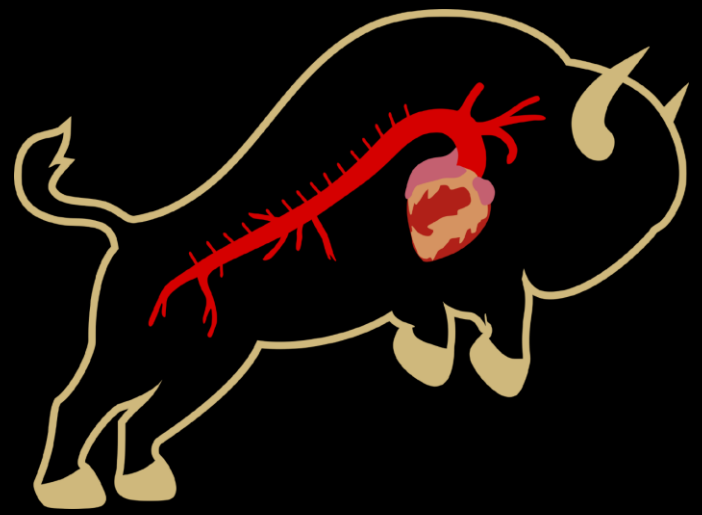
Thoracic Branched Endograft for the Treatment of Blunt Thoracic Aortic Injury with Retroesophageal Aberrant Right Subclavian Artery

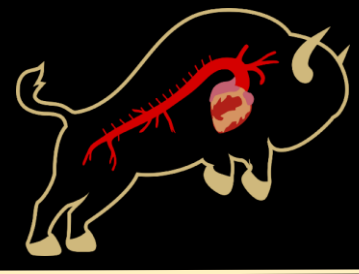
Adam Carroll (1), Donald Jacobs (1), Muhammad Aftab (1), T. Brett Reece (1)

(1) University of Colorado Anschutz, Denver, CO

No disclosures



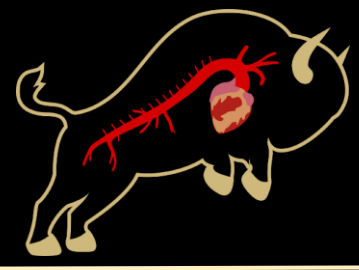
Introduction



- Endovascular repair has become the standard-of-care treatment for blunt thoracic aortic injury (BTAI)

- Anatomic anomalies, such as aberrant right subclavian arteries (ARSCA) complicate endovascular treatment of BTAI
  - Previously, ARSCA has been excluded, with extra-anatomic bypass when indicated

Aim/Methods



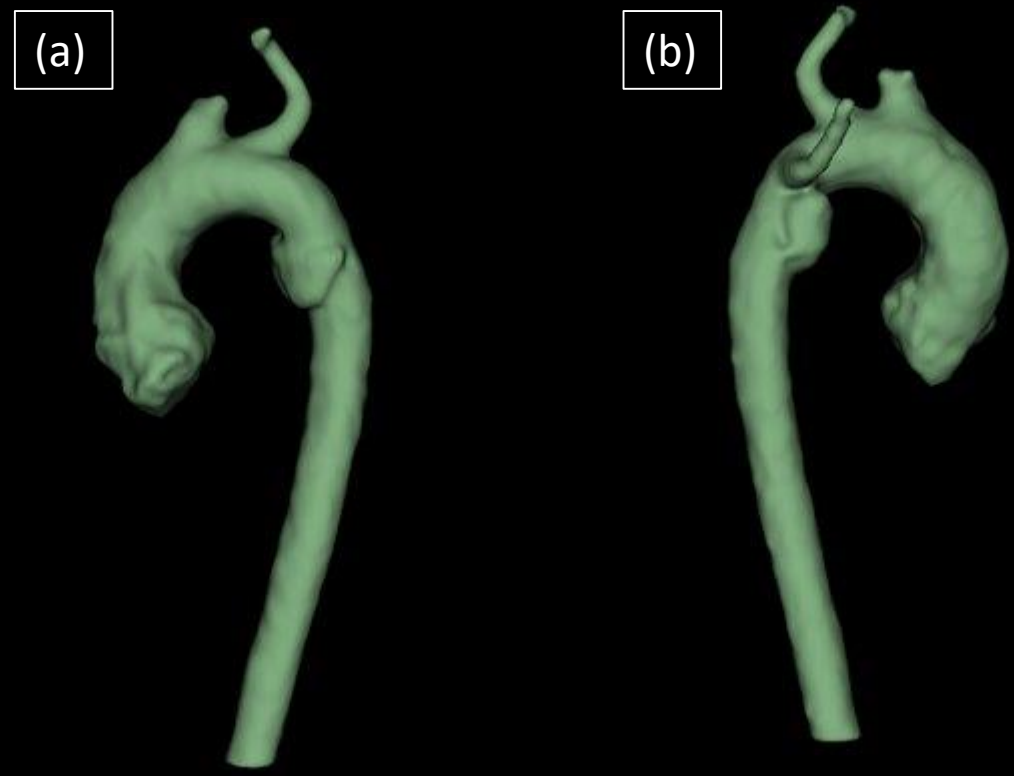
- Aim: To describe the case of endovascular management of BTAI in a patient with an ARSCA using TBE
  - Typically, our approach hels has been to eliminate obstruction from ring and exclusion of aberrant takeoff; however, in this case the patient needed urgent repair

- Patient was a 38-year-old female who presented to our institution after a high-speed motor vehicle collision with grade III BTAI
  - Other injuries notable for multiple cervical spine, rib, extremity fractures, abdominal solid organ injury

- After stabilization of other pathology, BTAI was addressed

Results

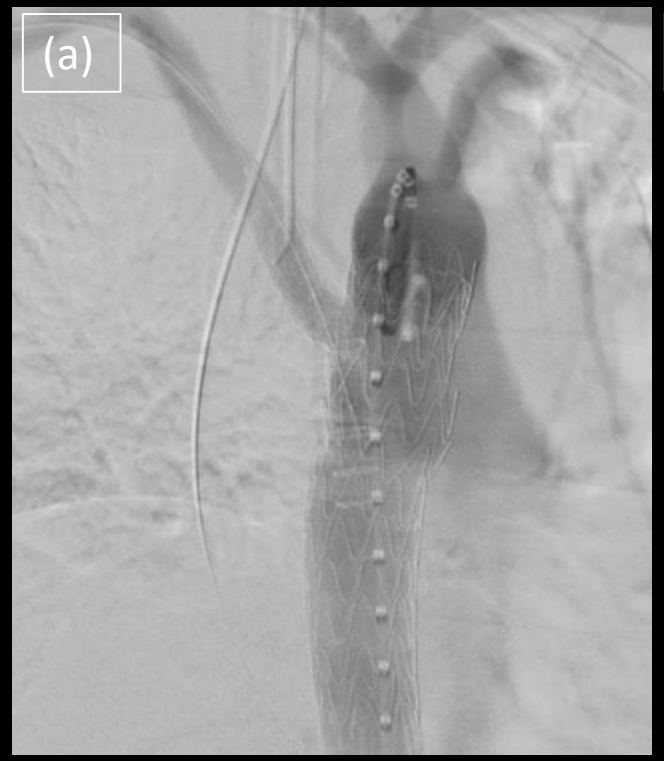
- Patient discussed at aortic conference
  - Considered retroesophageal passage of ARSCA, but patient was without symptoms
  - Furthermore, mediastinal hematoma displaced ARSCA further from esophagus
  - Vertebral flow would not be compromised by stent placement



BTAI Reconstruction in 3D-Slicer (a) Anterior view, (b) Posterior view

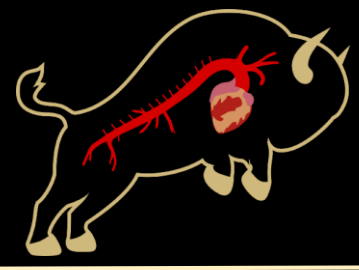
Results

- Taken to OR for TBE management
- Access of right arm obtained with right brachial artery, with left common femoral access for TBE
- No issues with stent deployment, balloon angioplasty used to expand profile of ARSCA stent
- Procedure without complication, no endoleak
- Post-operative right arm duplex with excellent, triphasic flow, with CTA demonstrating well-positioned graft
- Able to initiate low dose heparin, followed by aspirin post-operatively for concomitant blunt cerebral vascular injury (BCVI)
- Patient discharged on hospital day 24 given presence of other injuries



Post TBE (a) angiography, (b) aortic reconstruction

Conclusions



- TBE can be applied to aberrant patient anatomy for BTAI, including ARSCA, at dedicated aortic centers
  - Ring physiology may persistent, however, presents opportunity for alternative urgent management
- Important considerations:
  - Patient stability
  - Presence of a Kommerell diverticulum
  - Vertebral artery anatomy
  - Passage of the ARSCA relative to other structures
  - Disruption of the potential obstruction from the ring remains our preferred aproach but TBE can be a useful bailout procedure

Questions?