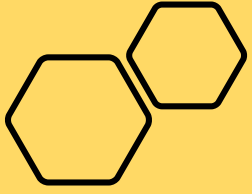


An anatomical illustration of the thoracic aorta and heart. The aorta is shown in red, with a branched endograft placed inside it. The heart is shown in a lighter red/pink color. The background is dark with a light-colored outline of the thoracic cavity and major vessels.

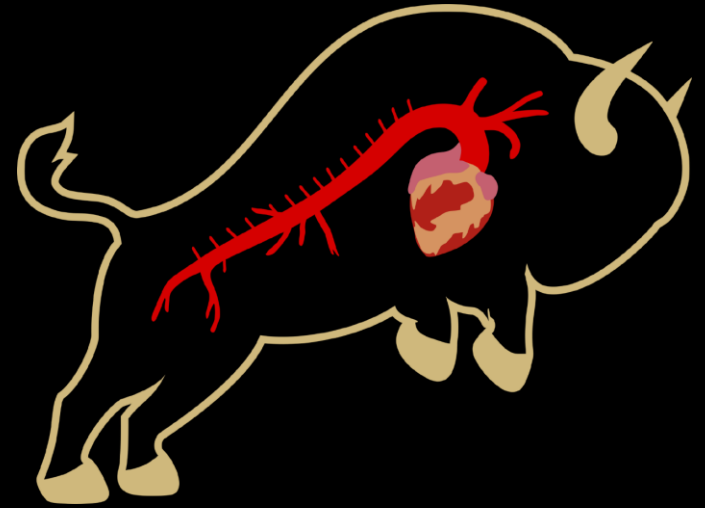
# The Application of Aortic Debranching to Facilitate Zone 0 Coverage with Thoracic Branched Endograft

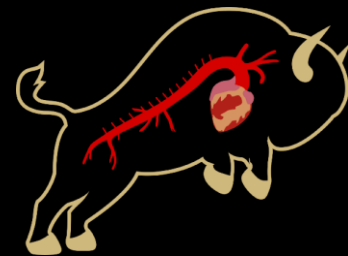
Adam Carroll (1), Donald Jacobs (1), T. Brett Reece (1), Muhammad Aftab (1)

(1) University of Colorado Anschutz, Denver, CO



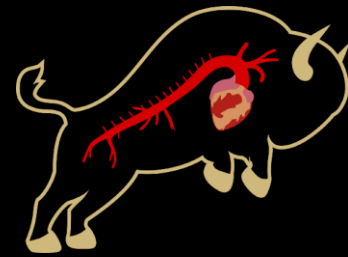
No disclosures





# Introduction

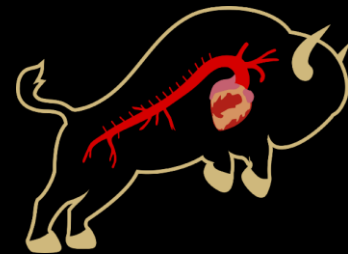
- TEVAR is well-established for zone 2 aortic arch coverage
  - Multiple viable, commonly used methods of maintenance of left subclavian perfusion
- Recently, TBE has been applied to zone 2 arch repair
- Proximal to zone 2 TBE has seen limited application due to high risk of neurologic complications



# Aim/Methods

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- Aim: Review two cases of aortic debranching, followed by “Zone 0” TBE at our institution
- Both patients with prior type A dissections and remote repair, presenting with extensive arch degeneration
- Review presentation, operative details, hospital course
- Reconstruct aortic pathology and debranching in 3D-Slicer

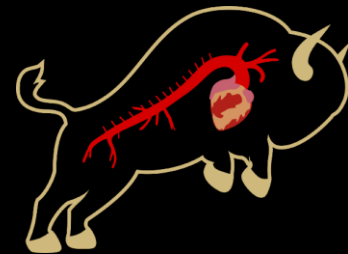


# Patient 1

- Four years prior presented with Type A, repaired with AV resuspension and ascending replacement
- Developed aneurysmal degeneration of arch, DTA
- Decision made in conjunction with patient and aortic team to pursue elective aortic debranching followed by TBE

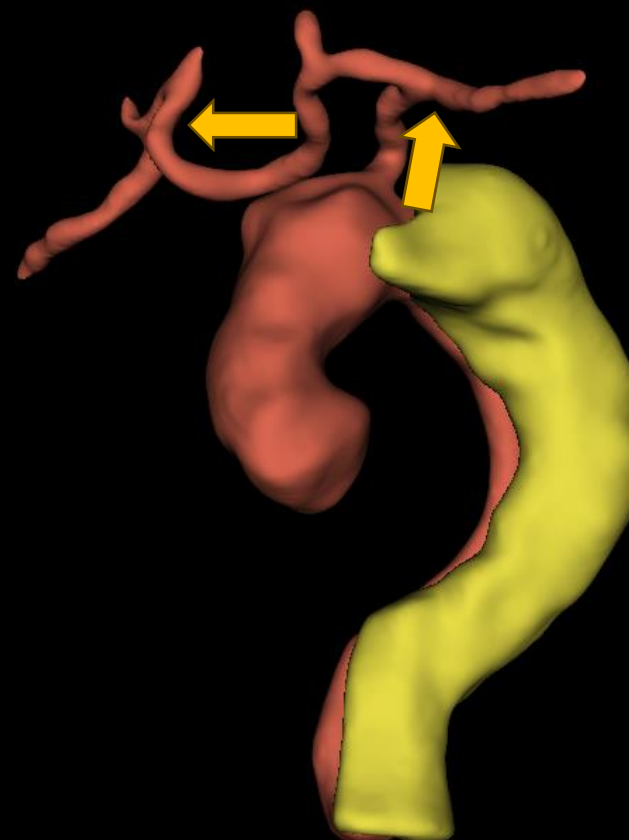


Reconstruction in 3D-Slicer (Yellow: False Lumen, Red: True Lumen)

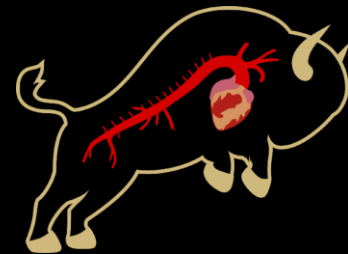


# Patient 1: Debranching

- Head and neck vessel bypasses/transpositions:
  - Left subclavian to left carotid
  - Left carotid to right carotid
  - Right carotid to subclavian
  - Right vertebral to right carotid
- Ligation of head and neck vessels with exception of left subclavian
- Transient right vocal cord paresis post-operatively
- Left neck chyle leak post-operatively
- Discharged hospital day 10 with drain in place, removed prior to TBE

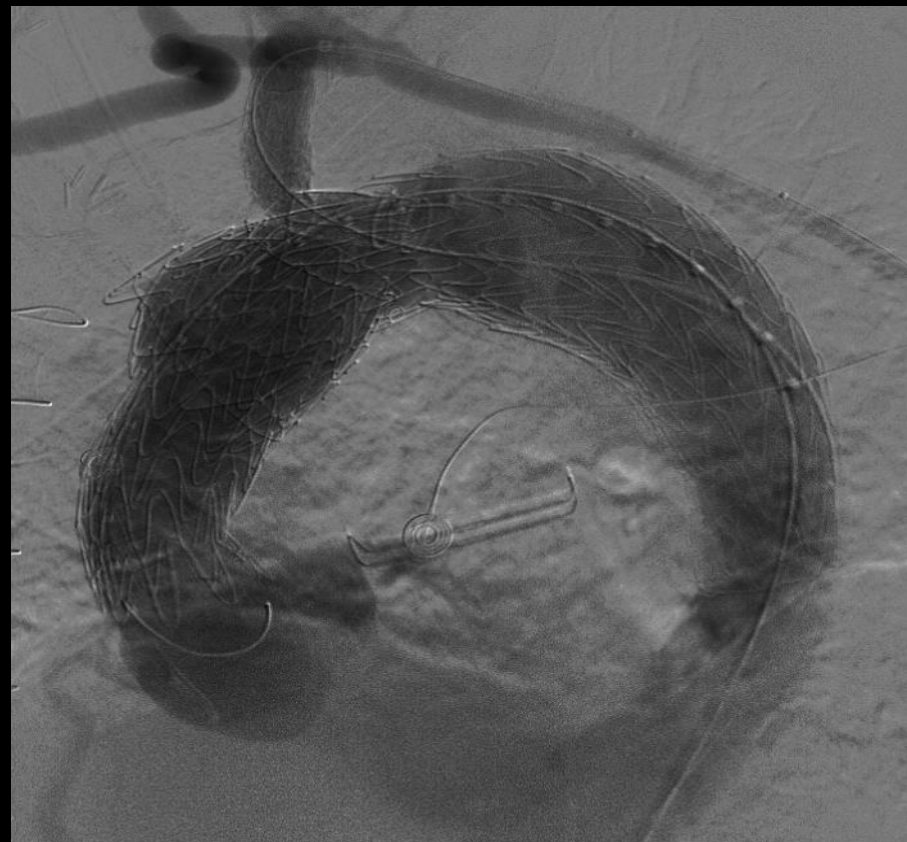


Reconstruction in 3D-Slicer (Yellow: False Lumen, Red: True Lumen, Arrows represent head and neck flow directionality)

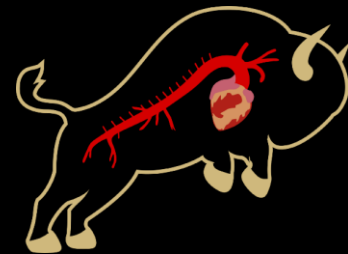


# Patient 1: TBE

- Staged TBE performed with proximal extension to ascending aorta, stenting of left subclavian without complication
- Discharged on hospital day 2 on aspirin, as well as oral AC due to history of atrial fibrillation

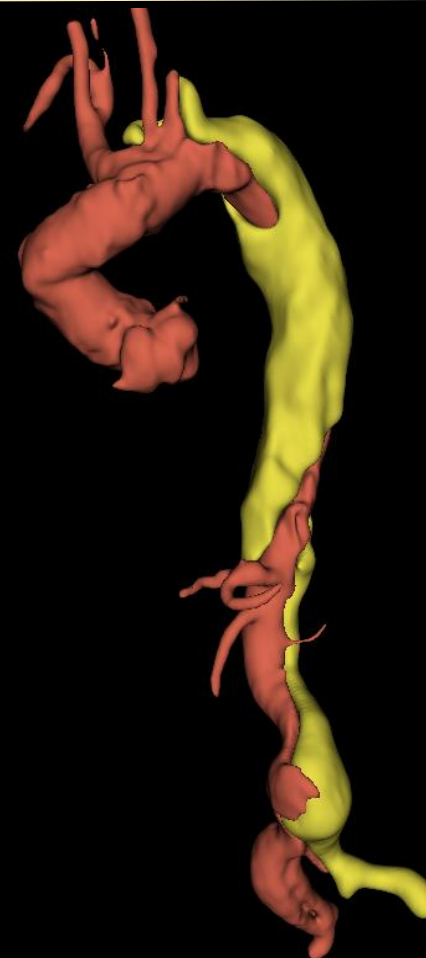


Angiography post debranching and TBE deployment



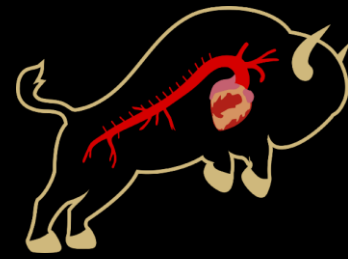
# Patient 2

- Hemiarch replacement for type A two years prior
- Presented with symptoms of hemoptysis
  - Concern for contained rupture of aorto-pulmonary fistula
  - Additional aneurysmal degeneration of dissection extending into proximal left common carotid, subclavian



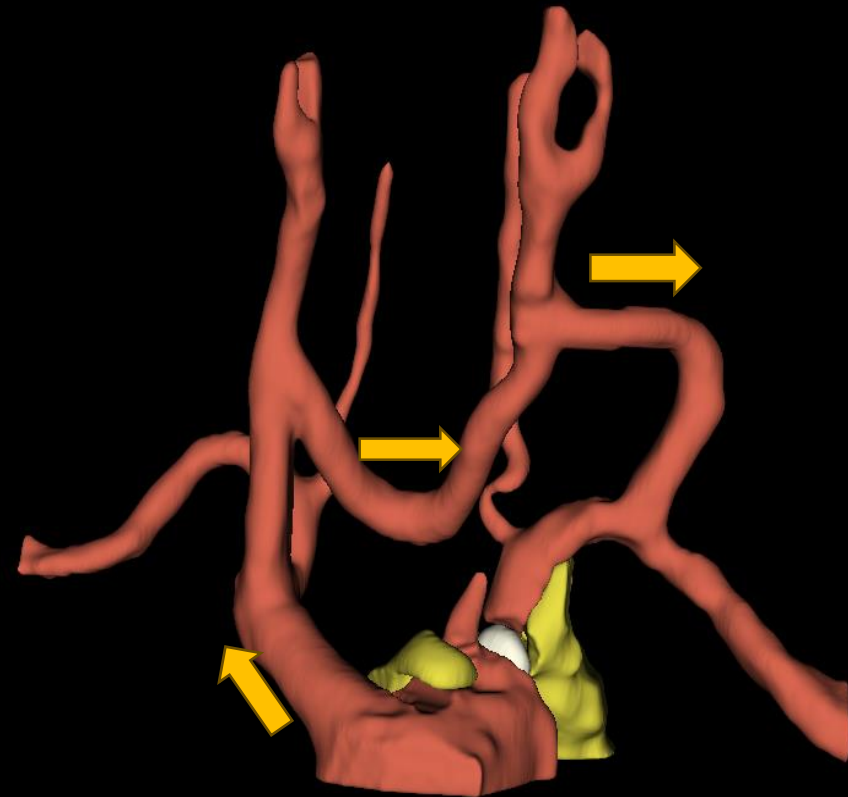
Reconstruction in 3D-Slicer (Yellow: False Lumen, Red: True Lumen)



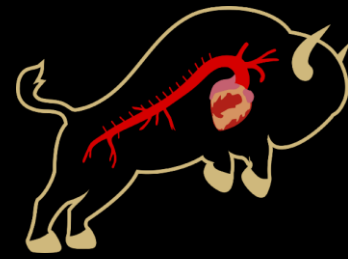


# Patient 2: Debranching

- Head and neck vessel bypasses/transpositions:
  - Right to Left Carotid
  - Left Carotid to Subclavian
- Ligation of left common carotid, Amplatzer plug of left subclavian artery

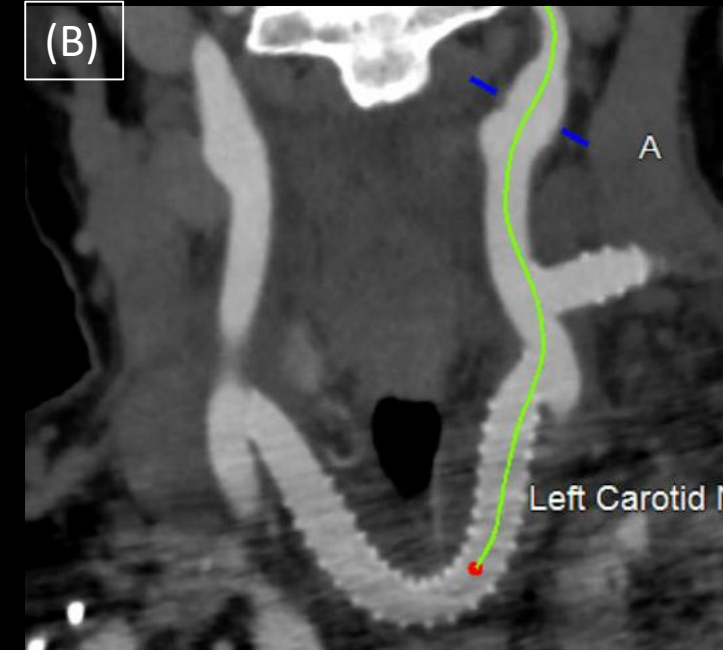


Reconstruction in 3D-Slicer (Yellow: False Lumen, Red: True Lumen, White: Vascular Plug, Arrows represent head and neck flow directionality)

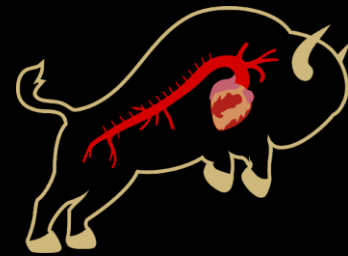


# Patient 2: TBE

- On hospital day 2, underwent TBE with innominate artery stenting
  - Procedure uncomplicated, started on aspirin monotherapy
- Patient developed left vocal cord paresis related to debranching with poor PO intake
  - Treated with vocal cord injection and enteral feeds
- Course otherwise notable for new onset atrial fibrillation, small PE
- Discharged hospital day 33 on aspirin and oral anticoagulation with resolution of vocal cord paresis, no neurologic or ischemic symptoms



(A) Aortic Reconstruction Post TBE (B) Post-Debranching Head and Neck CTA



# Conclusions

- With careful selection at dedicated aortic centers, zone 0 TBE is feasible and can be safely performed
- No neurologic deficits related to TBE
- Further experience is needed to mitigate risks related to extensive aortic debranching, however, patient symptoms improved prior to discharge

Questions???

