Stroke After Transcatheter Aortic Valve Replacement (TAVR): An Unusual Cause

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Disclosure Statement of Financial Interest

I, Abhishek Bhagat, DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.

PARTNER-2 Trial, *NEJM* 2016

- 6.4% 30-day neurological event risk
- 10.1% 1-year neurological event risk

Case

- 86-year old female presented to the emergency department complaining of worsening shortness of breath for 1-week.

- PMH:
  - 5.2cm abdominal aortic aneurysm
  - renal artery stenosis
  - breast cancer
  - known severe aortic stenosis

Case

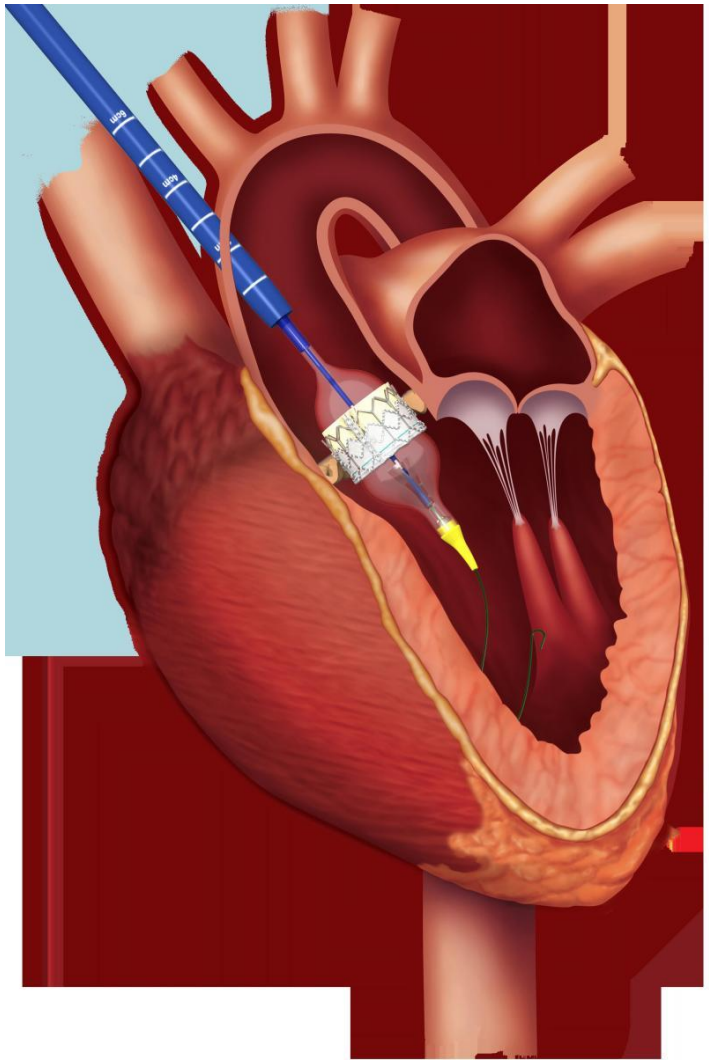
- Physical exam: grade 2/6 systolic murmur at the left sternal border.

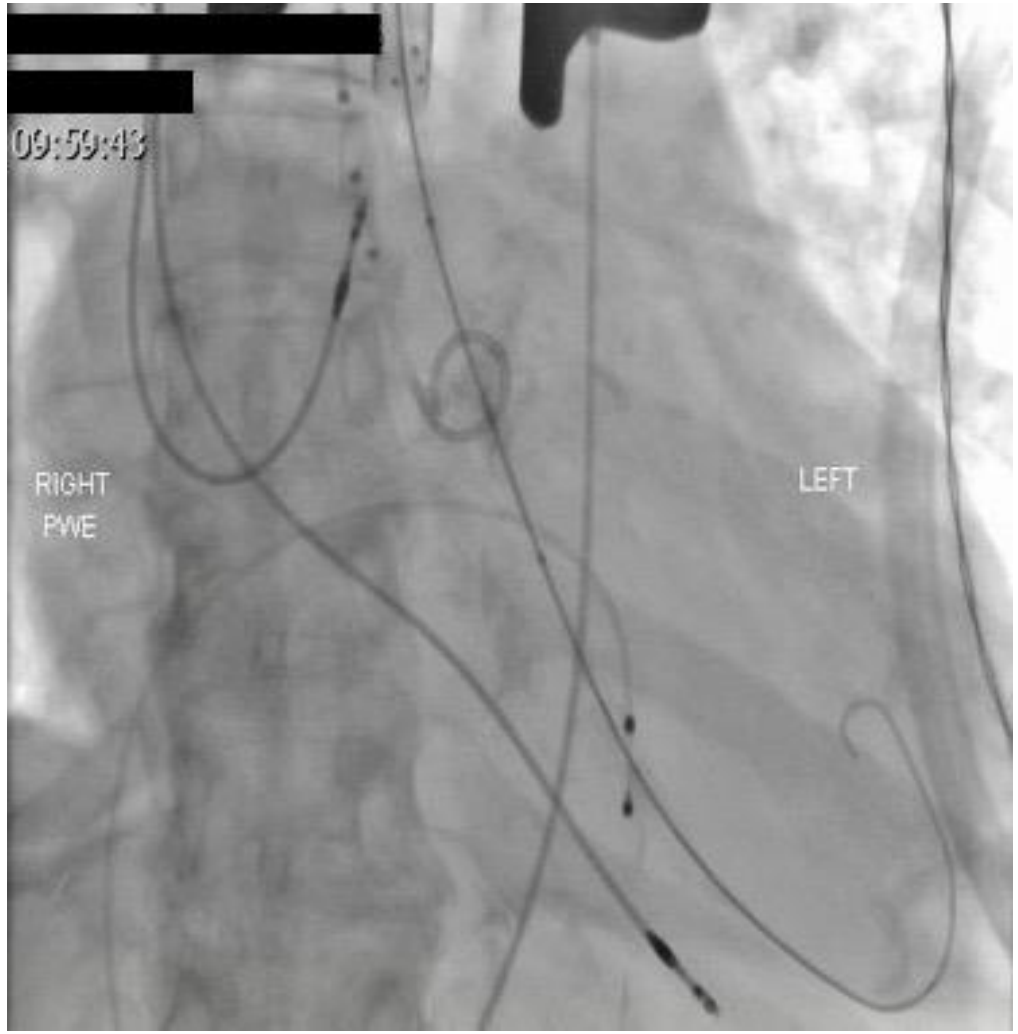
- Echo: ejection fraction of 30-35%, aortic valve area of 0.68cm^2, mean gradient of 50.6mmHg, and VMax of 4.37m/s.

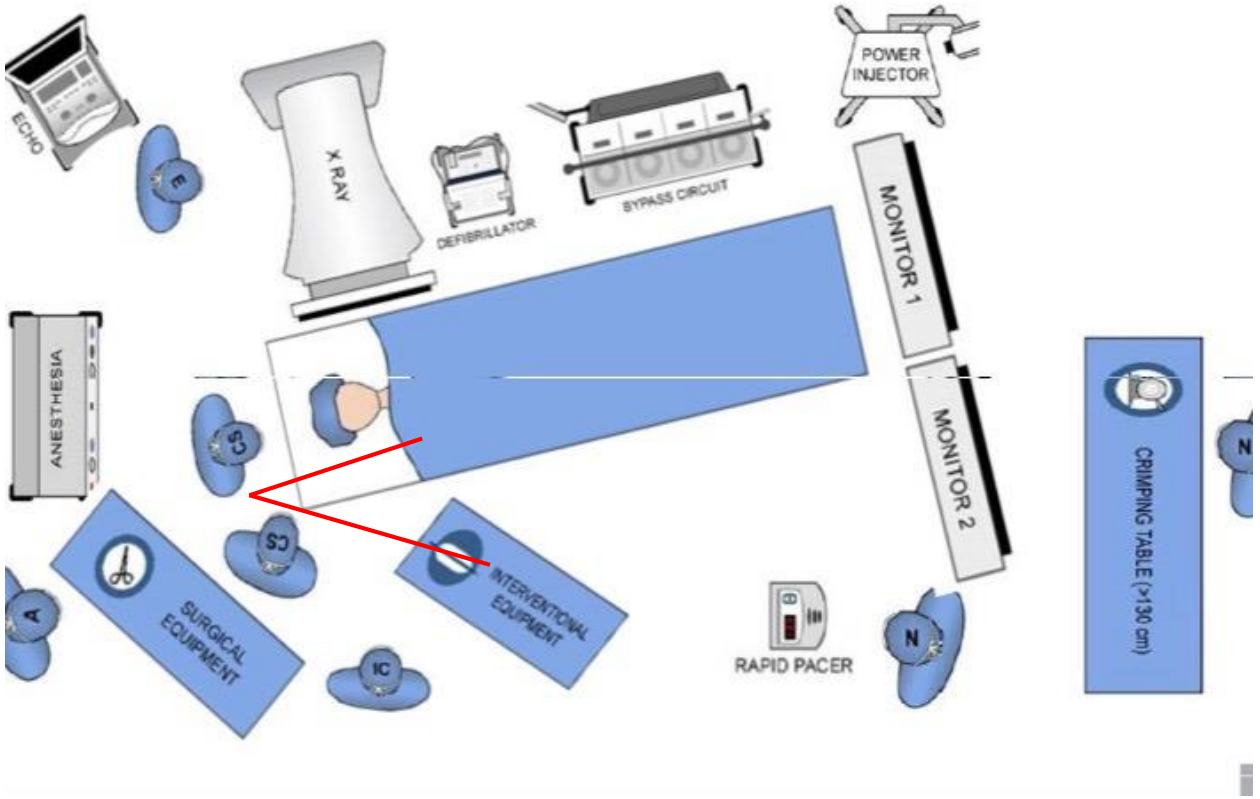
Case

- Left heart catheterization revealed mild nonobstructive coronary artery disease.
- Because of an underlying rhythm abnormality a dual chamber pacemaker was placed.
- STS score of 8%.

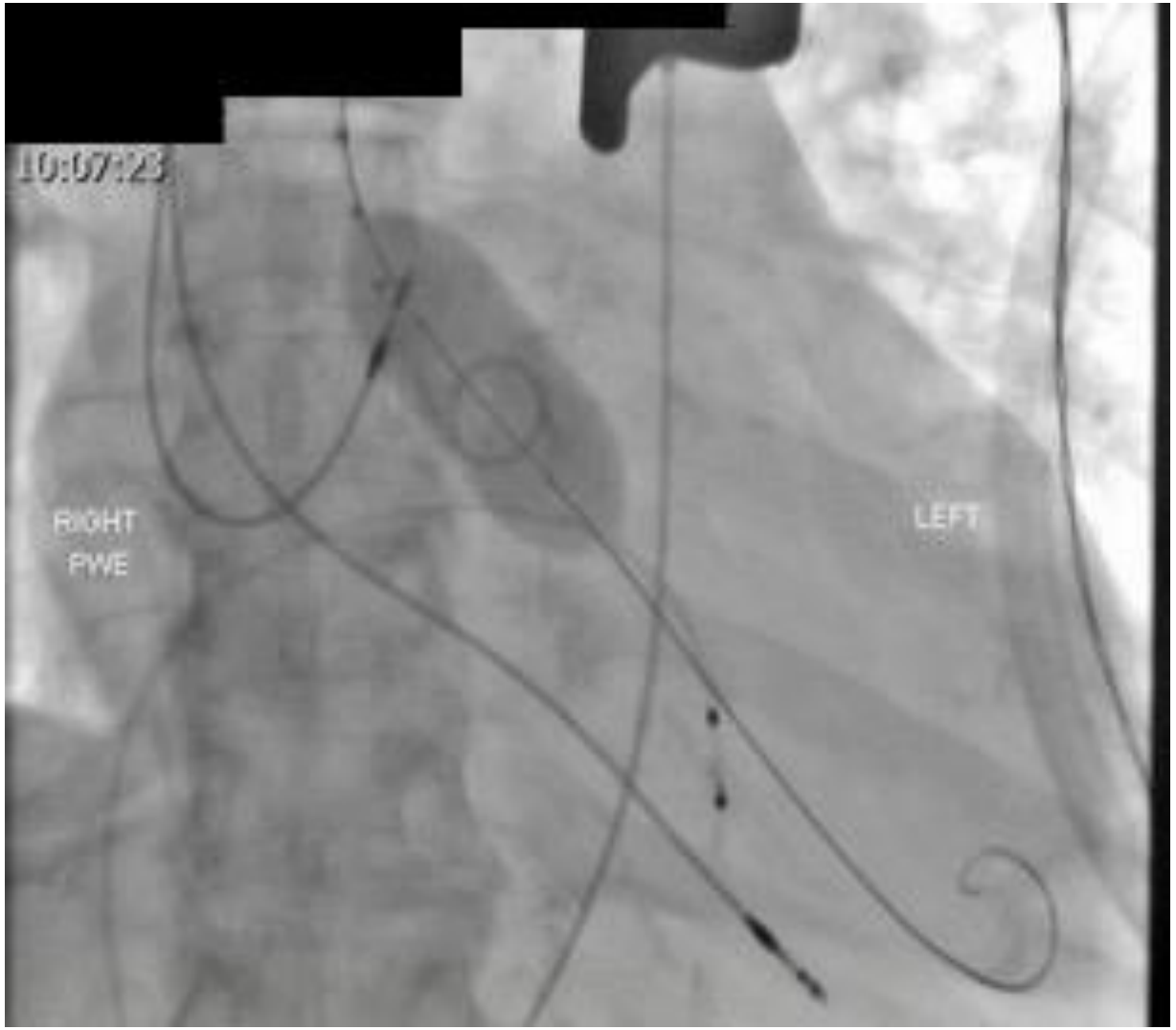
TAVR via transaortic approach was planned.







Large bore sheath placed and True Flow balloon used for BAV – but the balloon would not inflate. Why?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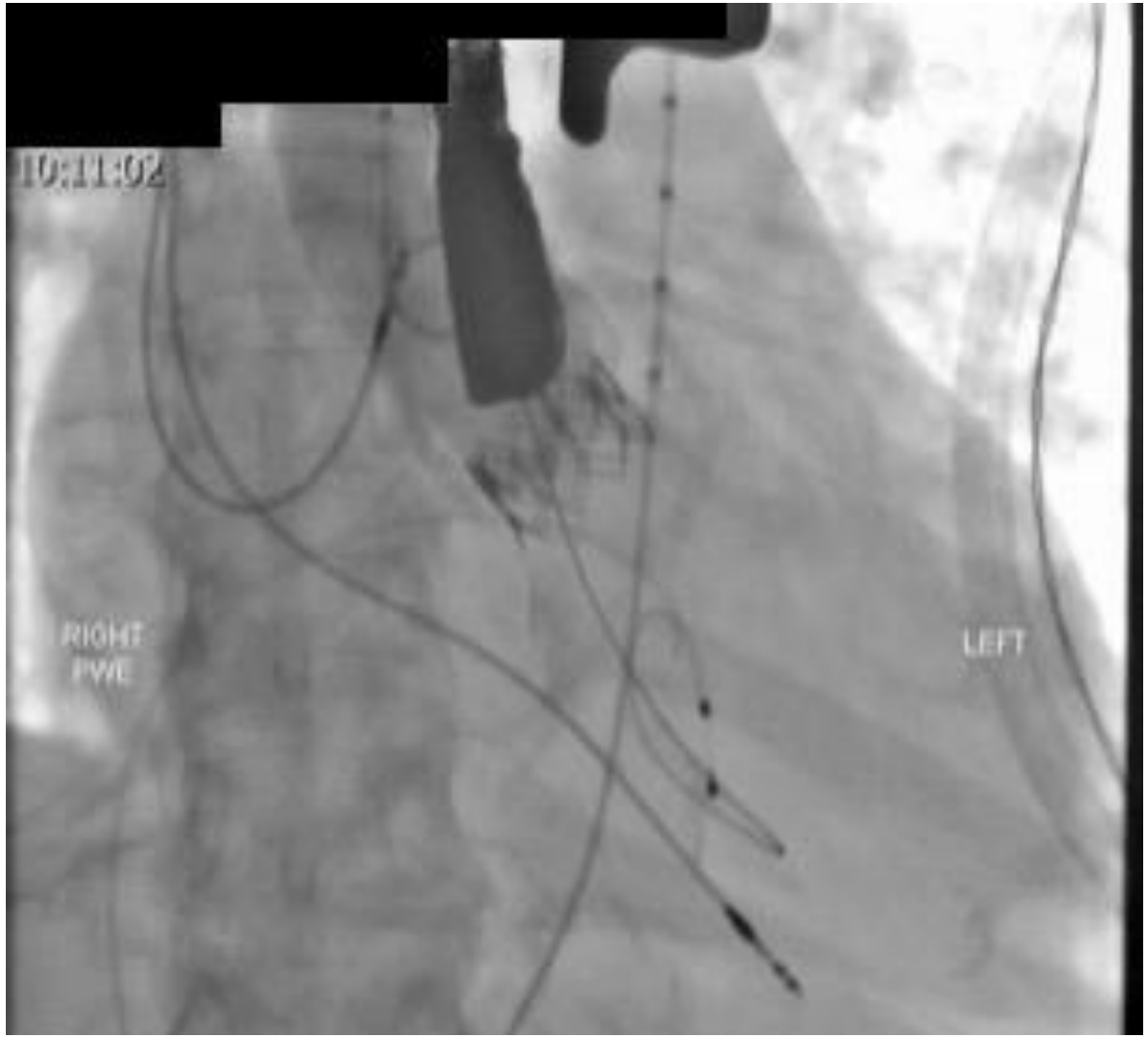
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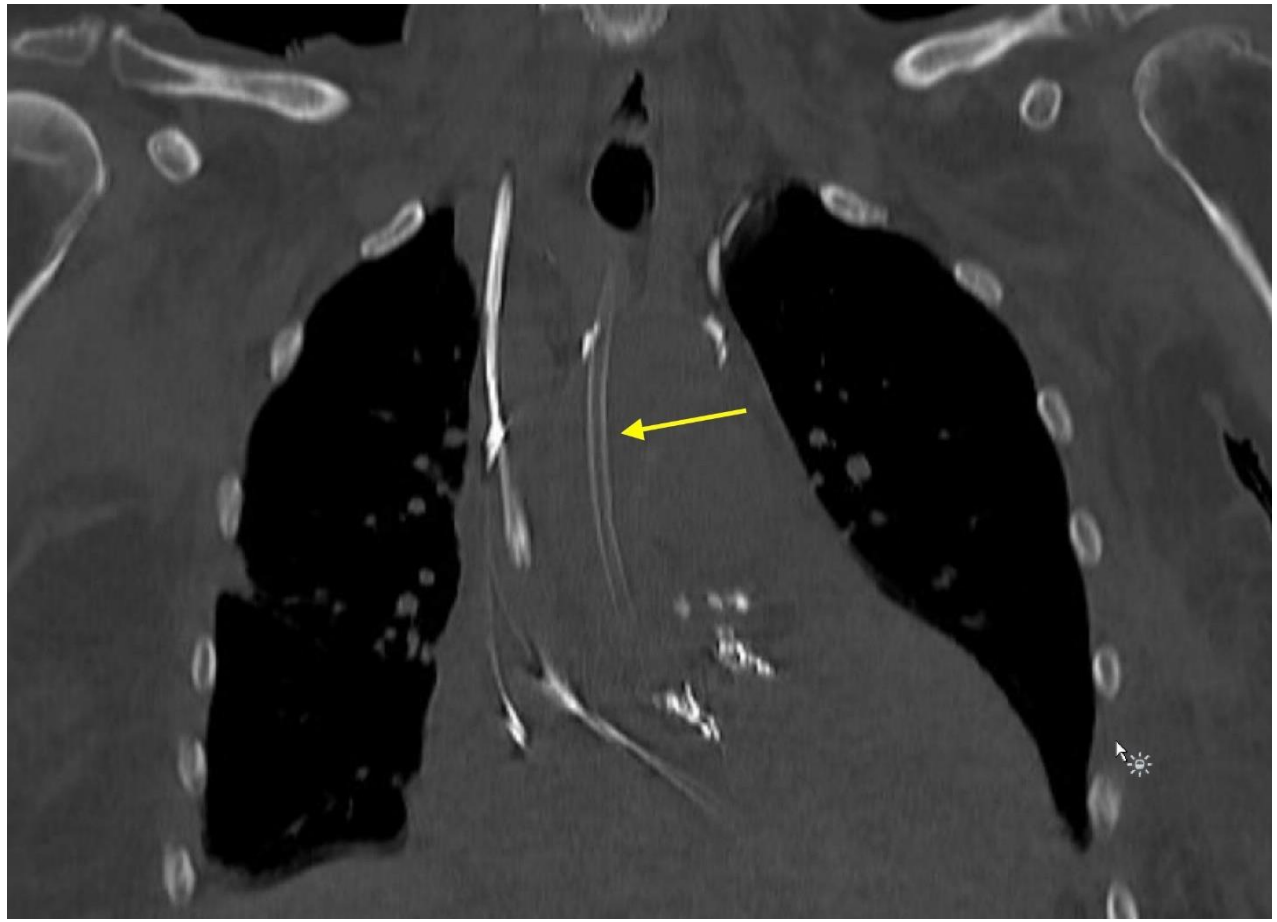
Post-op day 1:

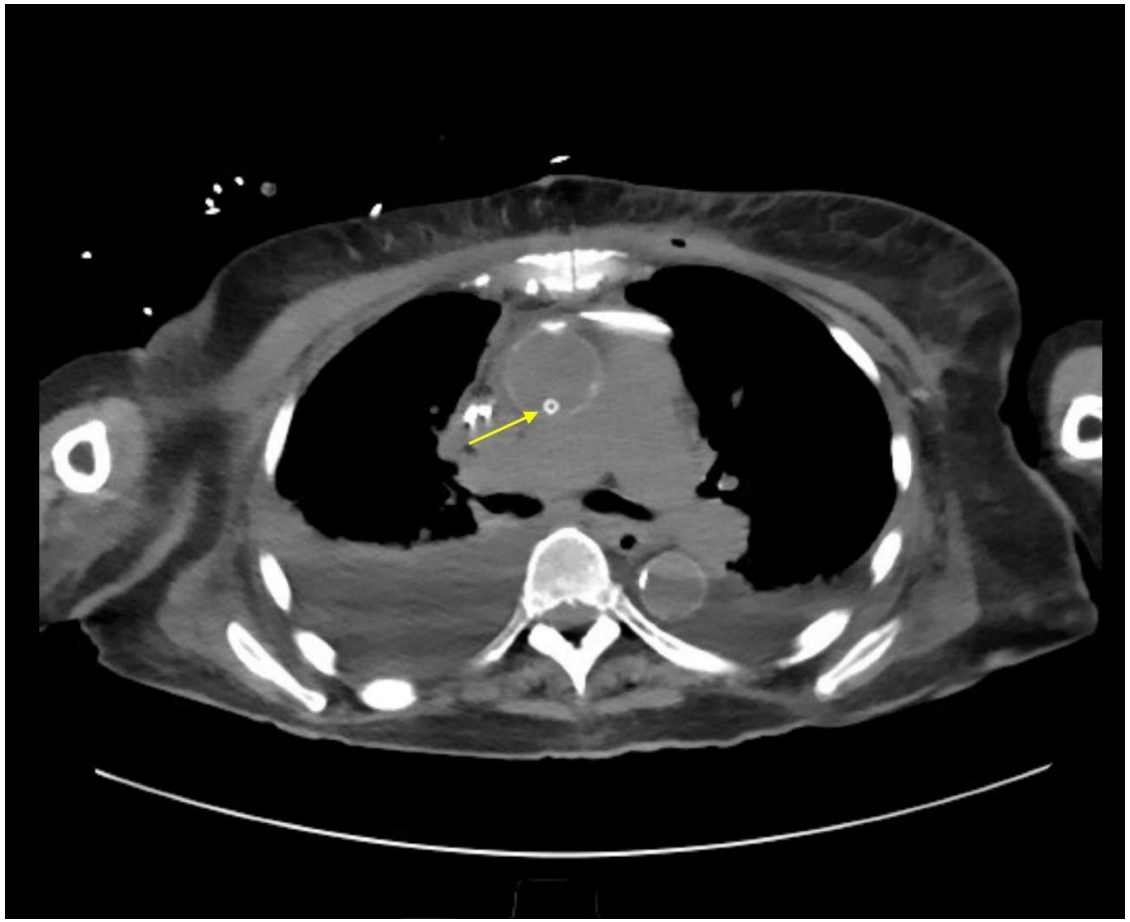
- Confusion, slurring of speech, and left upper extremity weakness
- CT-head negative
- Neurology consulted for TIA vs. stroke

Post-op day 1:

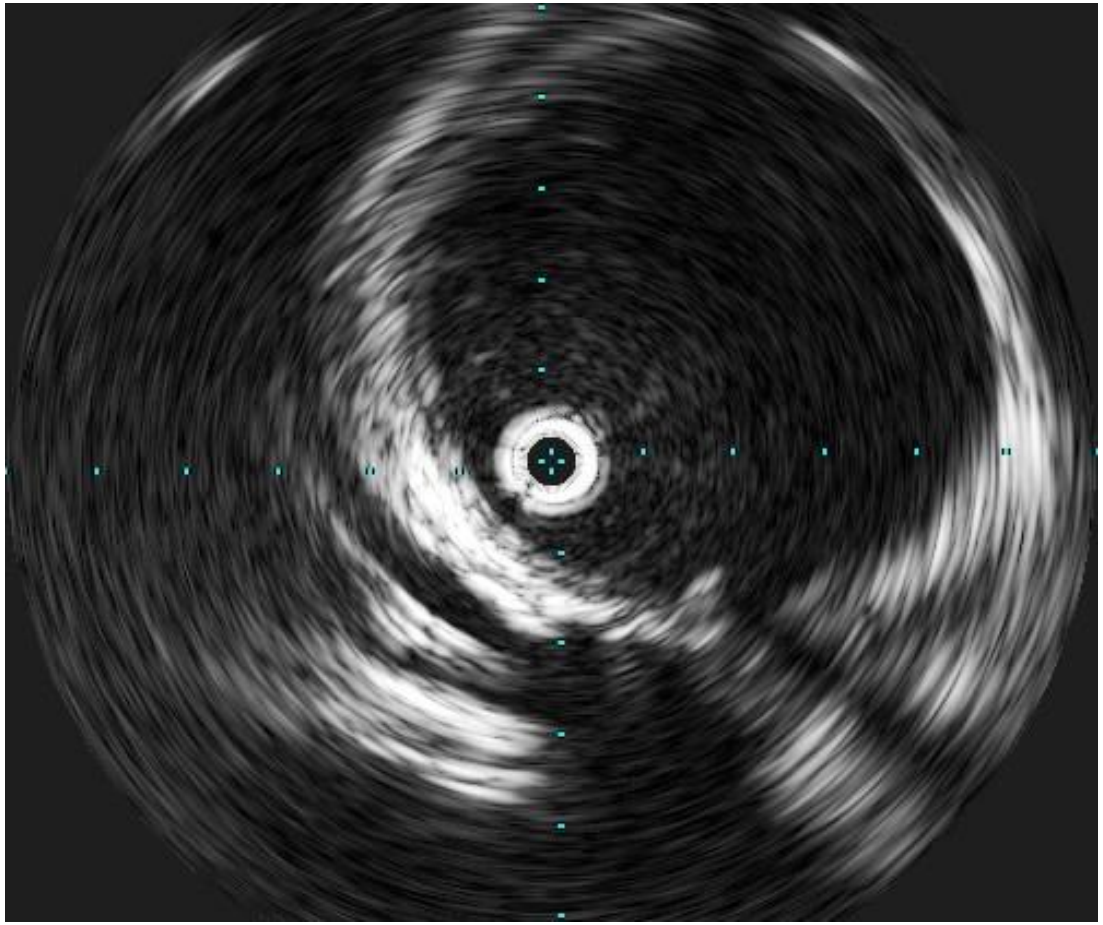
- Carotid duplex: <30% stenosis of right internal carotid, 60-70% stenosis of left internal carotid artery.
- Transesophageal echocardiography negative for left atrial clot or aortic atheroma.
- Hemoglobin dropped from 10.0 to 8.4. CT-chest and abdomen ordered.

CT-chest: critical results

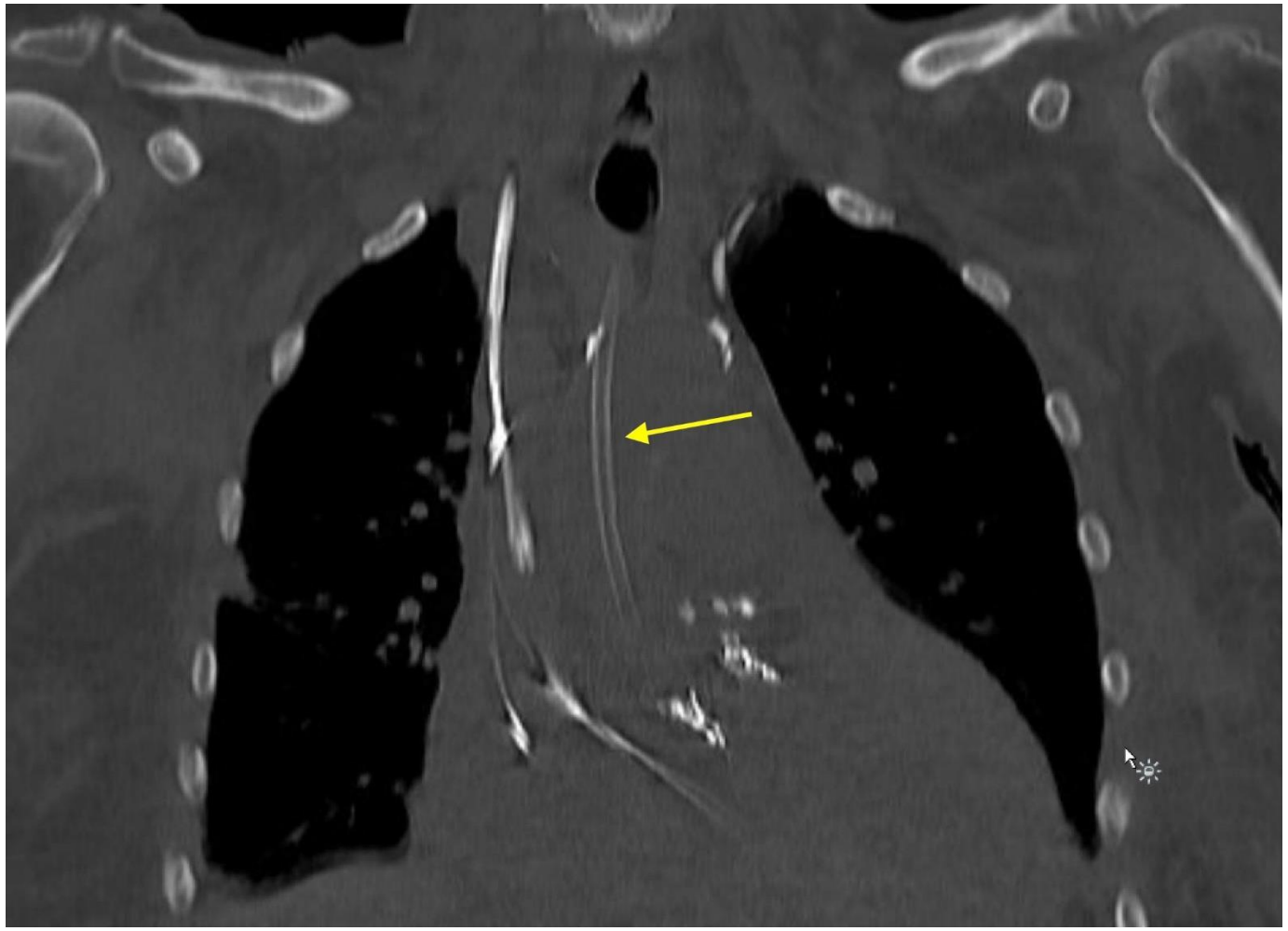




Angiogram with IVUS

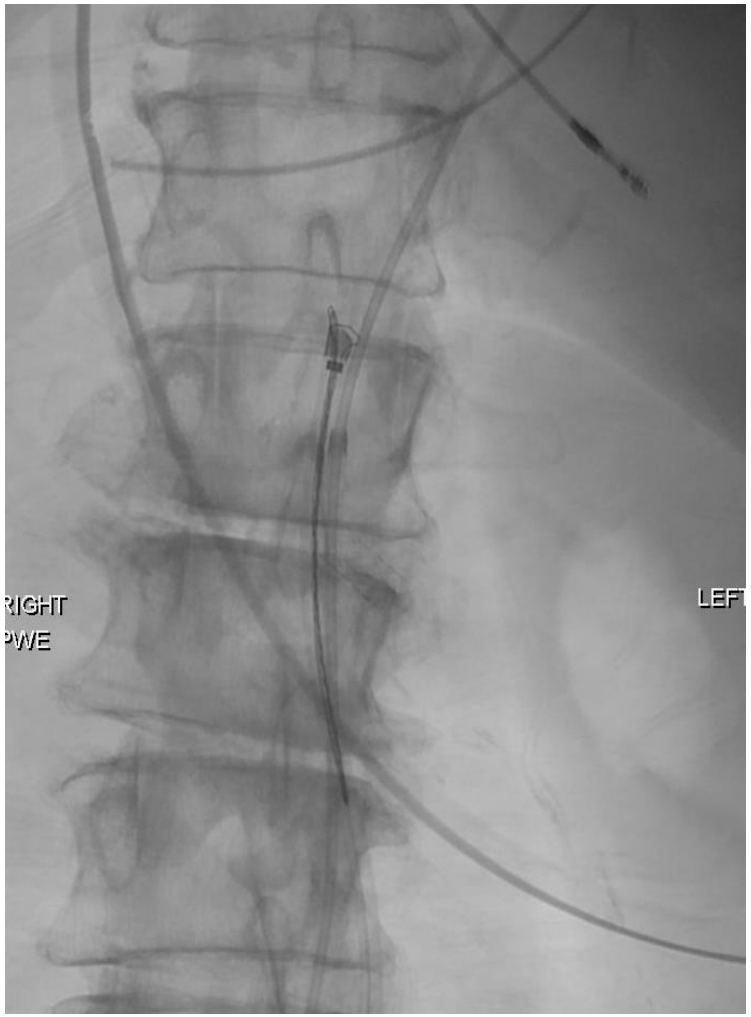


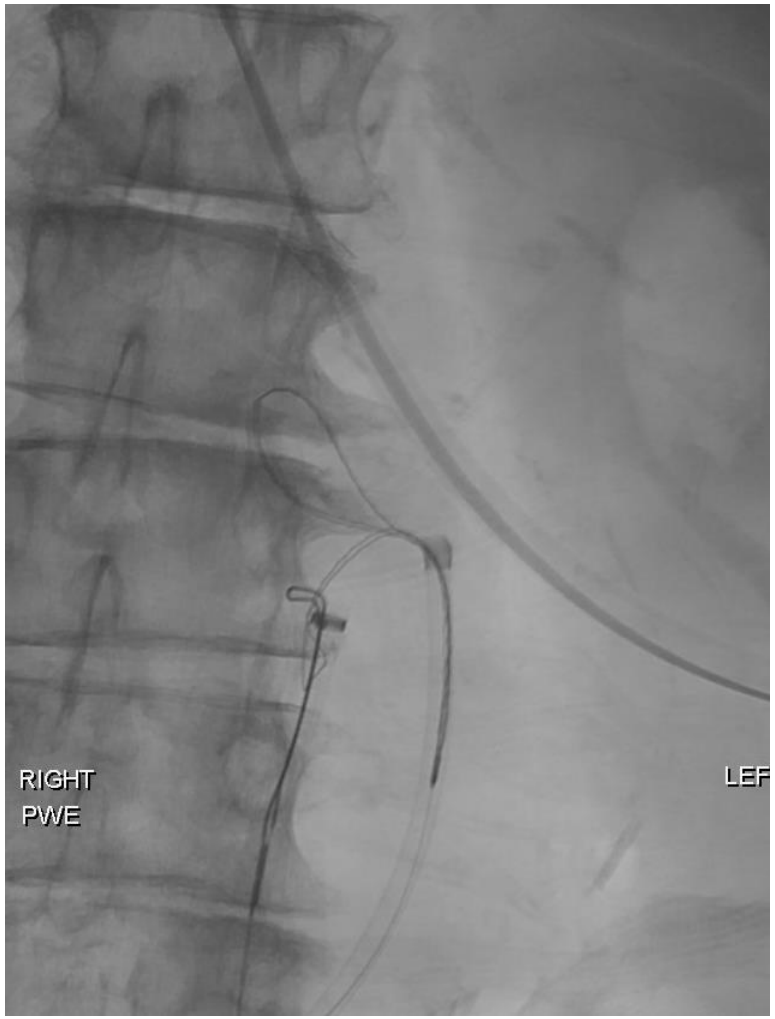
Options?



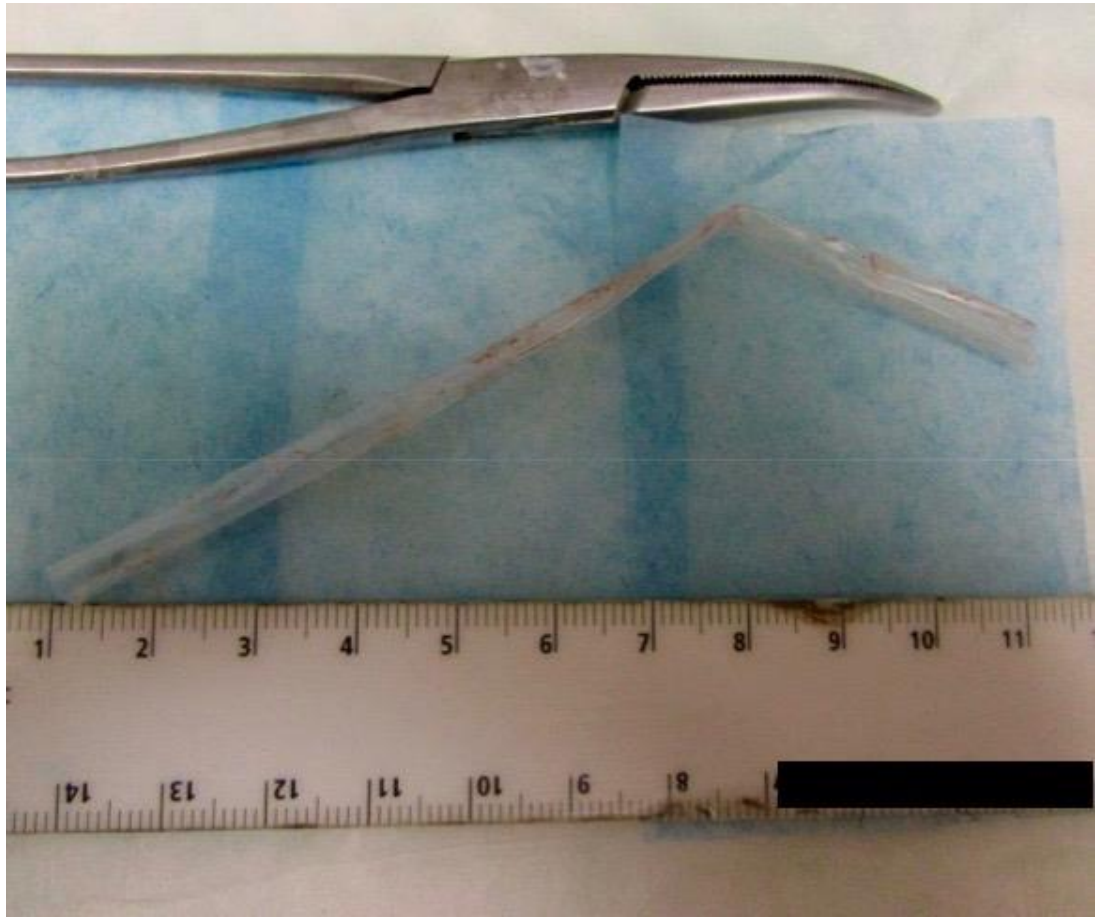
- Blind snare?
- Surgical exploration?
- Incidental finding – leave it alone?

Fishing with two snares:



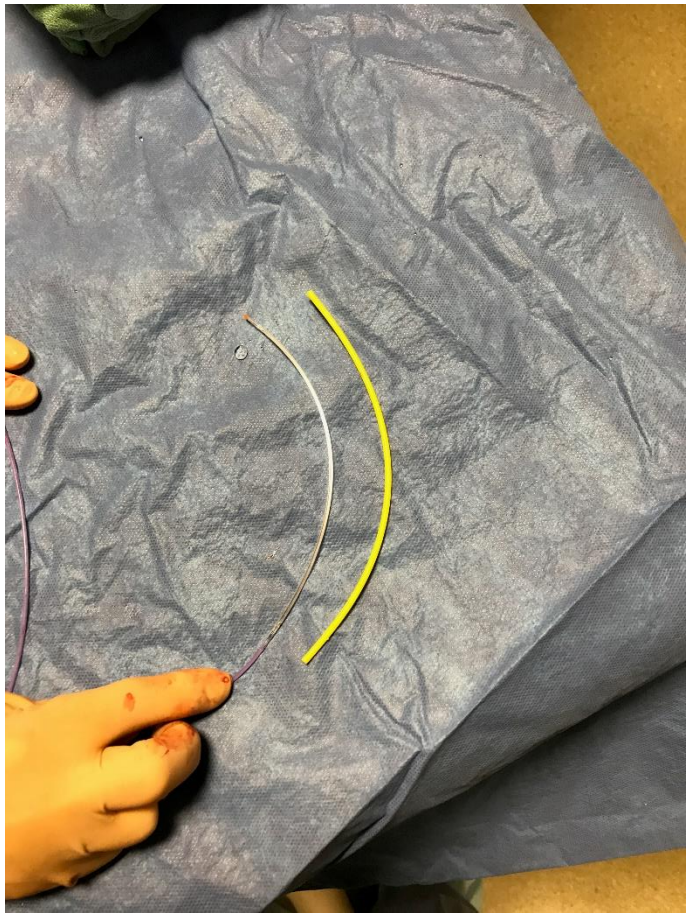


What was snared?

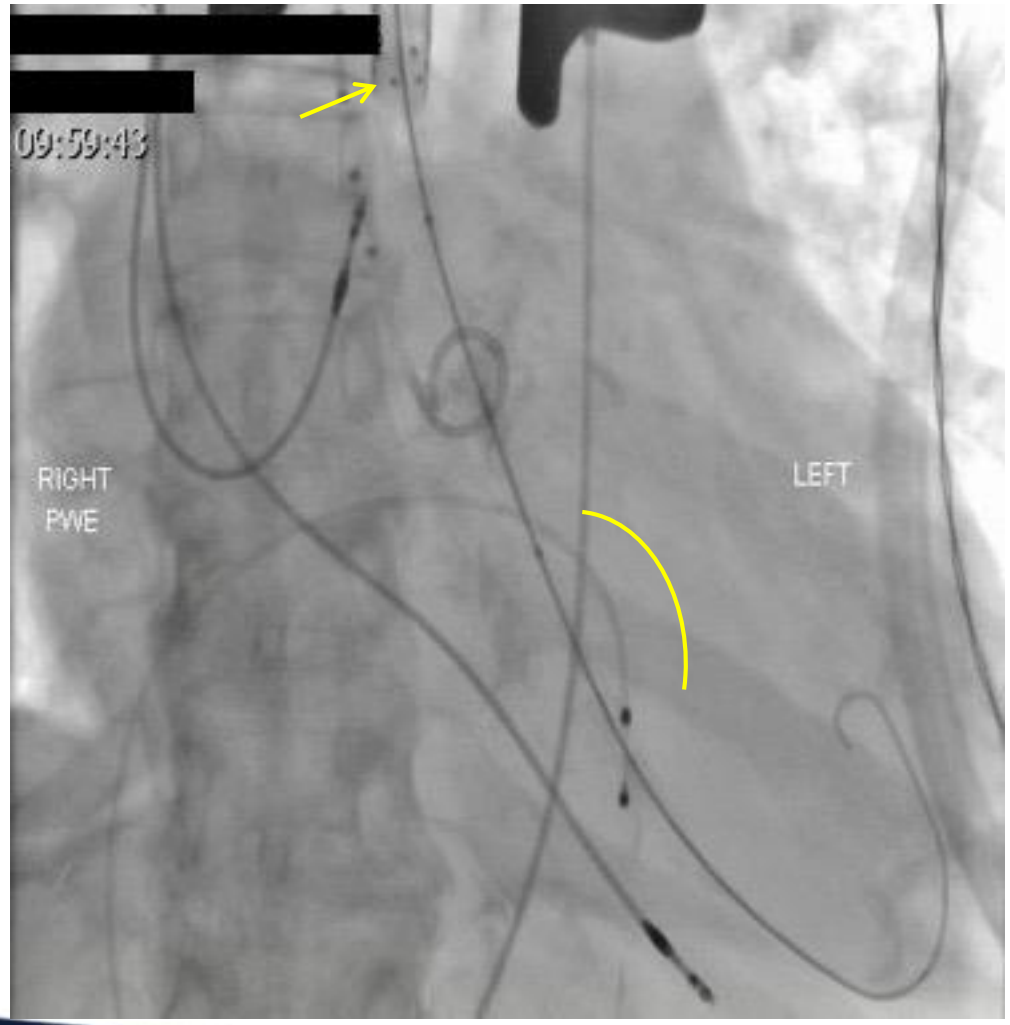


Tip protector

- Non-fluorescent
- No markings



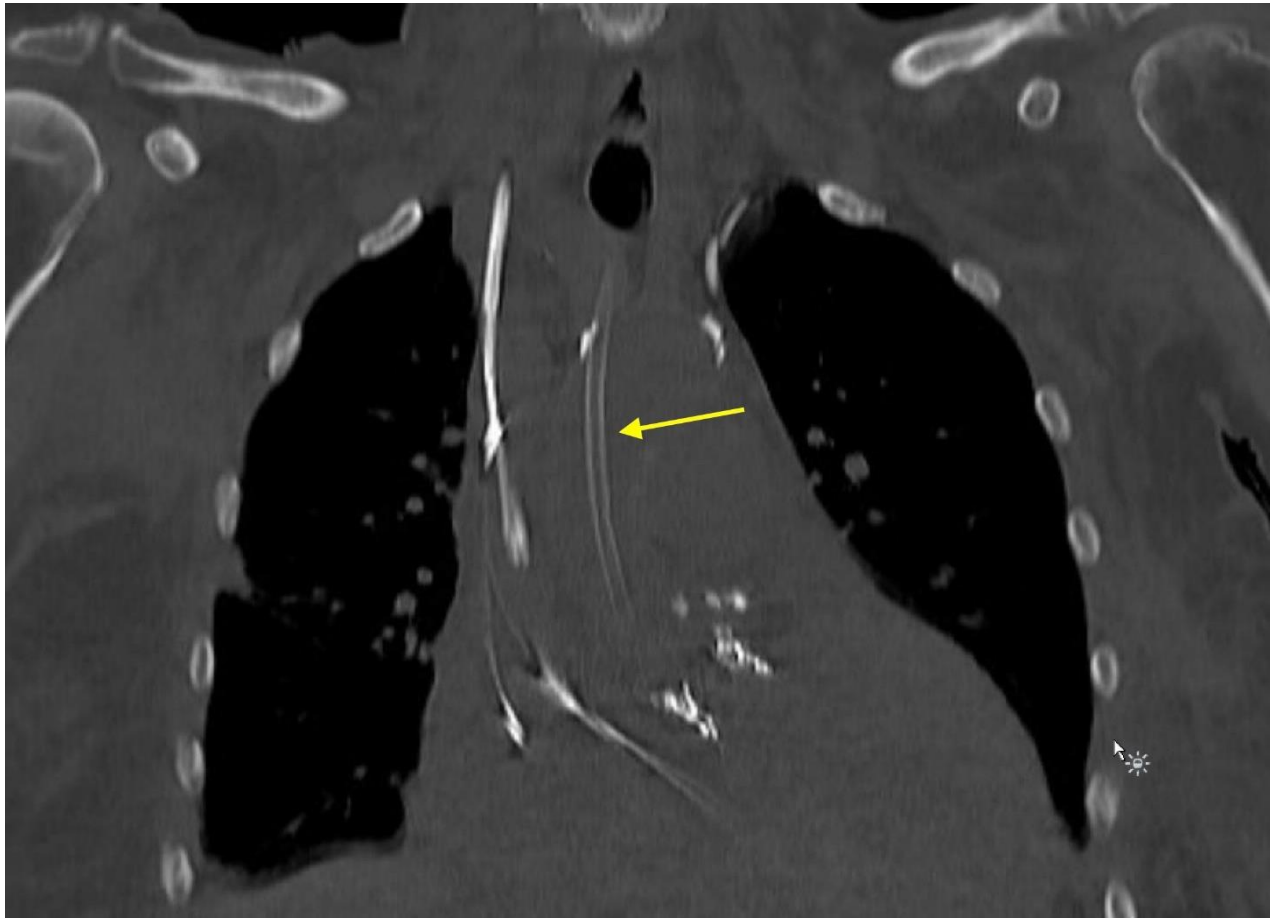
What happened here?

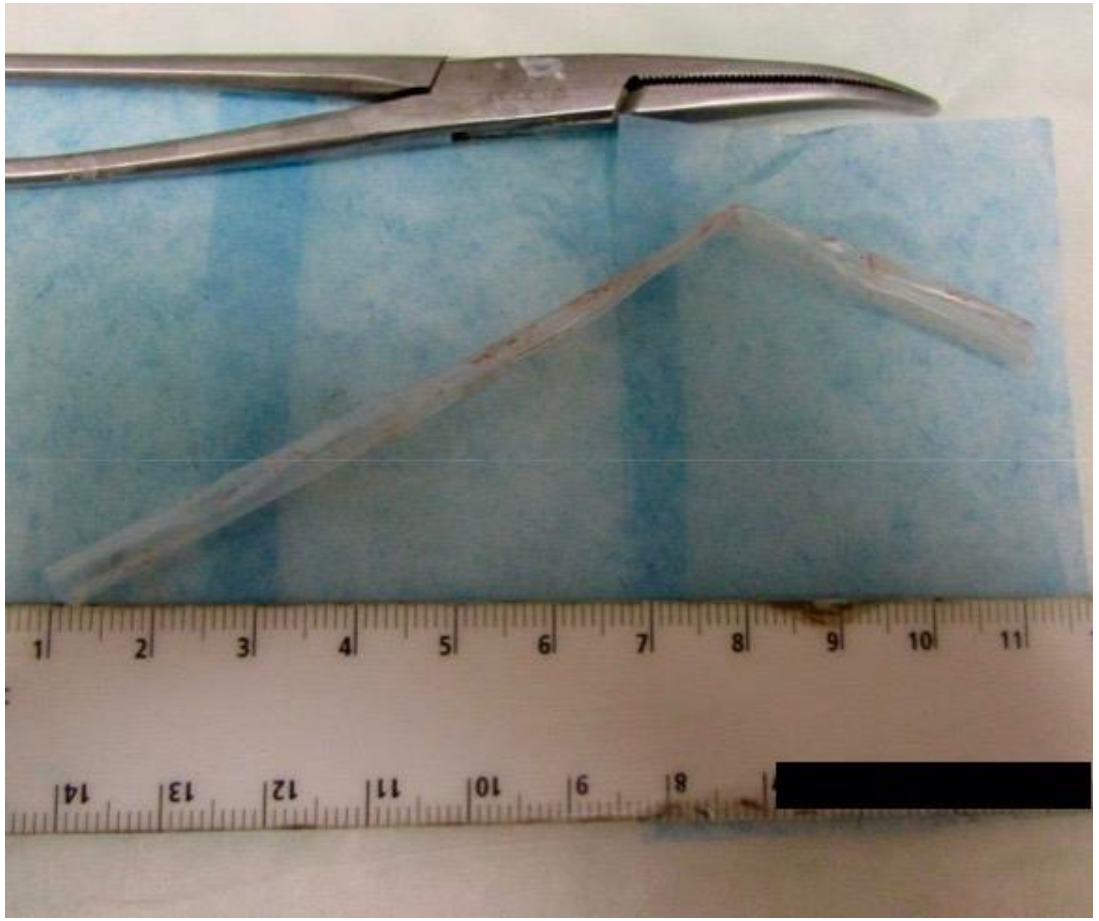


- The tip protector was pushed inside along with the true balloon for BAV
  - It stayed on the wire – partially in the LV and partially in the ascending aorta
- Post-TAVR the tip protector dislodged into the ascending aorta
- The free floating foreign body resulted in the stroke

Lessons

- Inspect everything that goes inside a patient.
- Pay close attention to wraps, covers, tip protectors – anything that can be inadvertently introduced into the patient.
- Non-fluorescent objects can be snared.
- Early recognition of complications with early intervention.





Thank you