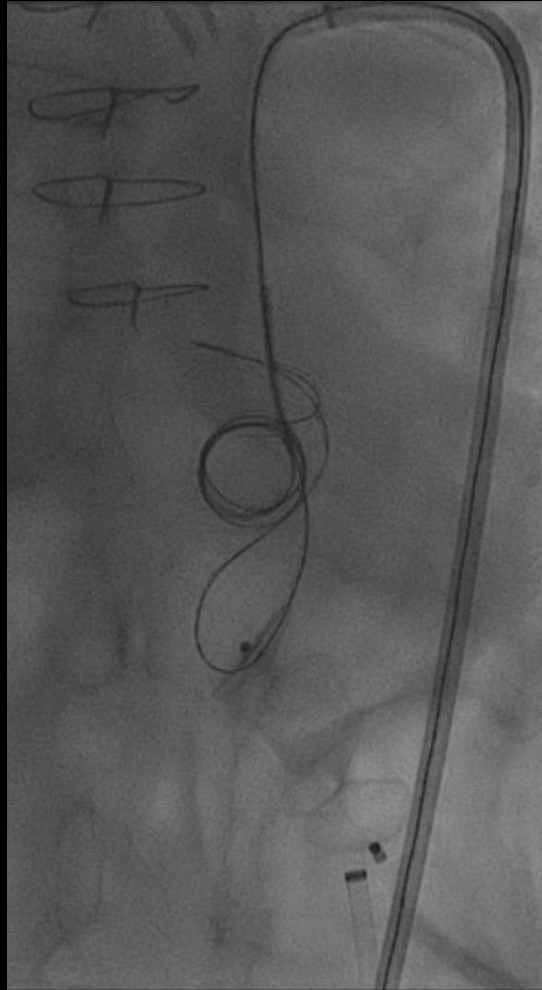
# Surgical Management

- Aneurysm accessed via open exposure of the right common femoral artery
- Inferior limb of the C-loop occluded with an 18-mm Amplatzer Vascular Plug II



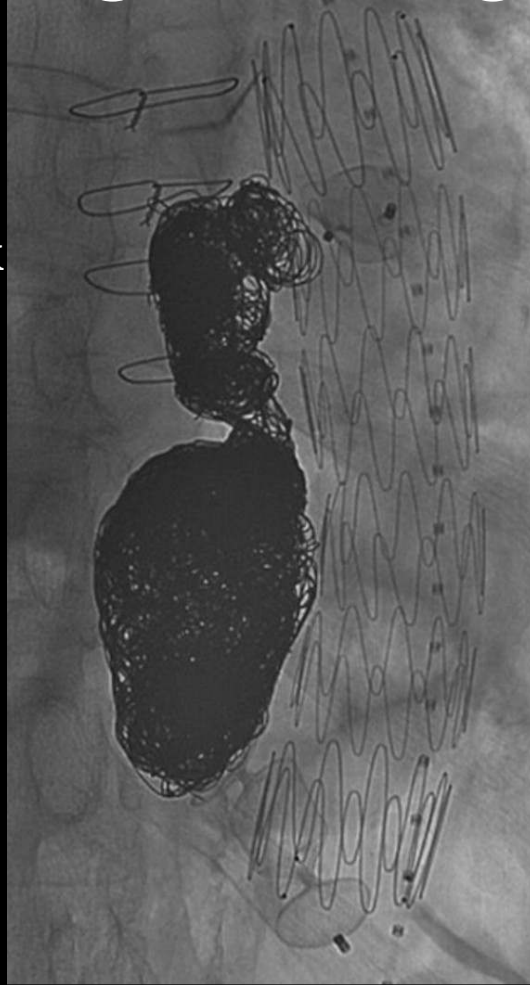
# Surgical Management

- Coil embolization of the aneurysm sac performed using a combination of detachable Balt prestige and pushable Nester coils
- Superior limb of the C-loop occluded with a 16-mm Amplatzer Vascular Plug II



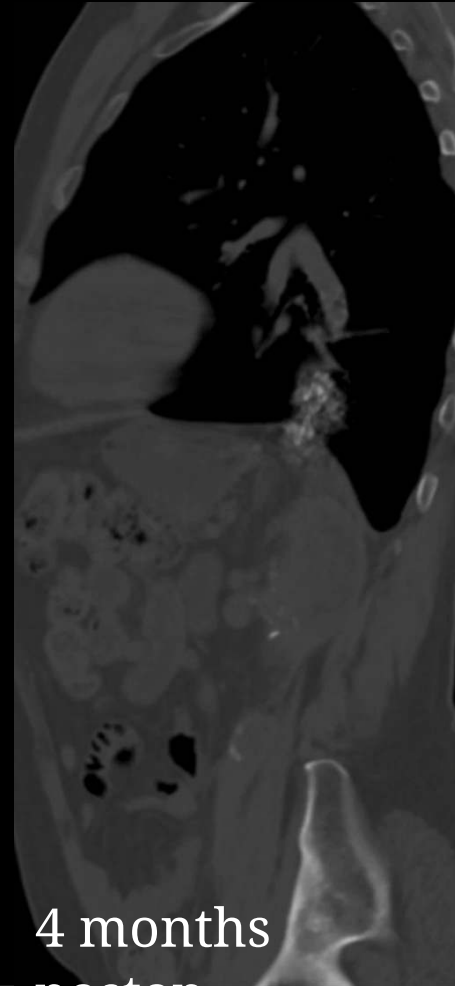
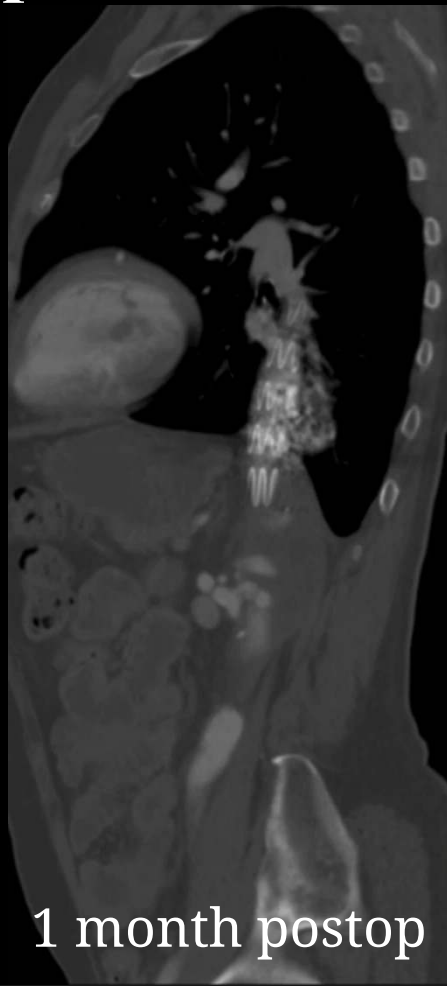
# Surgical Management

- TEVAR (32 x 158-mm Cook Zenith TX2 device) was deployed in zones 4-5 to reline the Dacron graft
- Completion angiography demonstrated complete aneurysm sac exclusion without residual filling



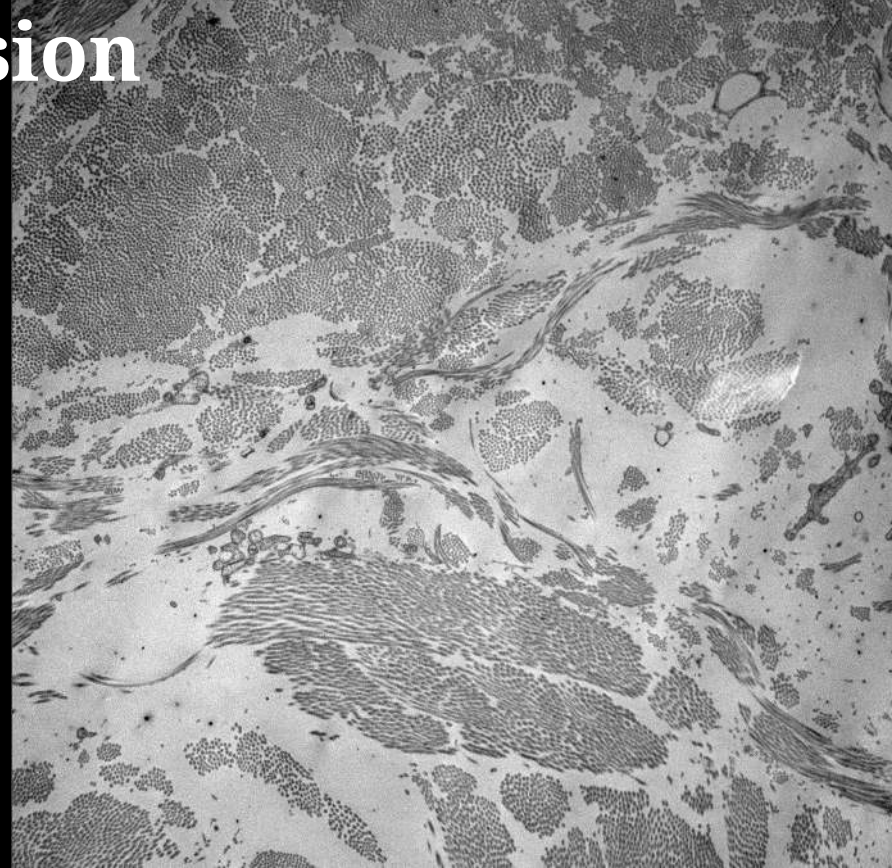
# Postoperative Course

- POD#2: spinal drain removed
- Patient developed positional headache attributed to CSF leak, which resolved with conservative management
- POD#9: discharged



# Conclusion

- C-loop intercostal artery reimplantation in Marfan syndrome may predispose to late aneurysmal degeneration, reflecting persistent biologic vulnerability.
- Lifelong imaging surveillance is essential following intercostal artery reimplantation, particularly in patients with connective tissue disorders.
- Endovascular salvage with targeted embolization and adjunctive TEVAR can effectively treat late patch-related complications.
- Shape-memory polymer embolization devices may have a role in treating these large aneurysms requiring embolization.



TEM with striking  
lack of elastic  
fibers!





Thank You

