Surgical Repair for an Iatrogenic Retrograde Type A Dissection Following New Generation Thoracic Branched Endoprosthesis:

The First Case Report

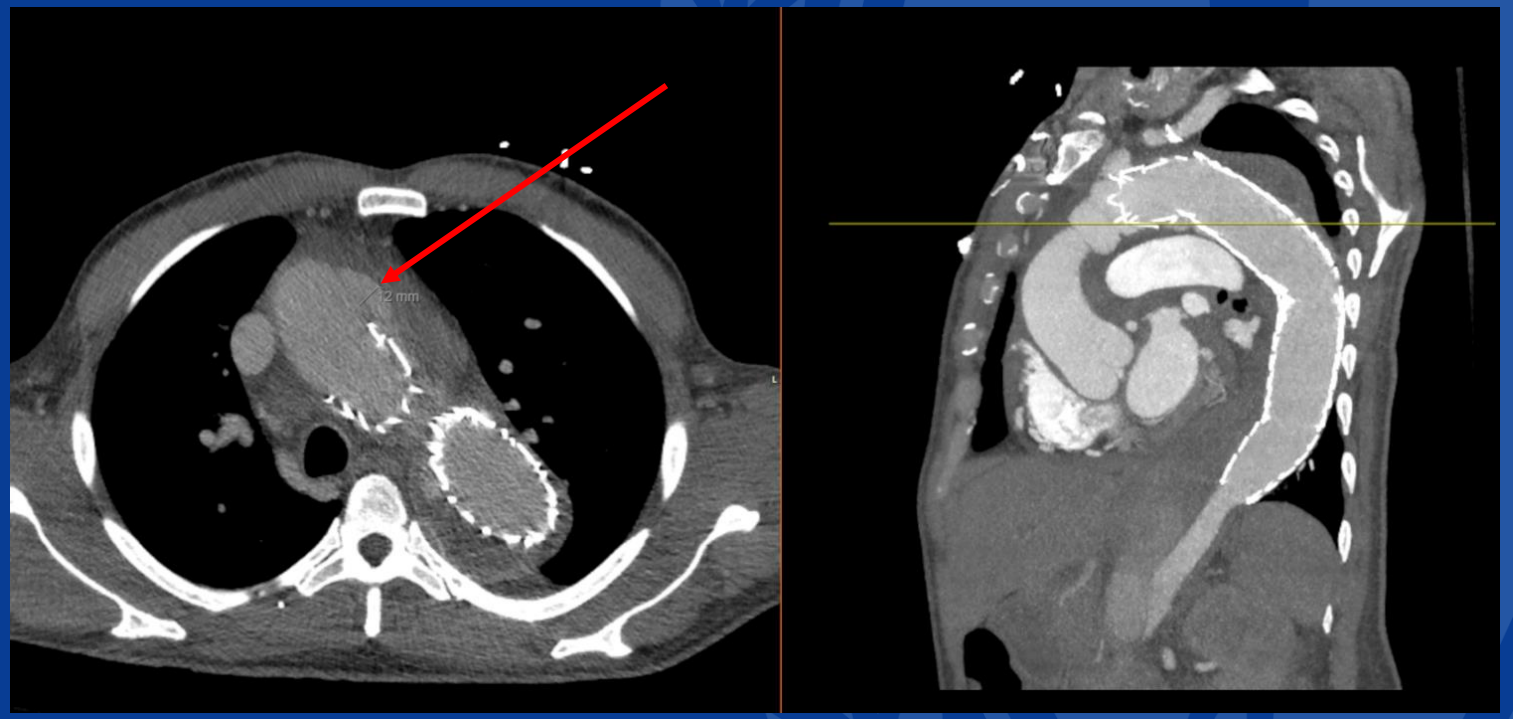
Authors:

Andrew Jones BA, Shaelyn Cavanaugh MD, Hossein Amirjamshidi MD, Sarah Hoffman BS, Joshua Geiger MD, Daniel Lehane BS, Baqir Kedwai BS, Kazuhiro Hisamoto MD

Kazuhiro_hisamoto@urmc.Rochester.edu

Medical History

- 62yo man
- PMH:
  - Hypertension
  - Hyperlipidemia
  - Graves Disease



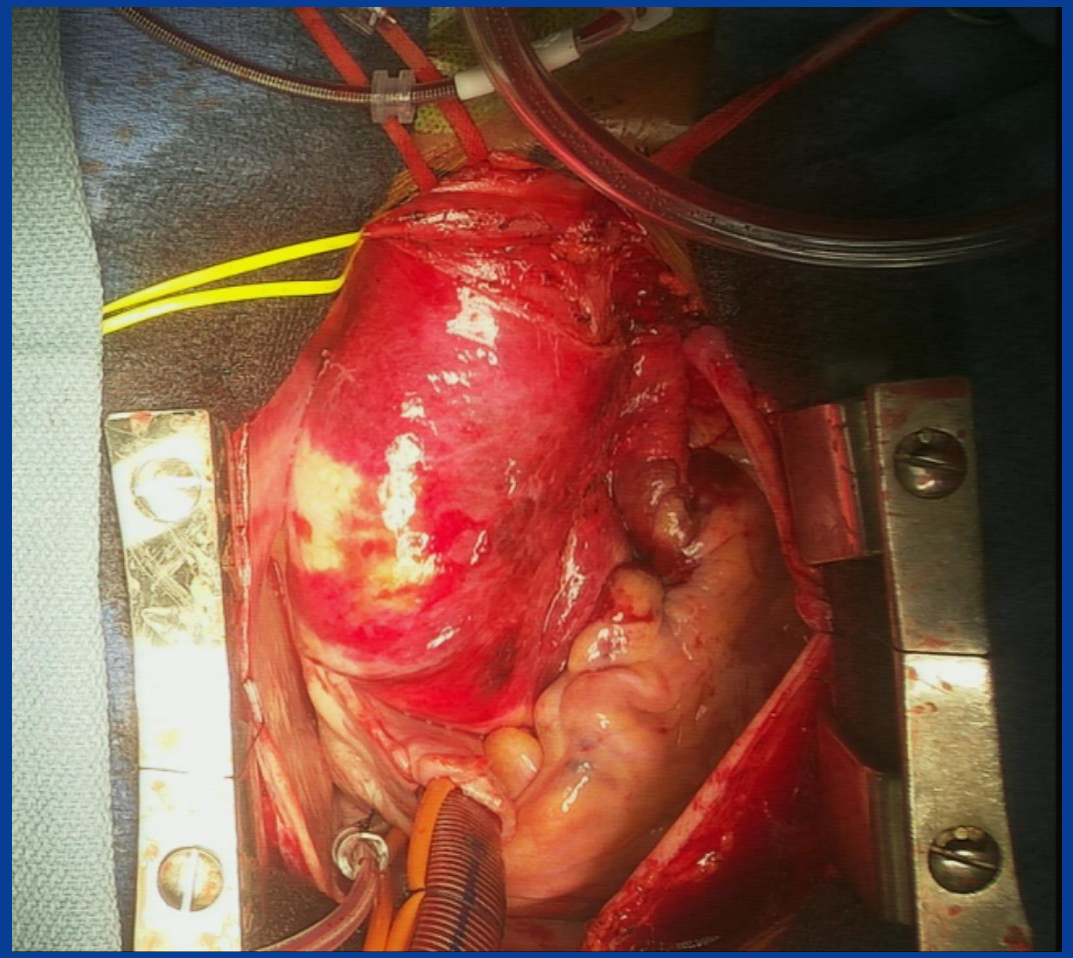
Clinical Course

- 2019
- Acute-on-chronic type $B_{3,11}$ dissection
- Treated with endoprosthesis stent grafts from zones 3 to 5

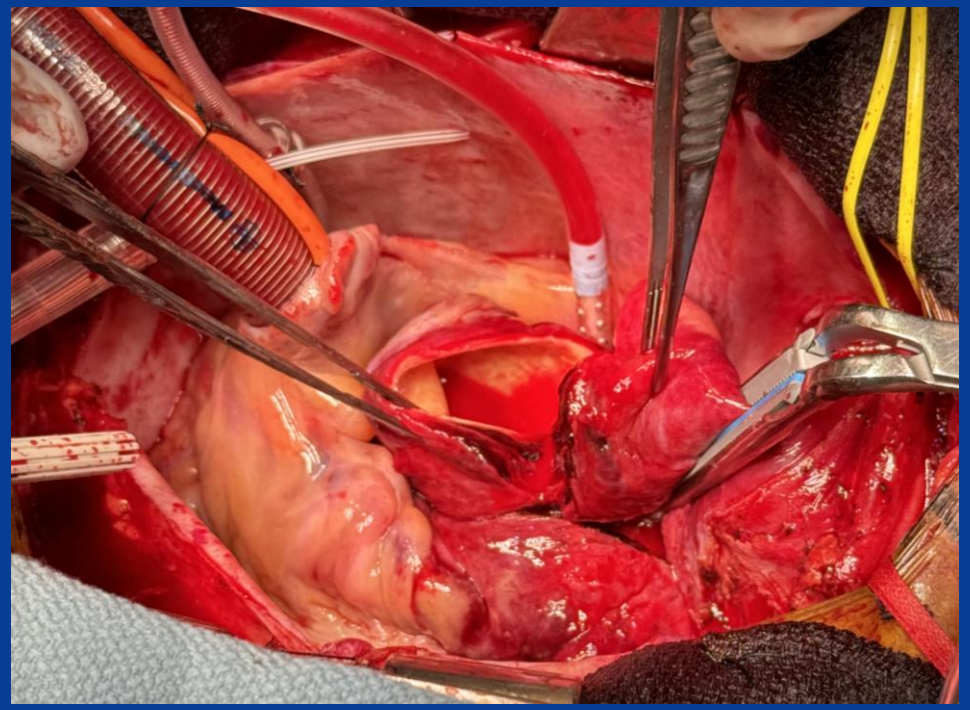
- 2022
- Loss of seal and a penetrating ulcer at the proximal landing zone
- Interval growth of a dissection-associated aneurysm to 5.5cm
- Seal zone extended with Thoracic Branched Endoprosthesis

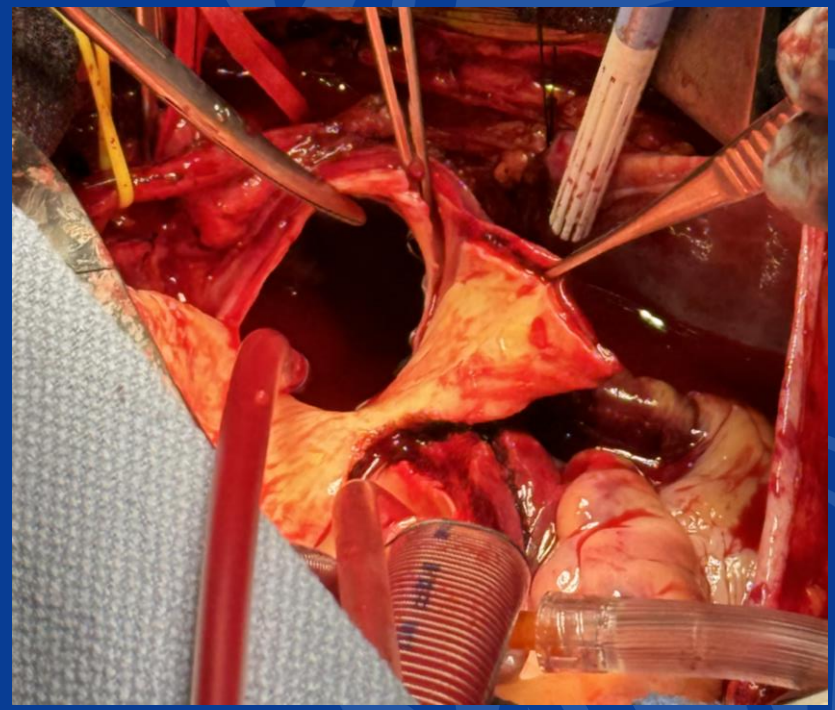
- 2023
- Presented with chest pain
- Retrograde type A aortic dissection, pericardial effusion, mediastinal fluid
- Enlarging pseudoaneurysm at the proximal seal zone up to 1.1cm

Dissected Ascending Aorta and Hemopericardium

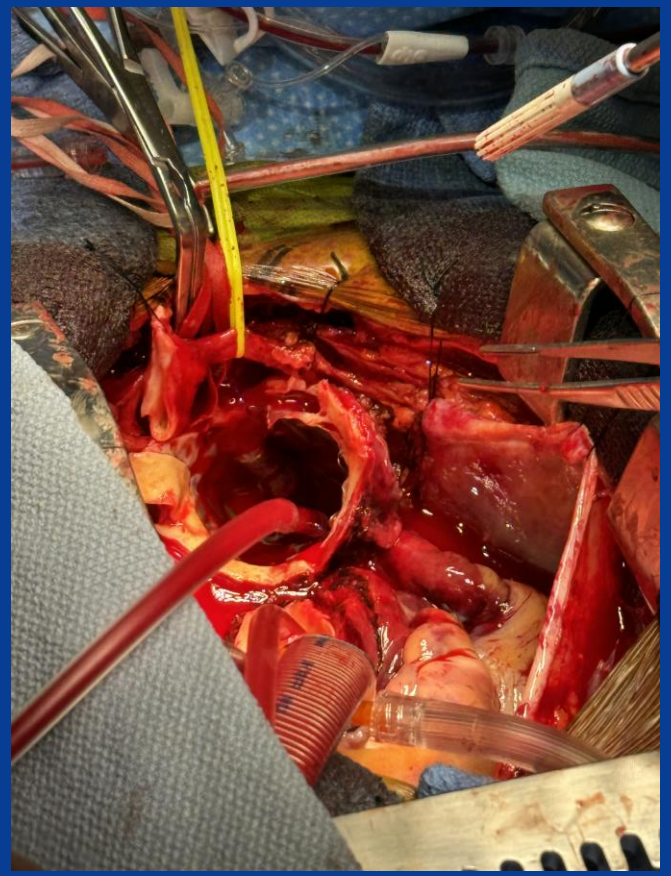


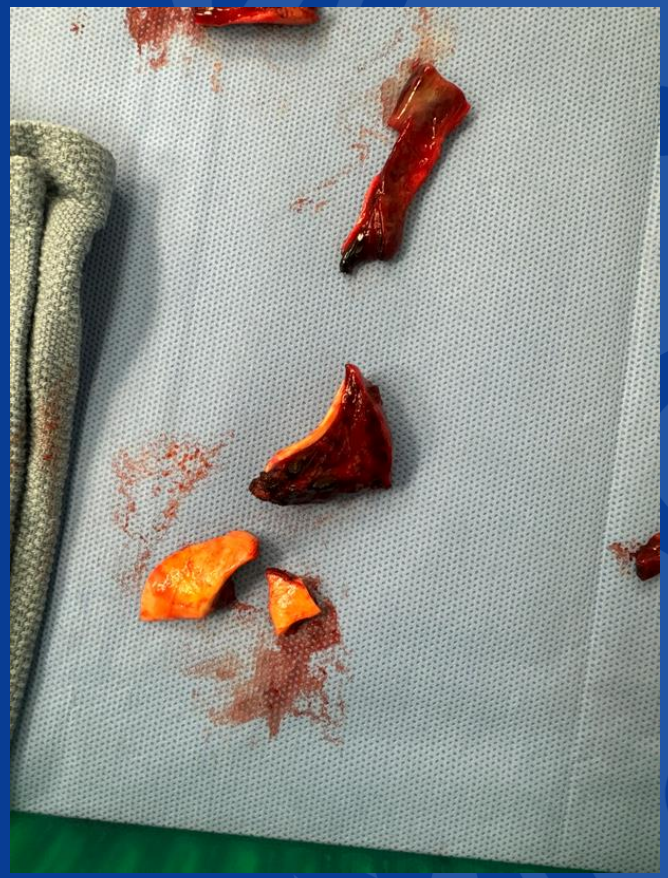
Extension of the Intimal Flap Proximally and Distally





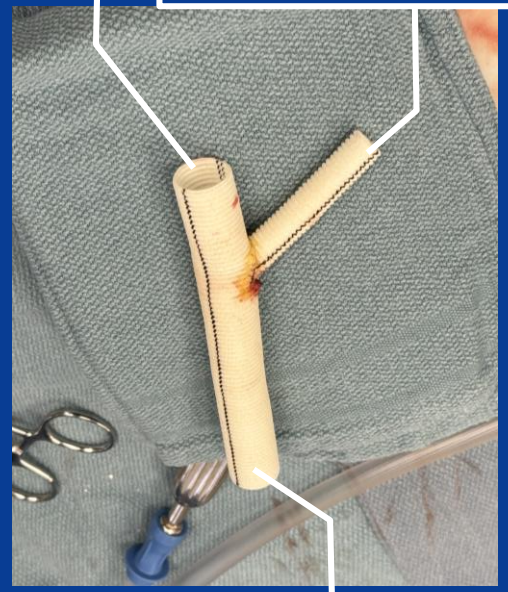
Dissection of Proximal Prosthesis



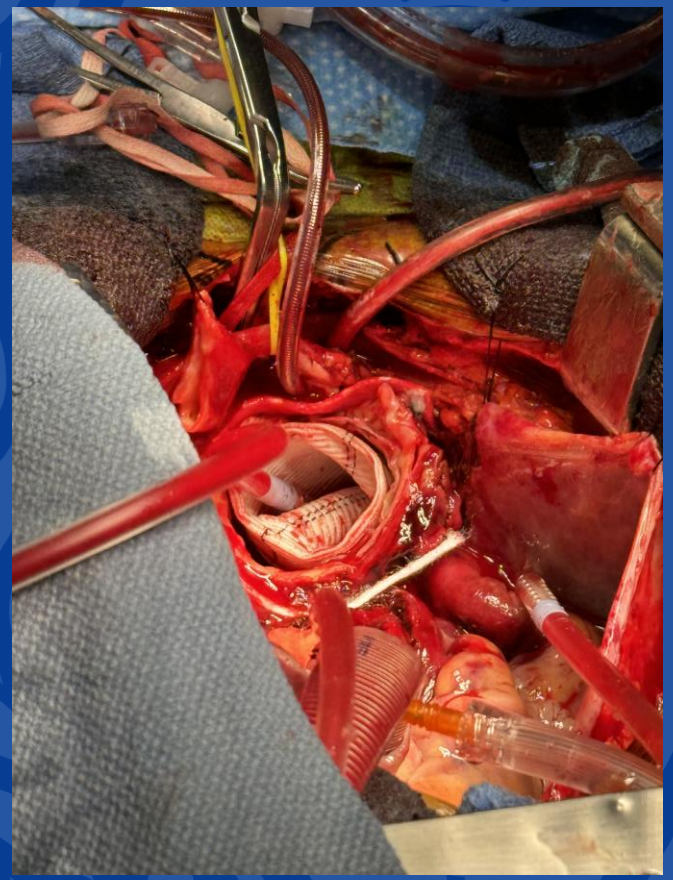


False Lumen Thrombus

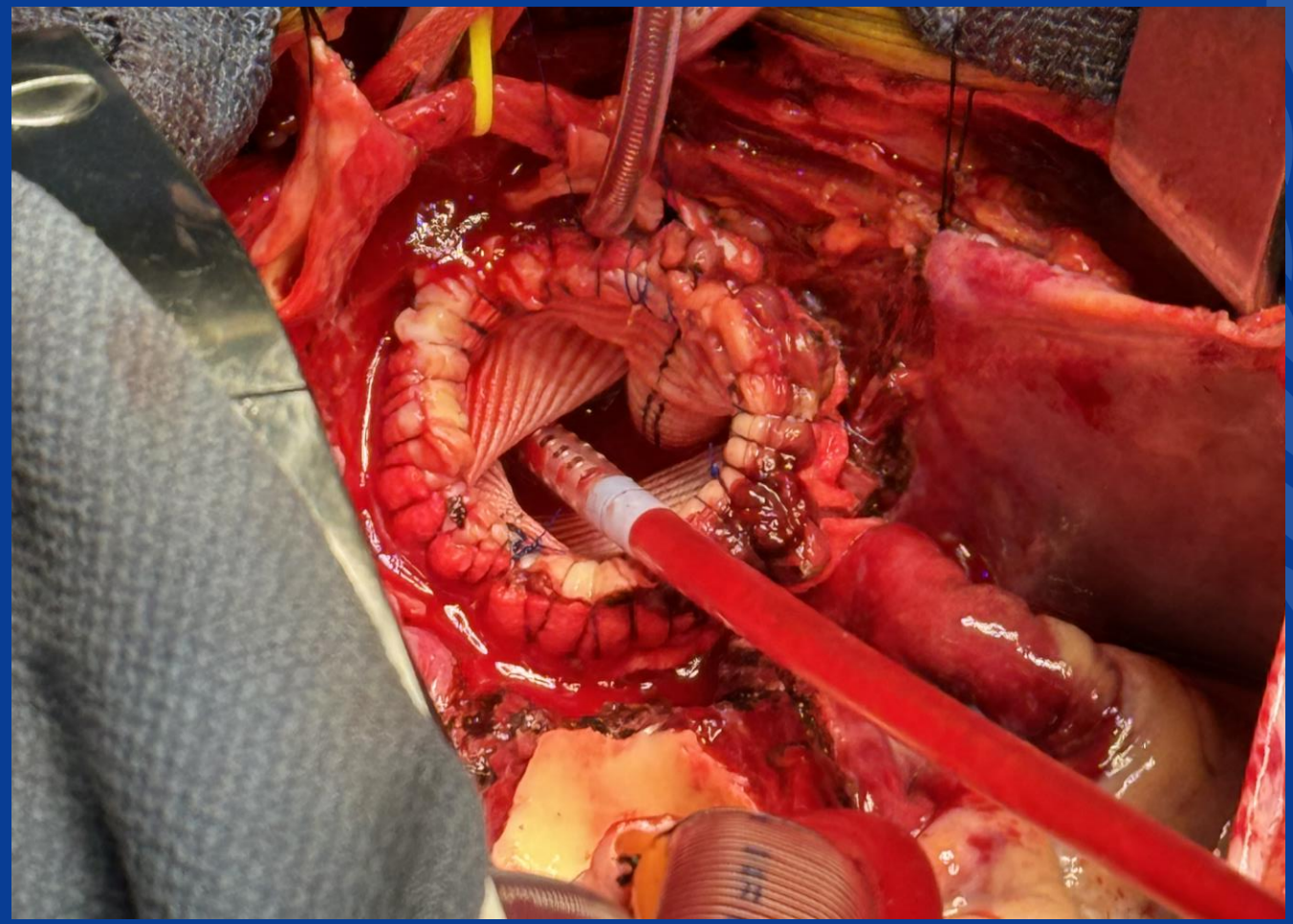
Graft Assembly and Fitment



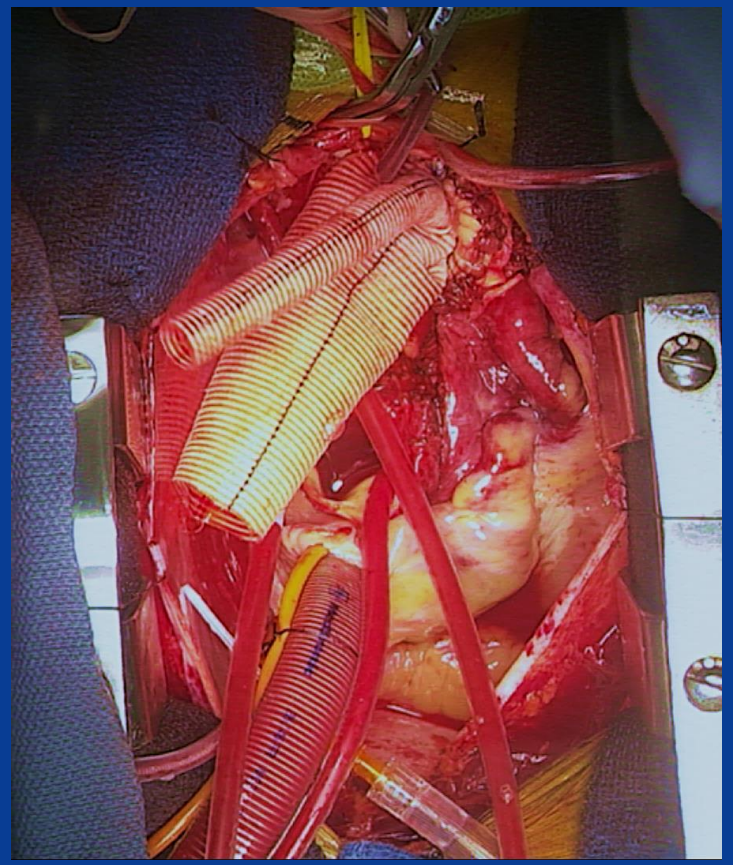
32mm 1-branch hemashield aortic graft inverted to facilitate insertion



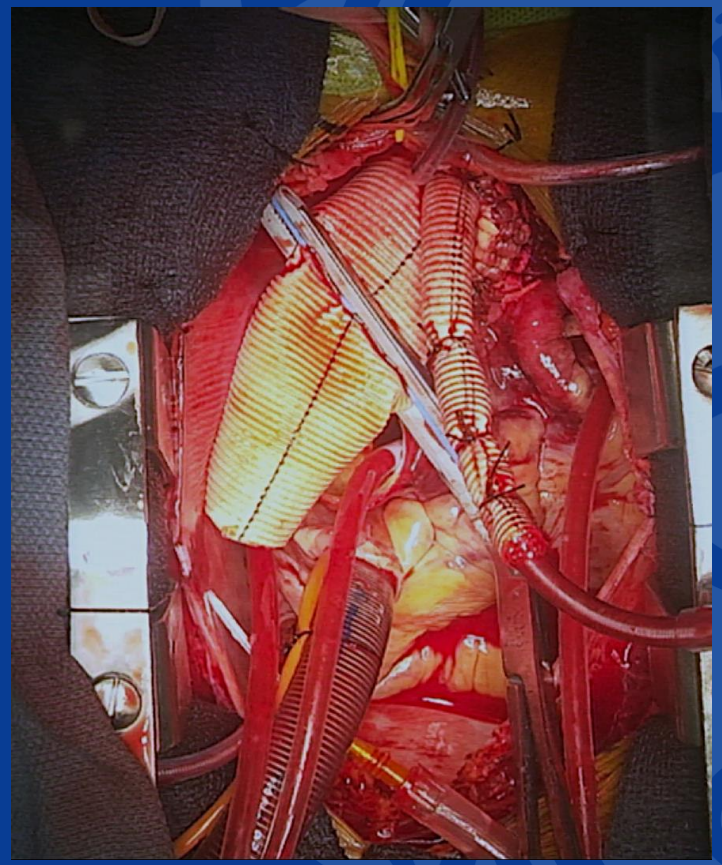
Distal Aortic Anastomosis of Inverted Aortic Graft



Inversion of the Graft, Cross Clamp, and Resumption of Full Flow Systemic Bypass



Aortic graft opened into position after distal anastomosis

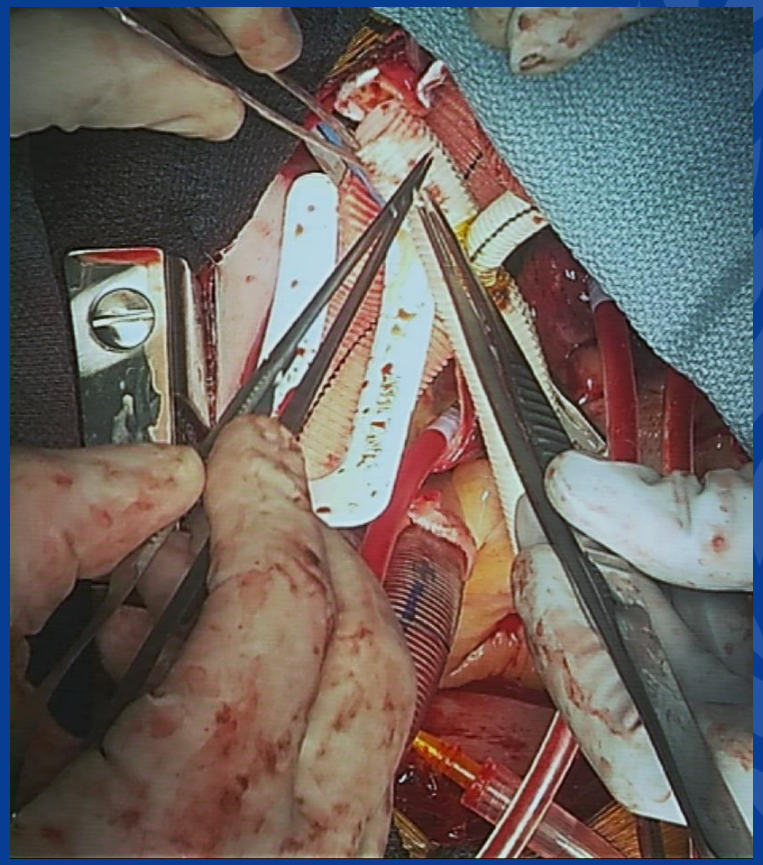


Cross clamp placed, and systemic bypass resumed via branch graft

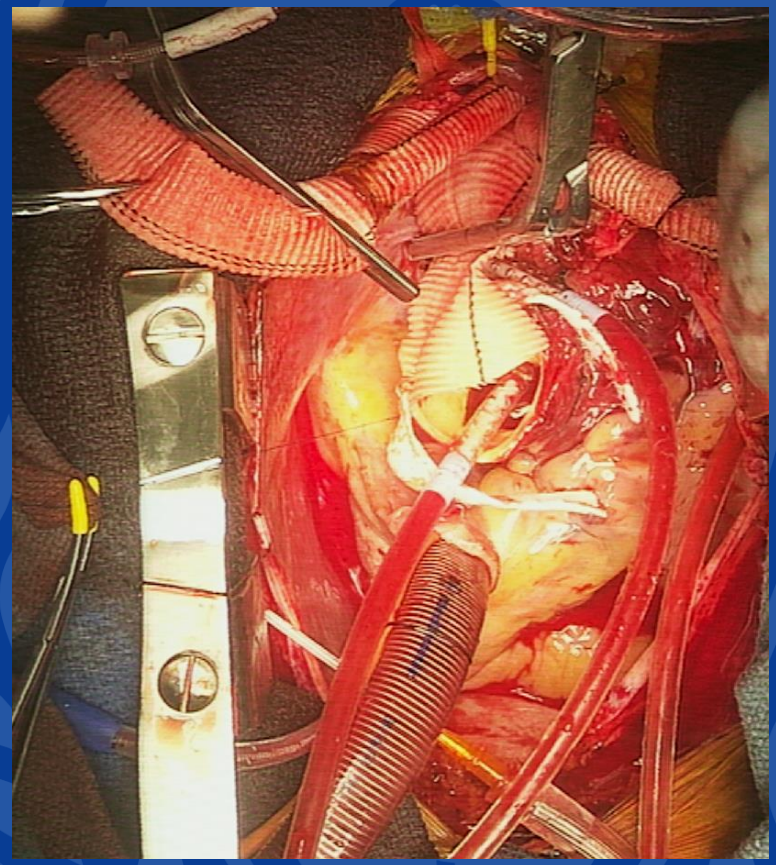
Cerebral Perfusion Bilaterally

- After the distal aortic graft was sewn, the Y graft was sewn distally to the innominate and L carotid

- The Y graft was clamped proximal to the bifurcation, and bilateral cerebral perfusion was resumed



Suturing the innominate to the distal Y graft

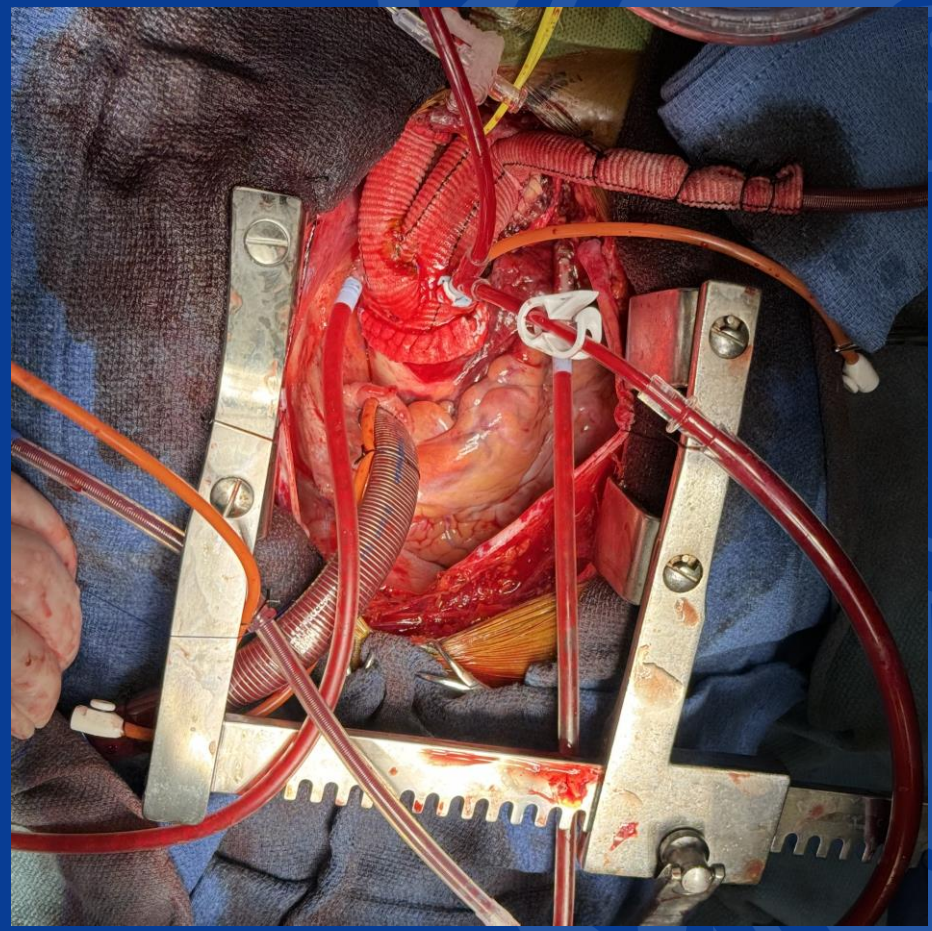


Y graft in place with proximal cross clamp

Anastomosing Y graft to Aorta

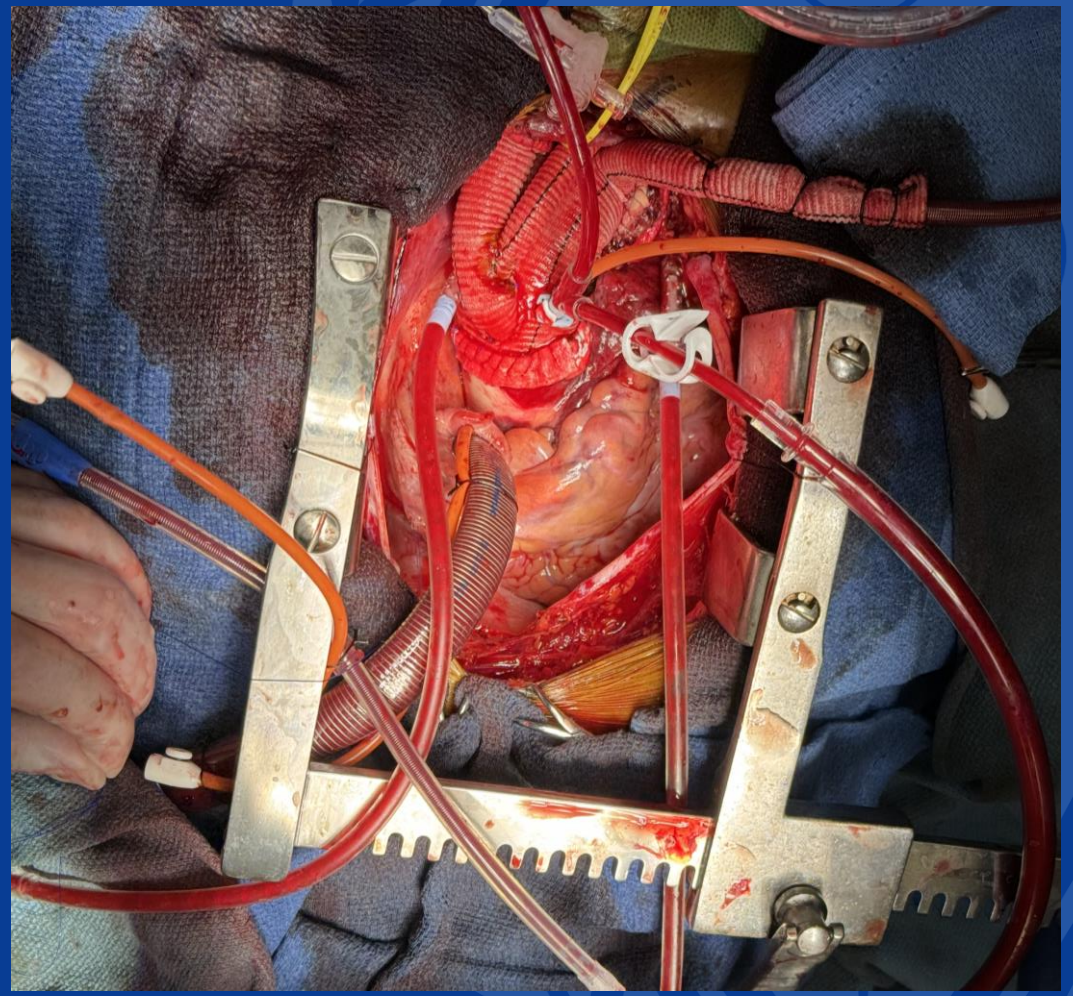
- The proximal 32mm aortic graft anastomosis was performed

- The proximal anastomosis of the Y graft was anastomosed end-to-side directly to the aortic graft



Final Anastomoses Ready for Bypass Wean

- Patient was weaned from bypass on the first attempt without difficulty
- Patient recovered well and was extubated on postoperative day 1
- He was discharged home on postoperative day 10



Conclusions

- First reported case of a retrograde type A dissection following new generation TBE for type B dissection
- Rare complication that occurred one year following placement
- Managed successfully with urgent surgical intervention for zone 2 aortic arch replacement
- Highlights the potential late complications of stent graft placement
- Kazuhiro_hisamoto@urmc.Rochester.edu