SUCCESSFUL REVASCULARIZATION OF AORTIC ARCH IN A 39 YEAR OLD BLUNT TRAUMA PATIENT WITH ACUTE INTRACRANIAL HEMORRHAGE WITHOUT THE USE OF SYSTEMIC ANTICOAGULATION

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Background - BTAI

BTAI was first described by Parmley in Korean War Soldiers in the 1950s

Noted ~85% die before medical attention

Most common site is aortic isthmus

Now described as 4 grades

Traditionally, Grade 1,2 are non-operative; Grade 3,4 are operative

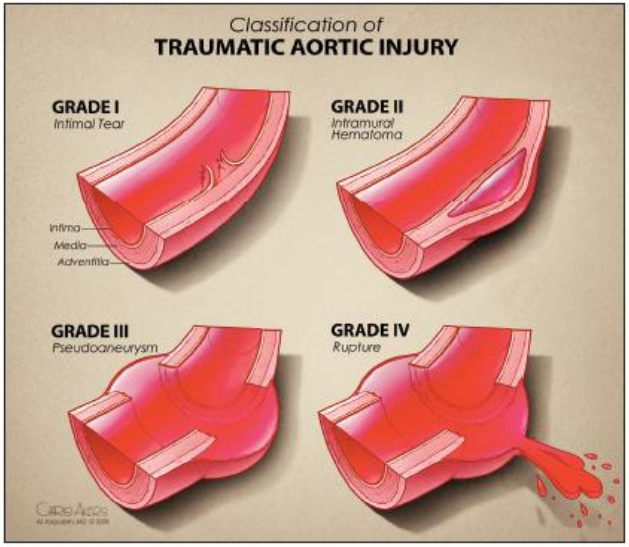

Figure 1. Classification of traumatic aortic injury. Reprinted with permission from the *Journal of Vascular Surgery*, Vol 49, Azizzadeh A, et al, Blunt traumatic aortic injury: initial experience with endovascular repair, Page 1403–1408, Copyright Society for Vascular Surgery 2009.[11]

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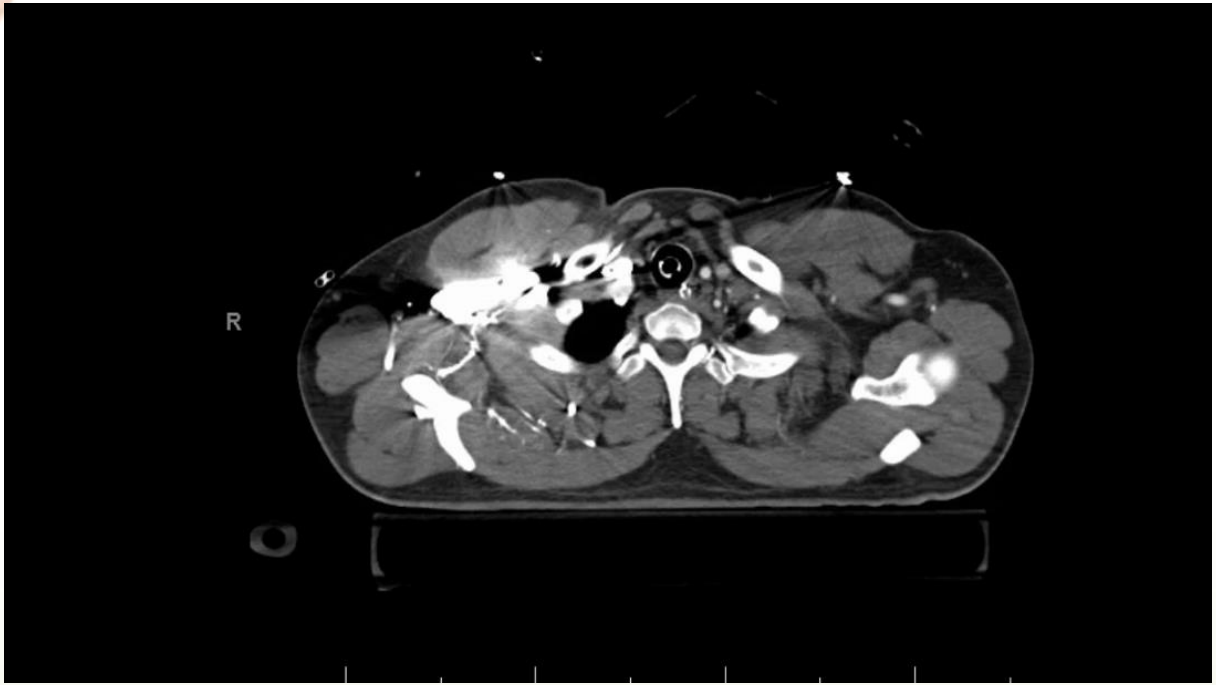
Case Presentation

- Pt presents s/p MVC
  - 39 year old hispanic male
  - BP 130/61, HR 141
  - GCS 10
  - Intubated to protect airway 2/2 copious blood in oral cavity from a laceration
  - Decrease breath sounds on the left, thoracostomy tube placed
  - FAST shows trace fluid around heart, ABD wnl
  - CT pan scan obtained

CTA on Presentation



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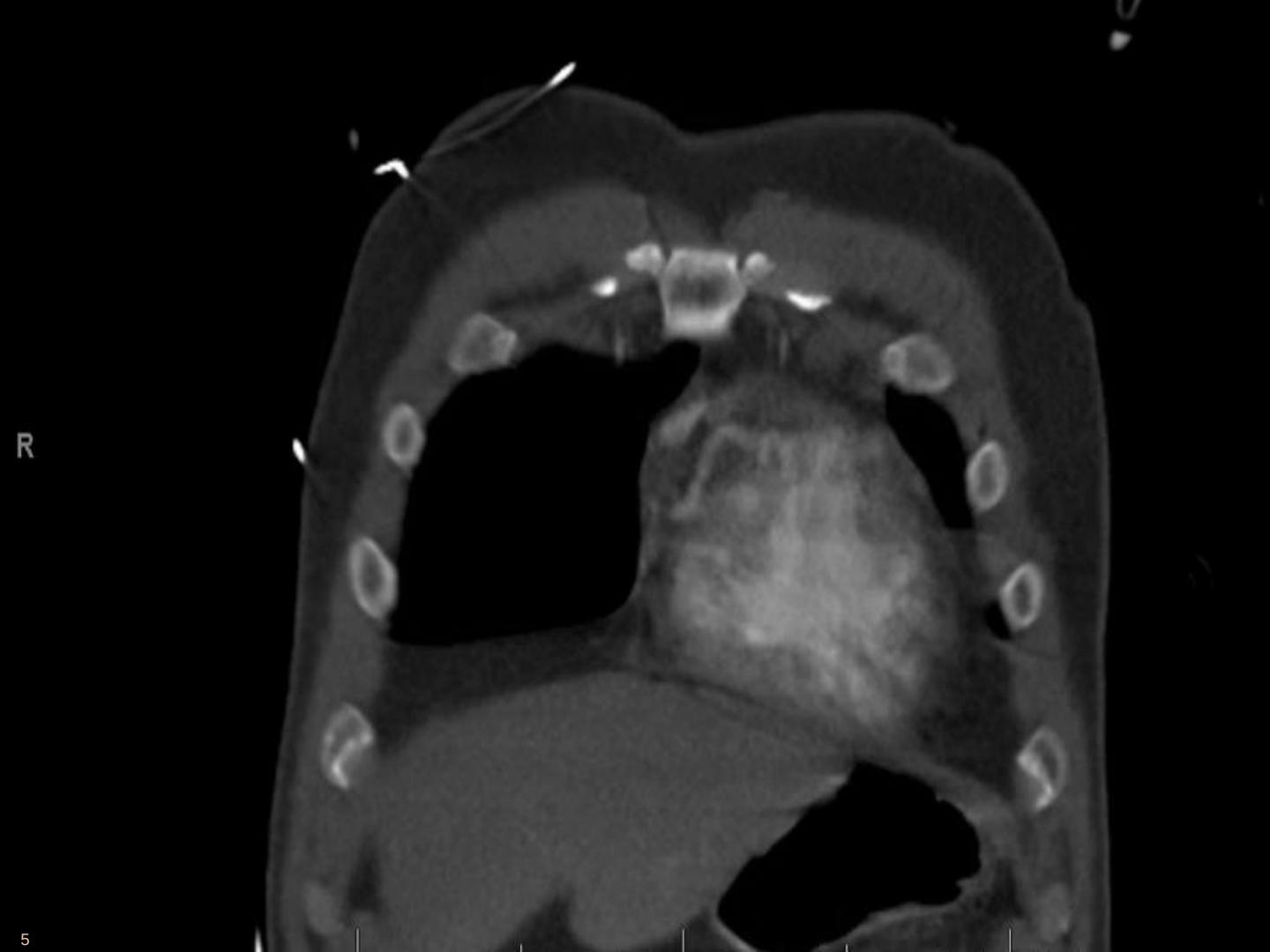
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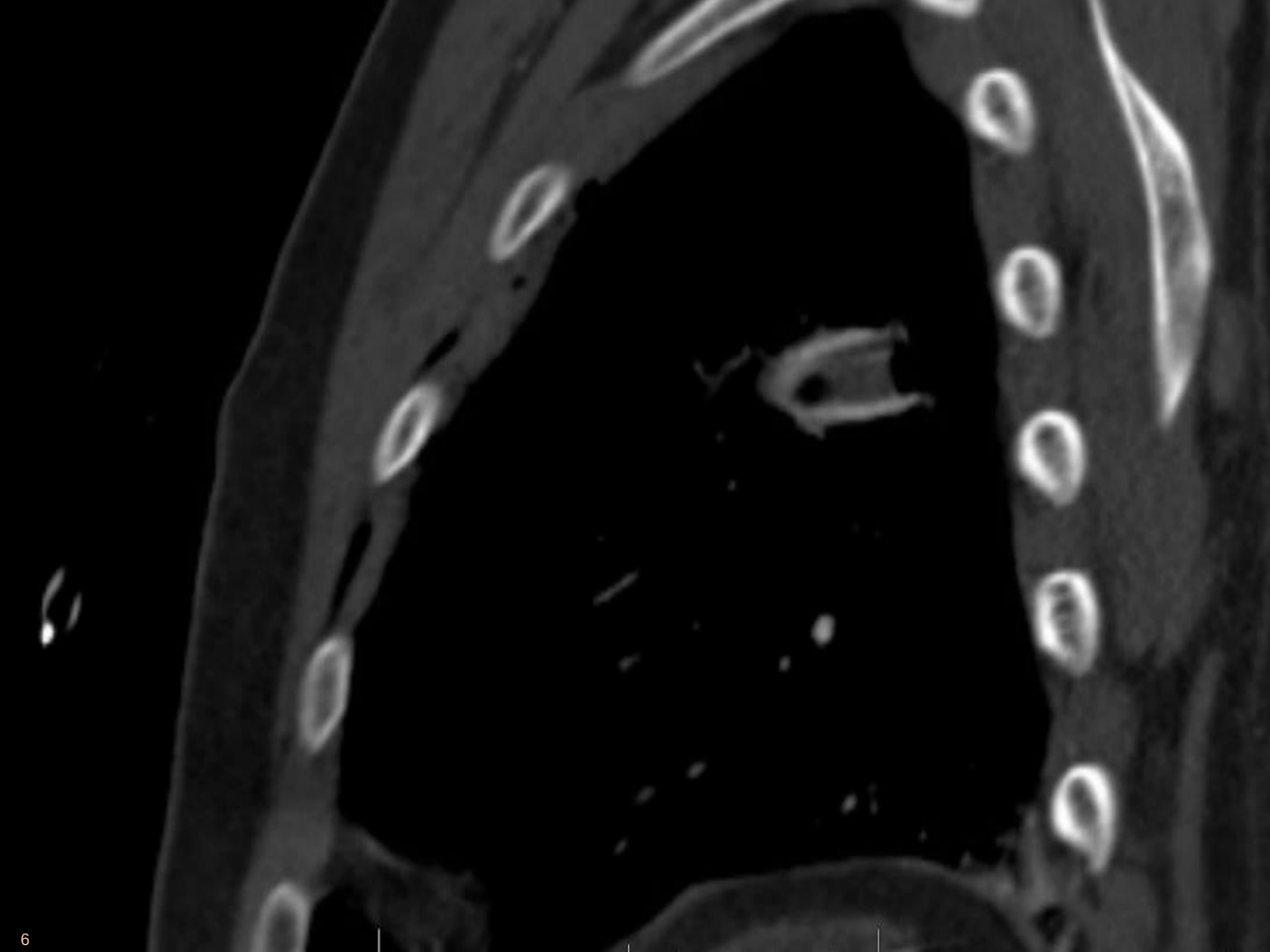
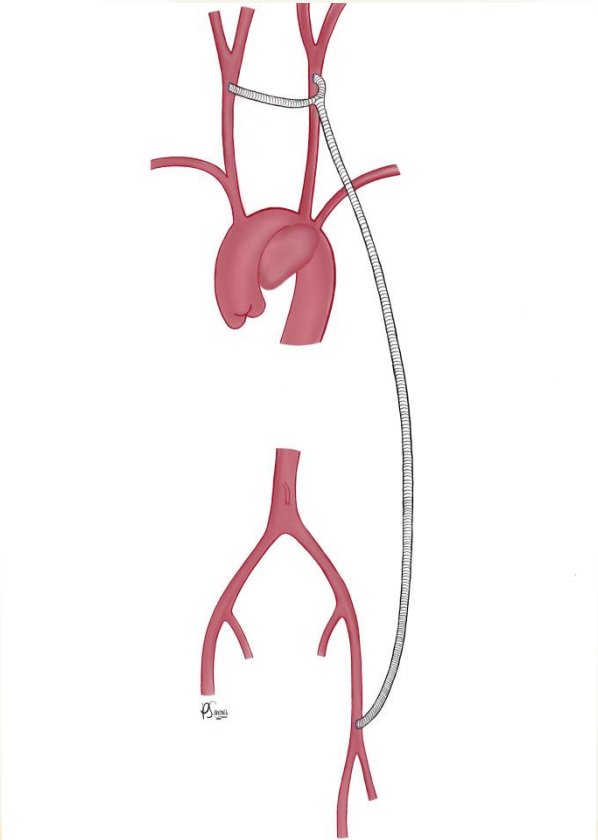



H
RES/SHADE/SUR
LAO/RAO
CRAN/CAUD

The Plan

- Vascular Sx to do Hybrid repair with femoral to carotid bypass first
- TEVAR to Ishimaru Zone 0 w/ Gore TAG endoprosthetic
- Complete arch with laser fenestration of inominate and left carotid with placement of iCast covered stents and creation of left carotid subclavian bypass

Femoral to Carotid Bypass



- Using a bifurcated PTFE stent graft as a bypass for the conduit
- Done expeditiously with copious heparinized saline flushes and back bleeding
- Flush towards the profunda

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Initial Angio

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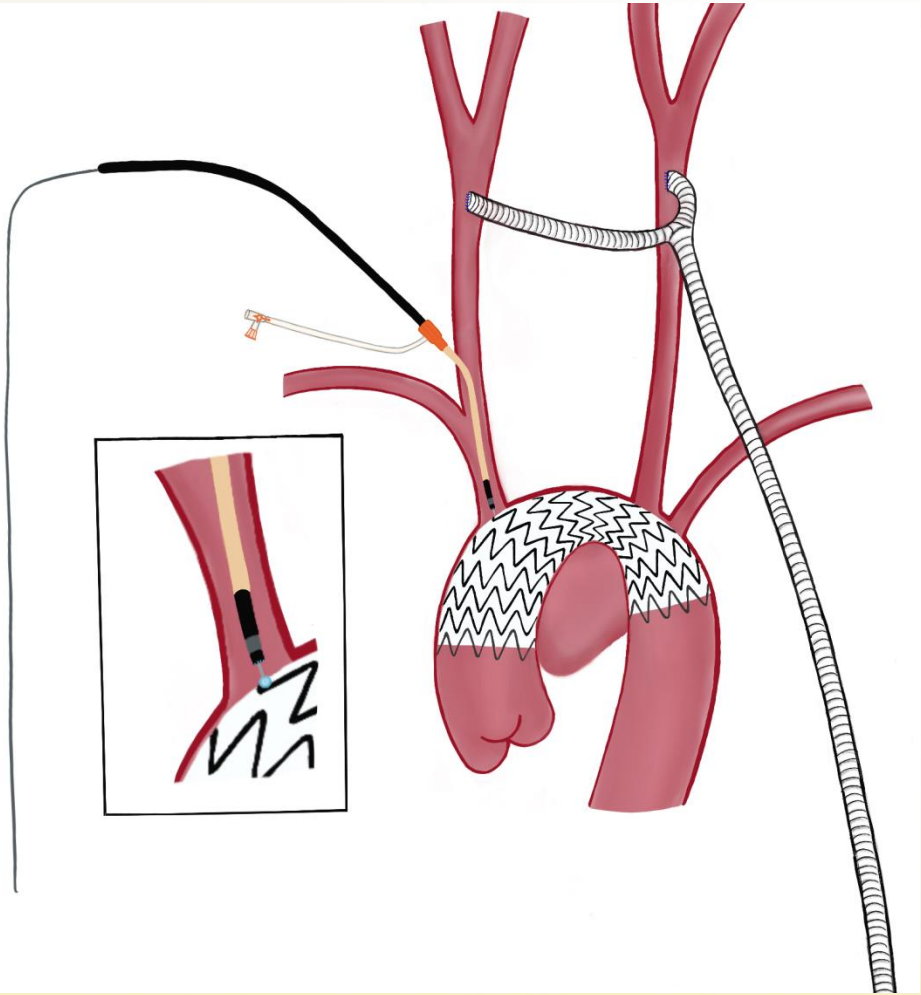

Laser Fenestration

- 1cm proximal to bypass anastomosis
- 2.5mm TurboElite arthrectomy laser
- 90^{o} angle
- Flush placement of 10x38 iCast

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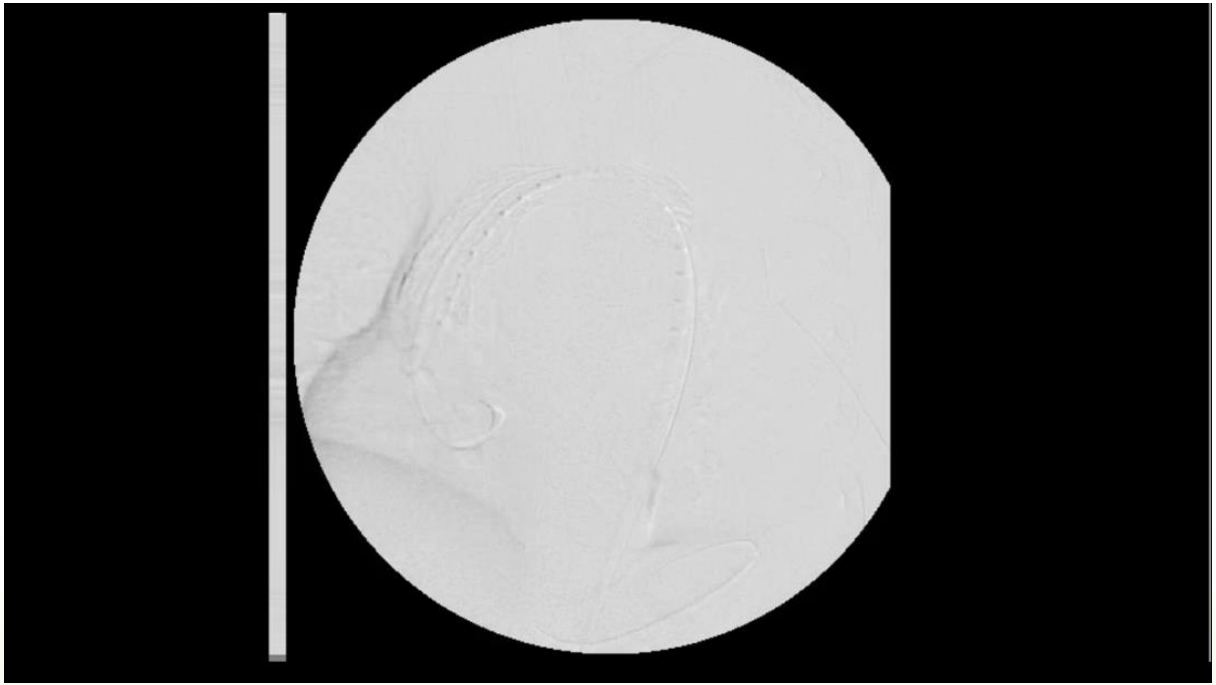

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Post Endo-graft + stent

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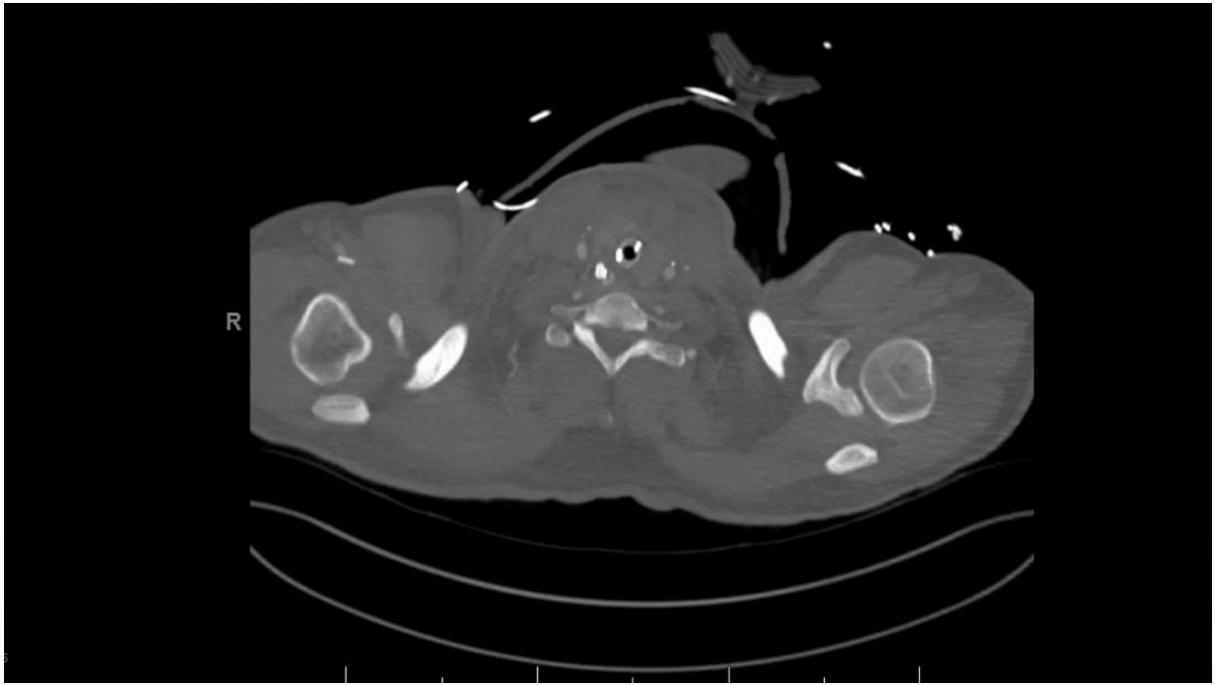
Follow up CTA



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Hospital Course

- POD #1: had difficulty breathing due to hematoma mass effect
  - Underwent Bronch and double-barrel ETT placement
- POD #2: hematoma evacuation complicated by iatrogenic injury to the Pulmonary artery
  - Placed on ECMO, for 7 days
- Repeat CT scan is stable/unchanged on POD #s 3, 11, 31 (hematoma slightly smaller)

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Hospital course (cont.)

- POD #11: successfully extubated, noted to have some right sided weakness (attributed to his stroke)
- POD #14 Hoarse voice noted (ENT consulted and found to have left true vocal cord paralysis consistent w/ RLN or vagus injury/compression)
- Discharged to a rehabilitation facility on POD #41

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Follow up

- 2 weeks post discharge: doing well, mild residual hoarseness and right sided weakness
- At 6 months: at normal baseline with occasional weakness on the right improving with PT
- Has next follow up CT scheduled for next week

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Summary

- Femoral to Carotid Bypass may be an alternative to cardiac bypass in select patients that require complete arch coverage
- Laser fenestrations can be useful in thoracic endografts until fenestrated grafts become more readily available
- This is likely best suited for temporary repair, particularly in trauma patients

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