

Central Vein Obstruction

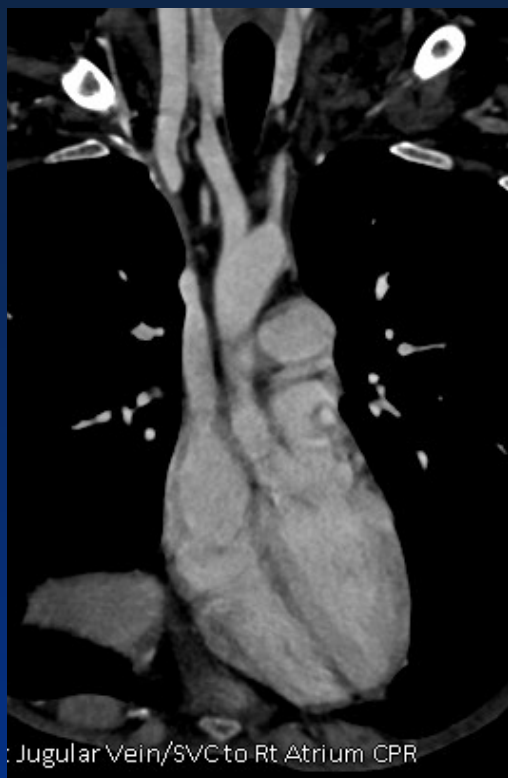
Charles Y. Kim MD, FSIR
Division Chief, Vascular & Interventional Radiology
Associate Professor of Radiology
Duke University Medical Center

Disclosures

- Consultant : Medtronic, Bard, Galvani

Central venous occlusion: Basic algorithm

*Diagnosis/planning



Recanalization



Goal



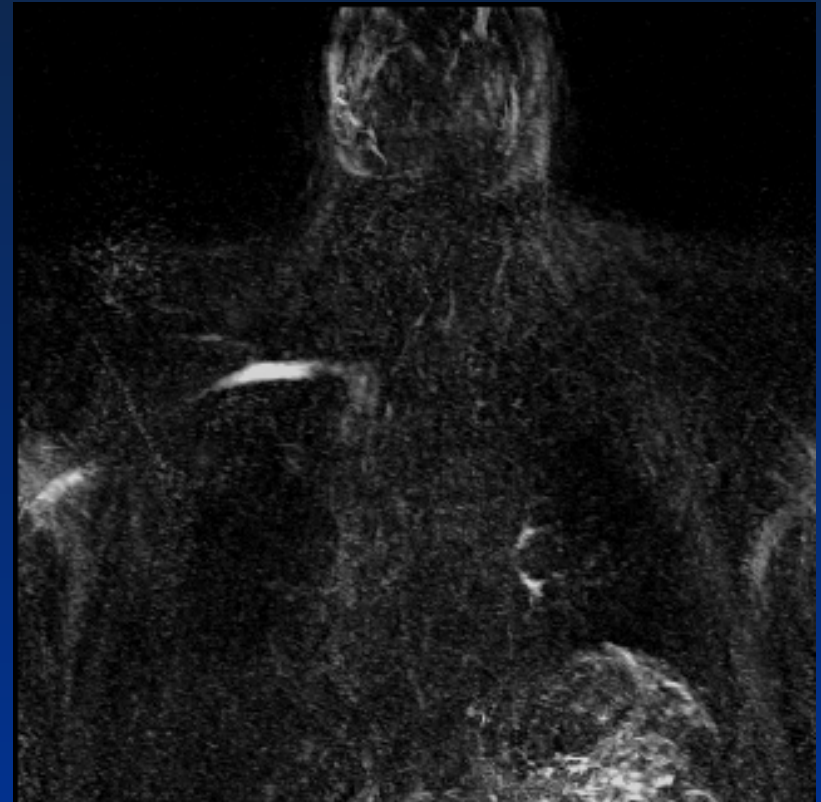
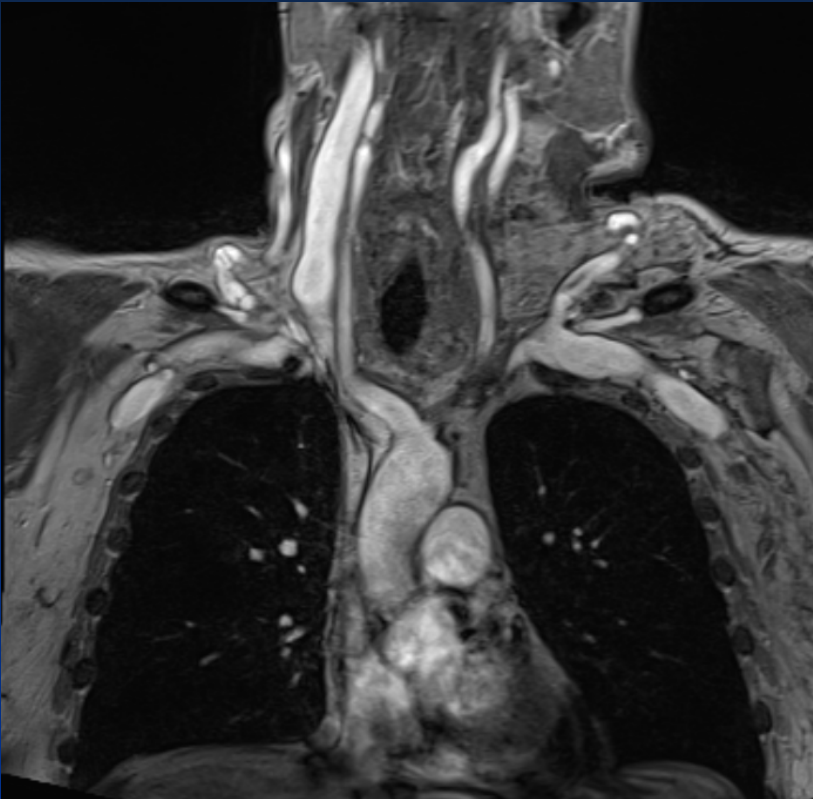
CT venography



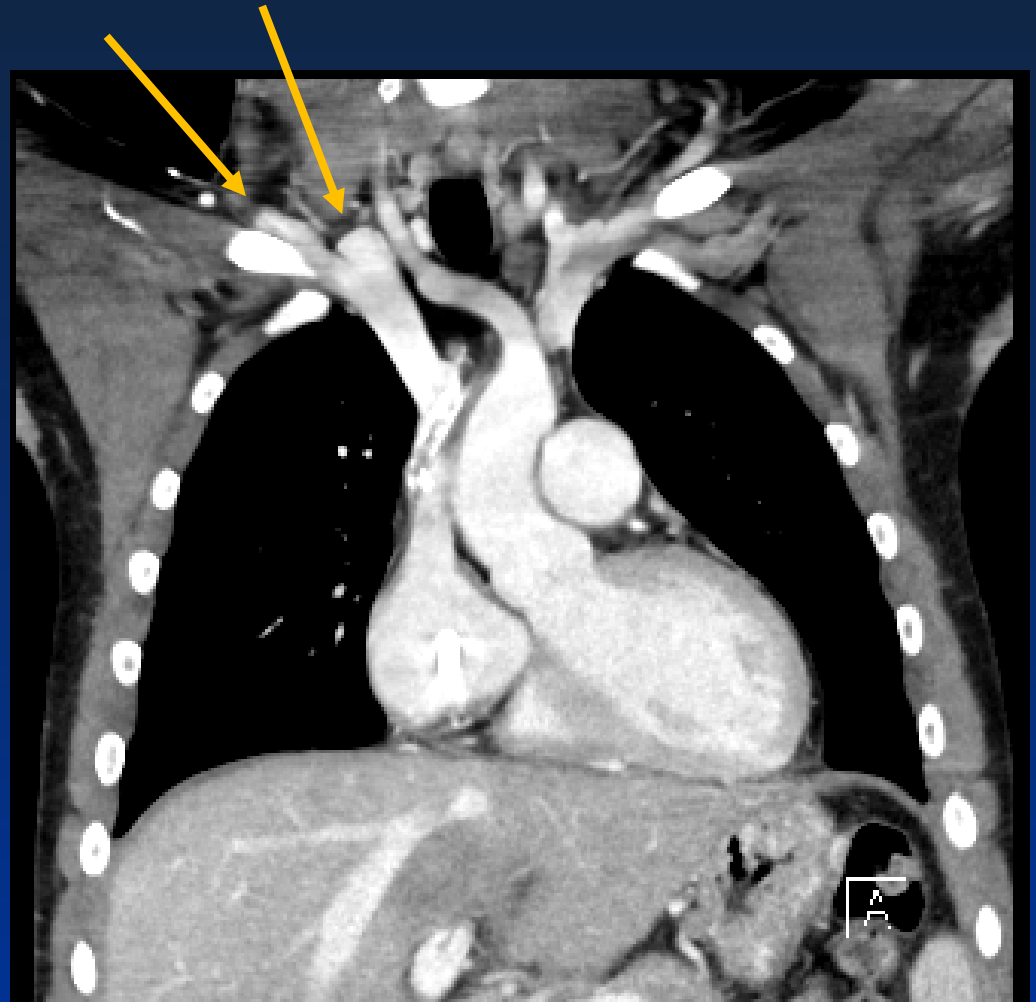
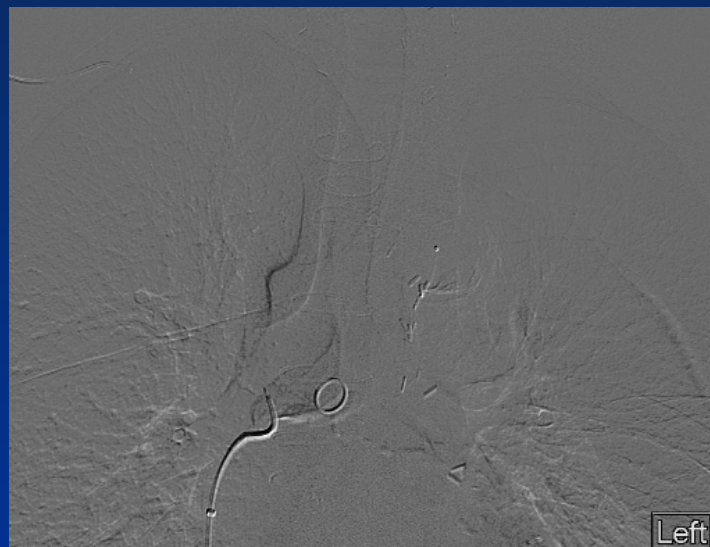
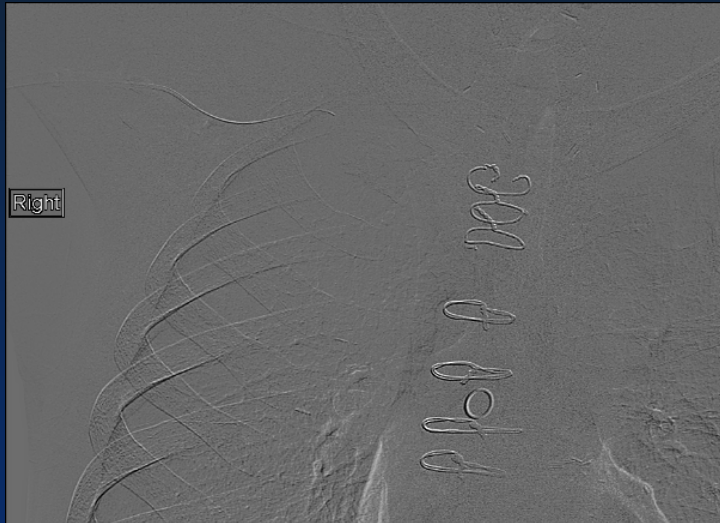
MR venography

- Feraheme

Time-resolved imaging

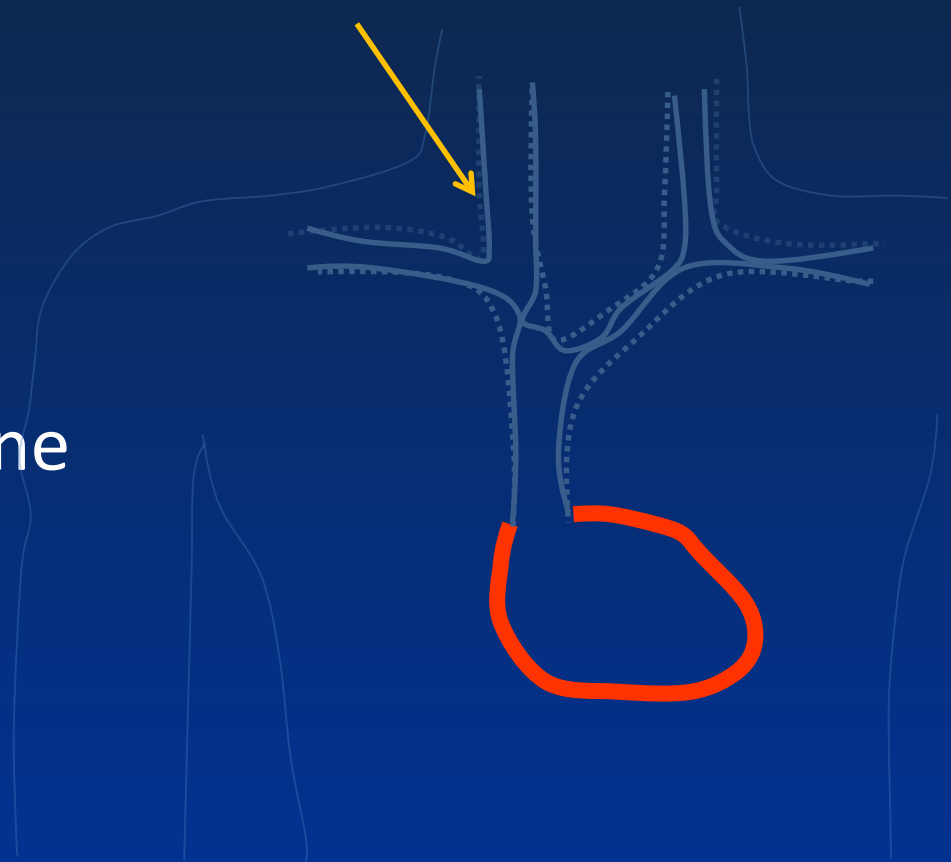


Venography is suboptimal

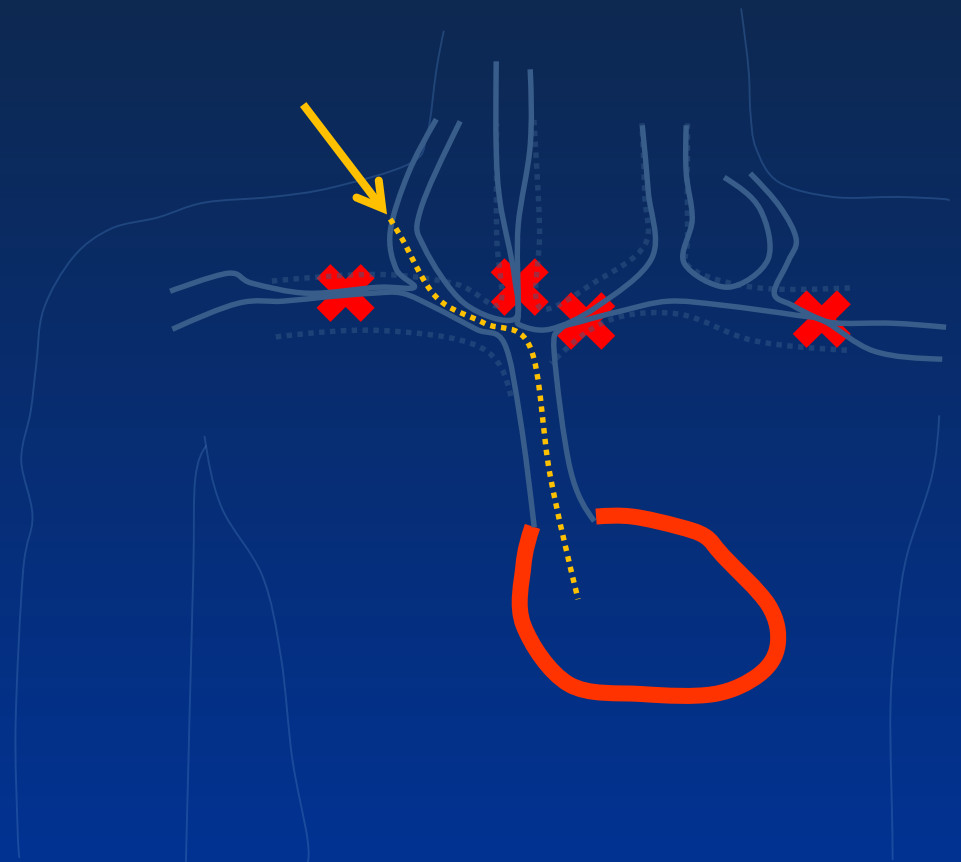
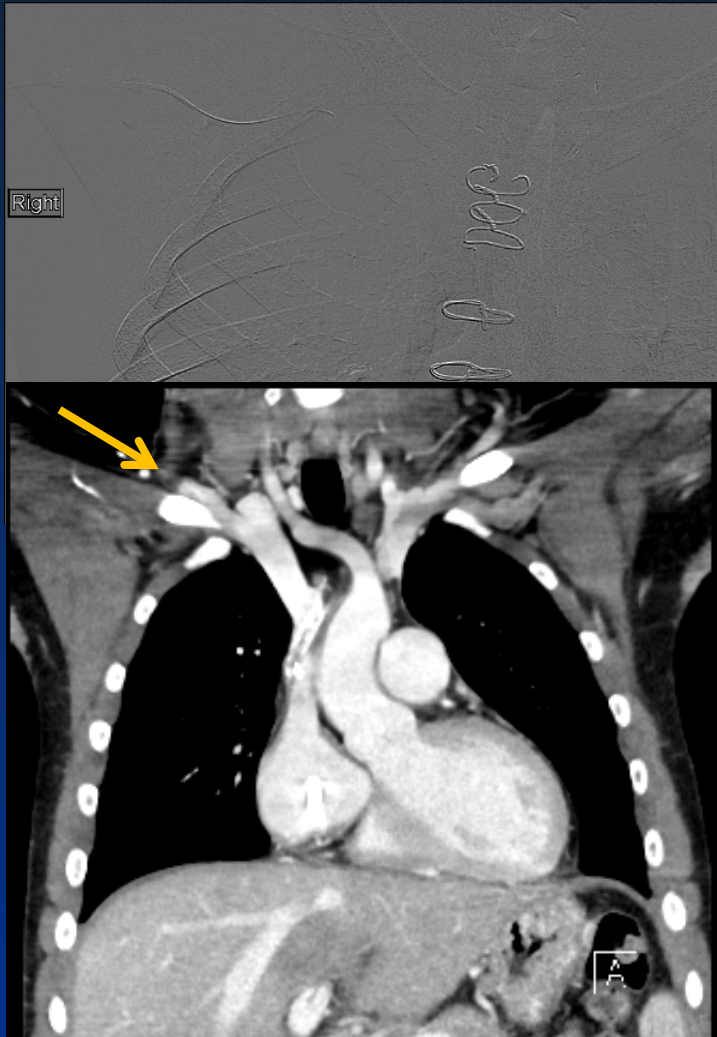


Planning

- Choose route (veins/path) of approach
 - Mildest stenosis
 - Shortest / straight occlusion
 - Safest (extravascular) path
- Choose access veins: one upper, one lower
 - R/L IJ, EJ, arm, SC
 - R/L CFV

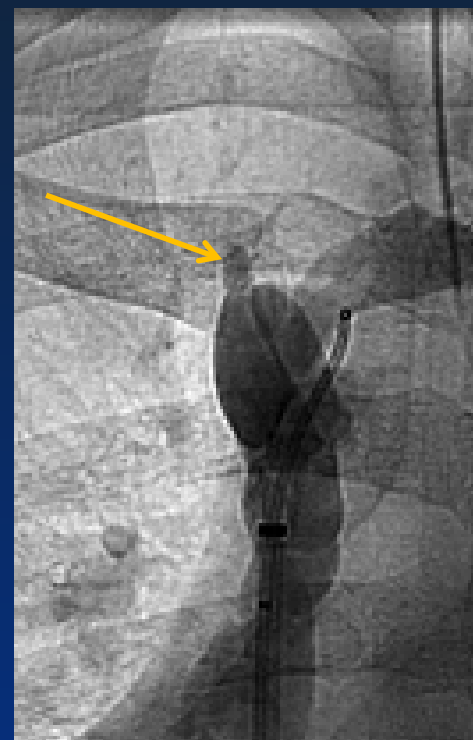


Take easiest path

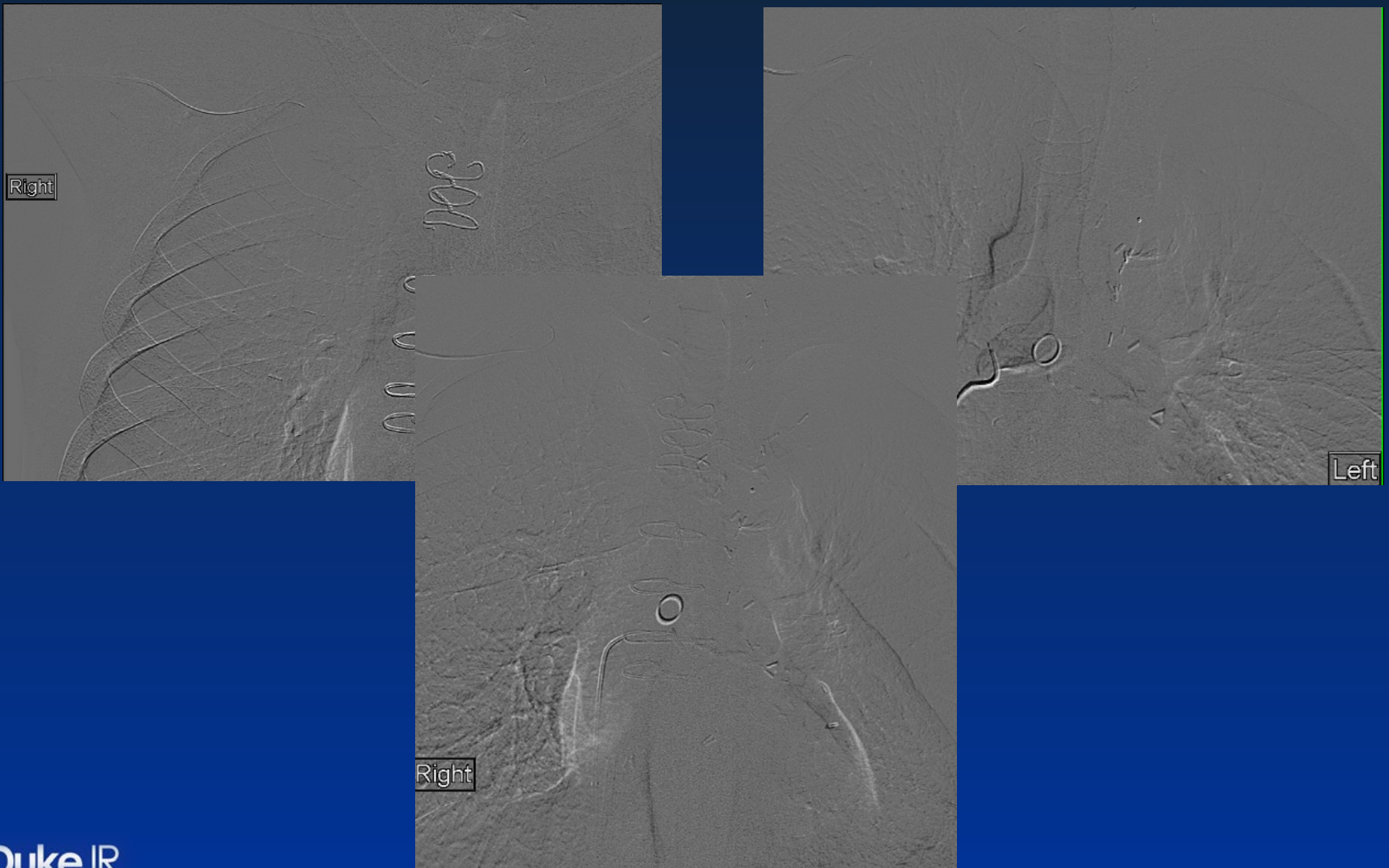


“Blunt” recanalization

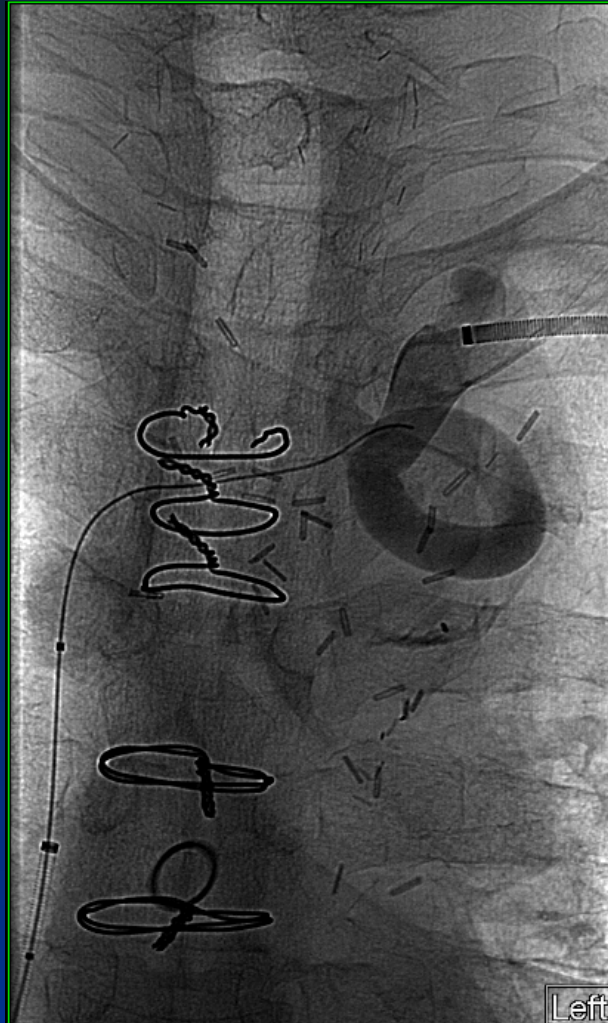
- Stiff guidewire / angled catheter
- Look for beak
- Feel / look for point – cement
- Understand wire tip behavior
- Support sheath
- Low-profile tapered hydrophilic catheters
- Use collateral vein
- Try both sides of occlusion
- Through-and-through access / snare



Blunt recanalization example



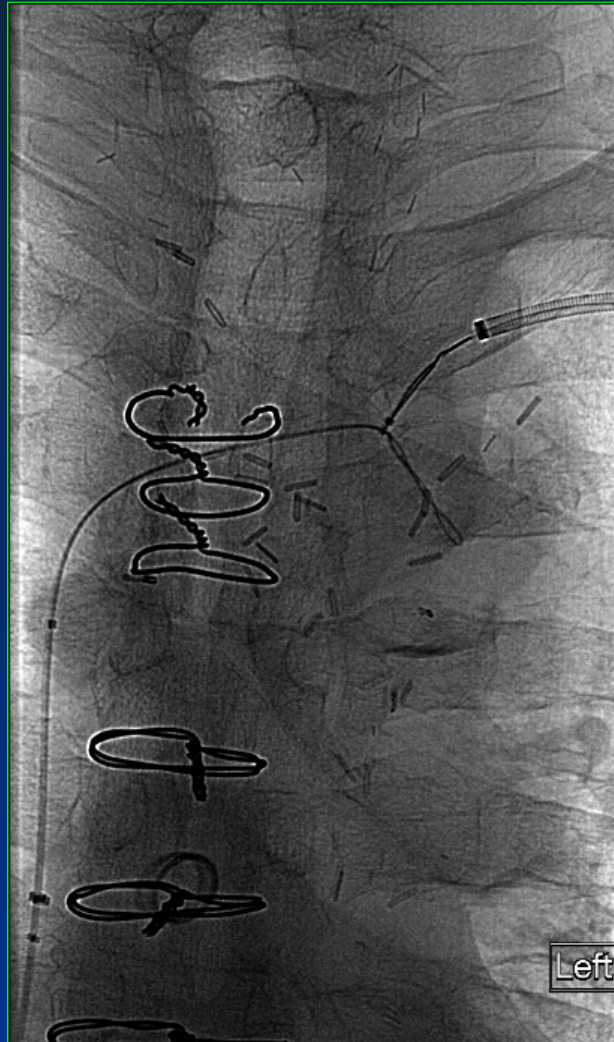
Blunt recanalization example



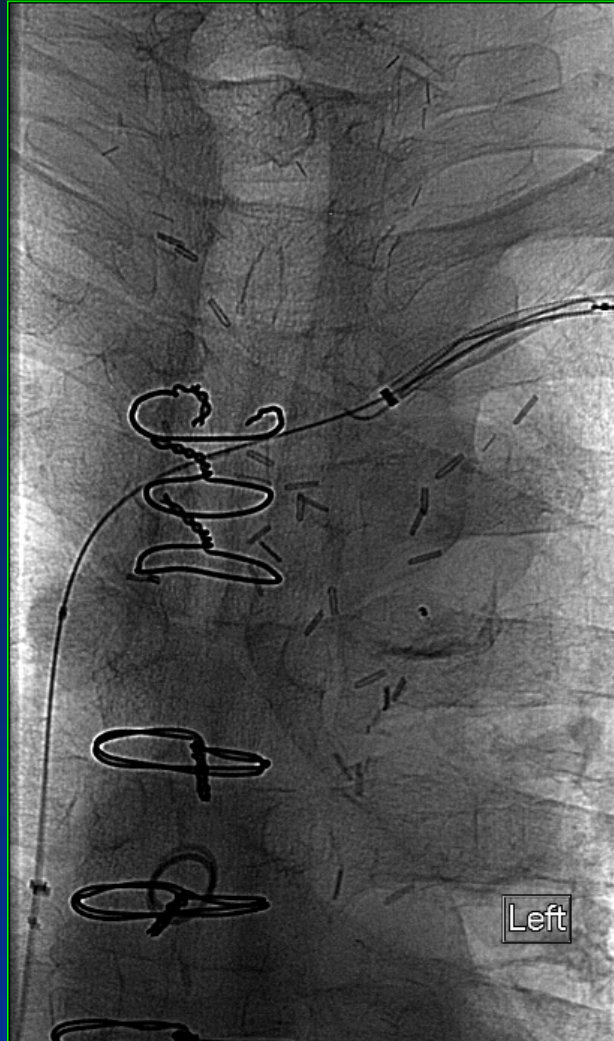
Blunt recanalization example



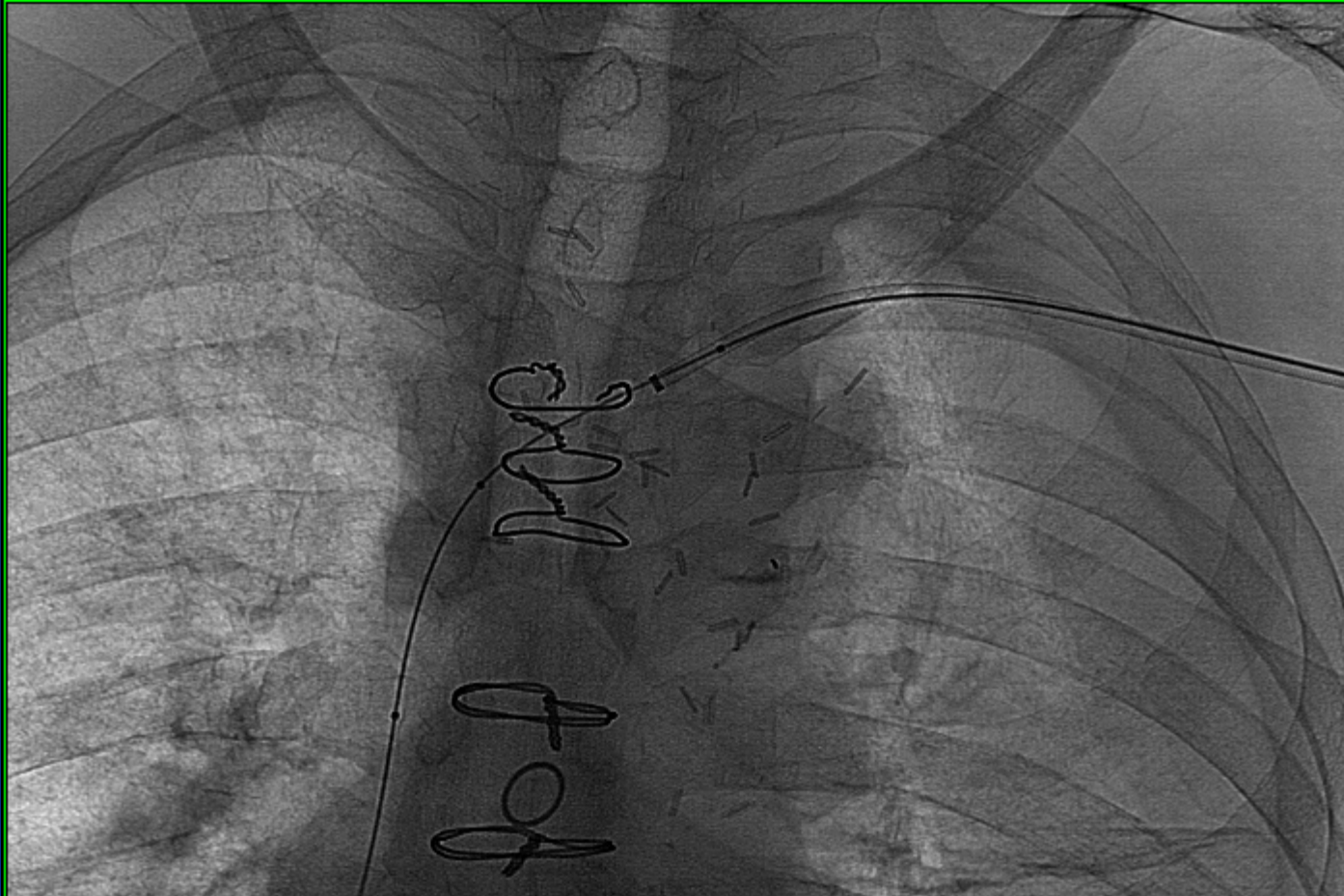
Blunt recanalization example



Blunt recanalization example

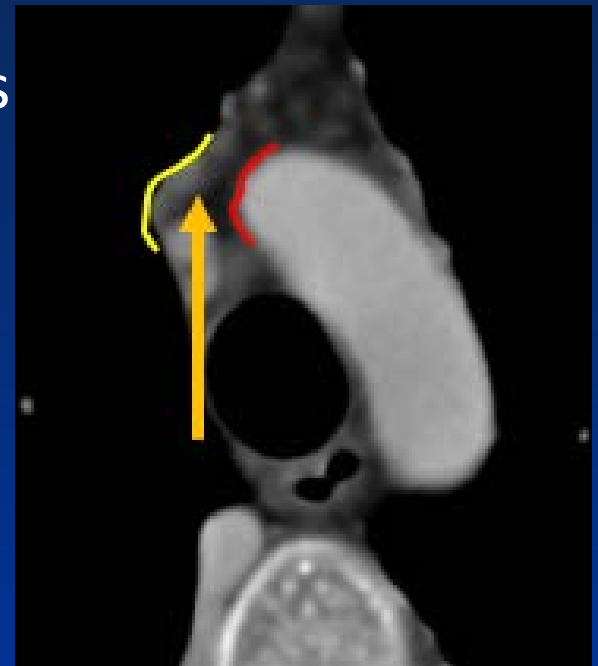


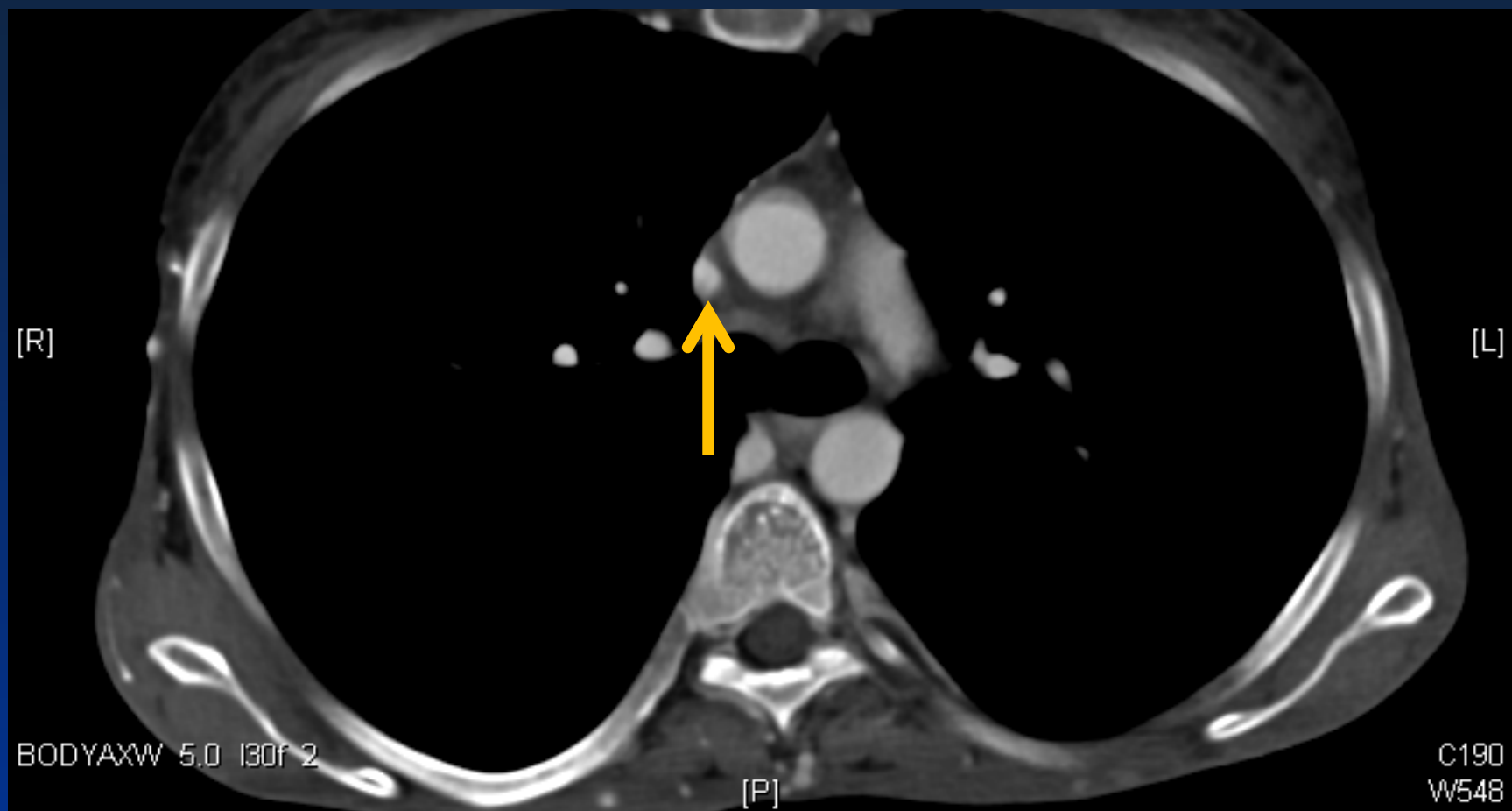
Blunt recanalization example

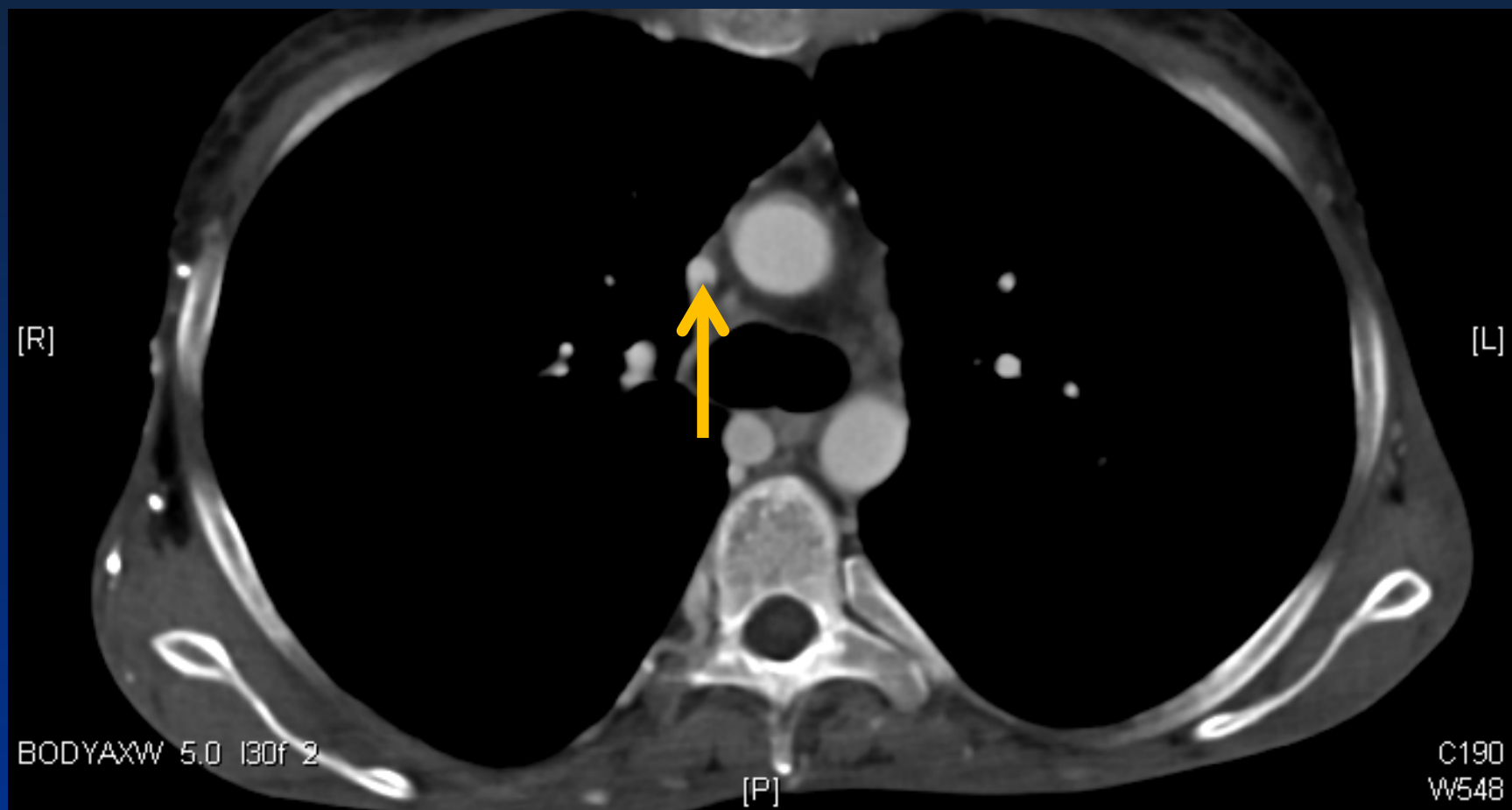


Advanced techniques

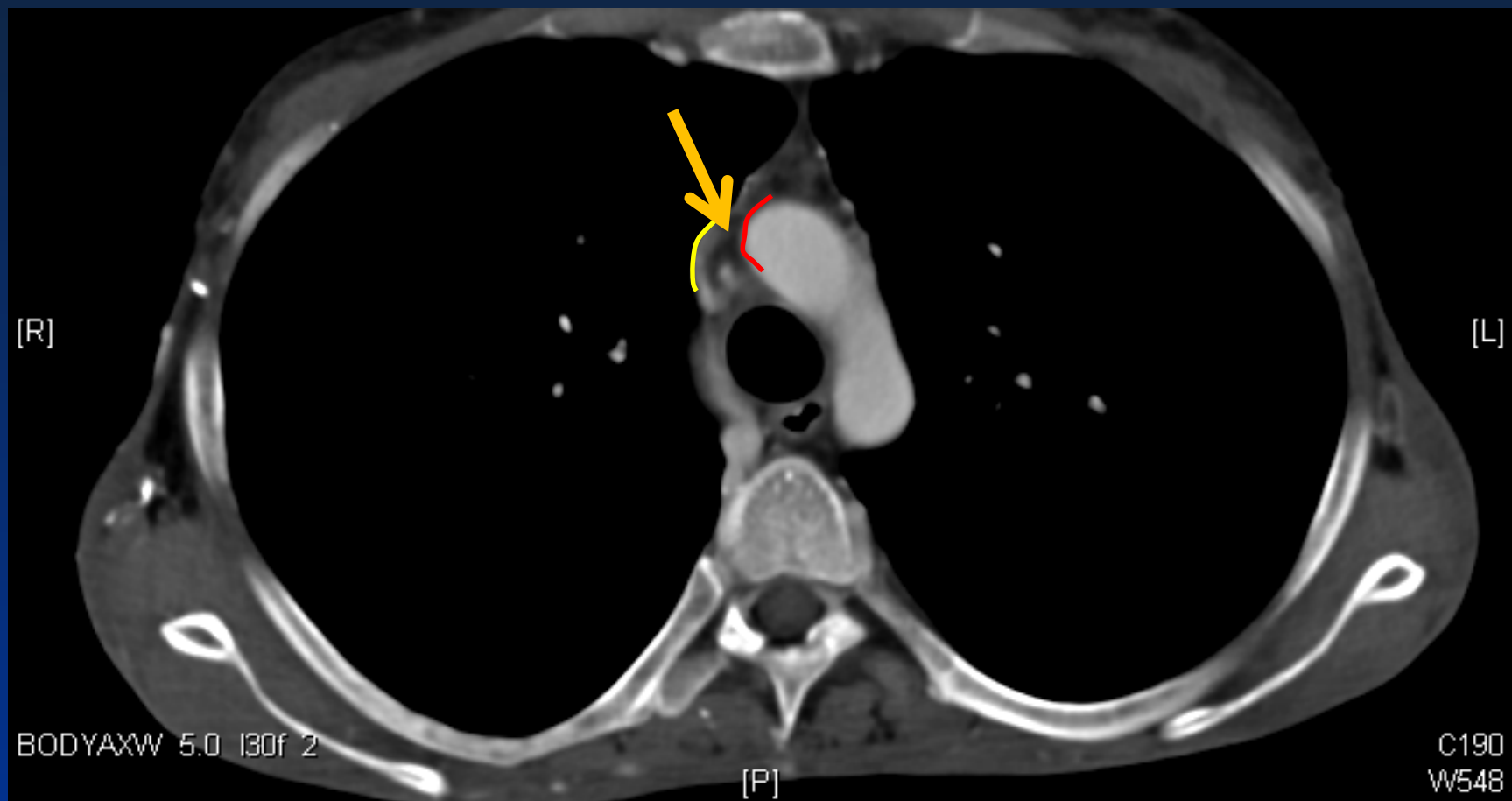
- Sharp recanalization
- RF powerwire
- Transmediastinal access
- Imaging critical
 - Relationship of critical structures
 - procedural guidance
 - understanding risks
 - Artery
 - Pleura
 - pericardium

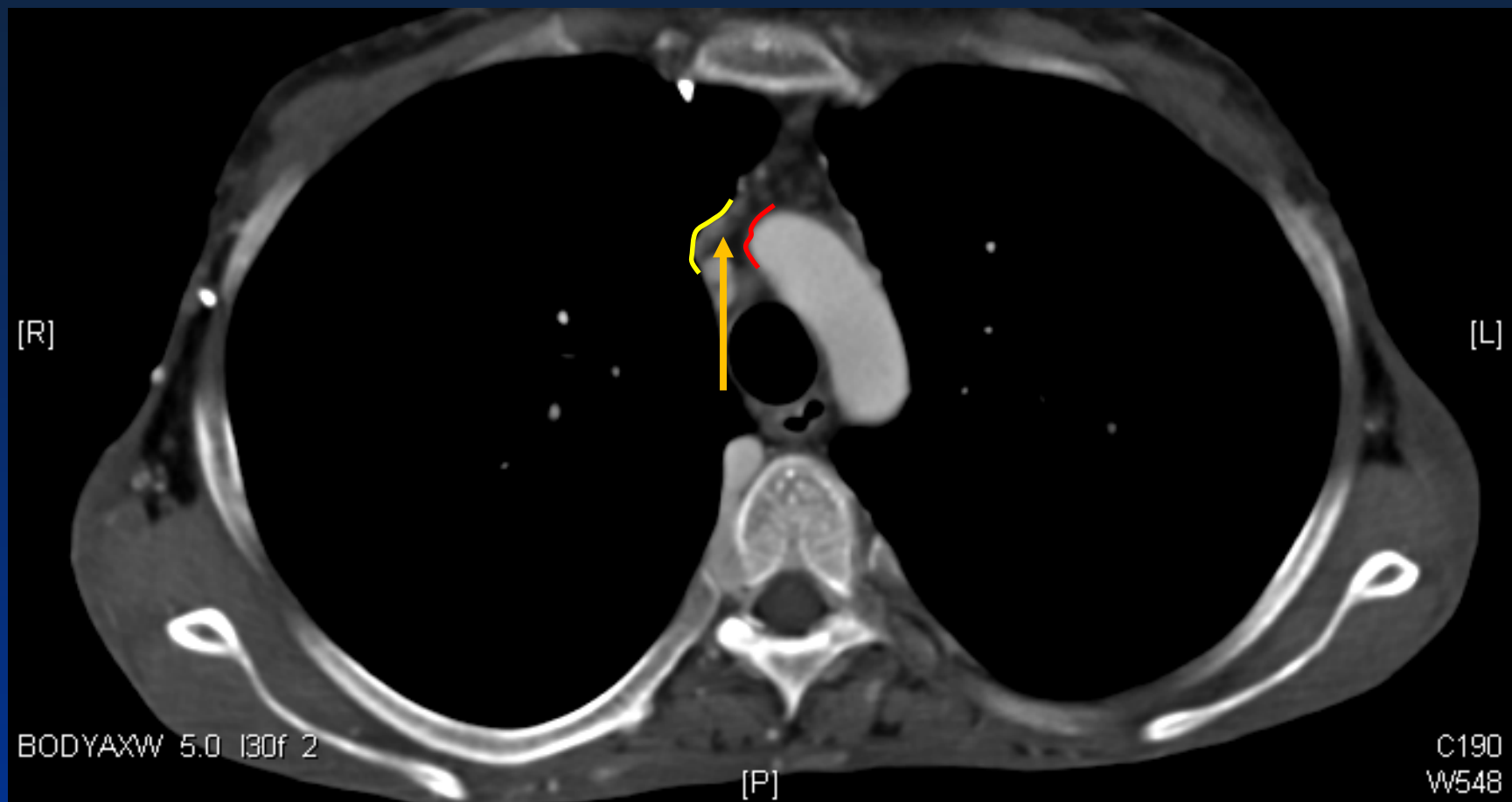


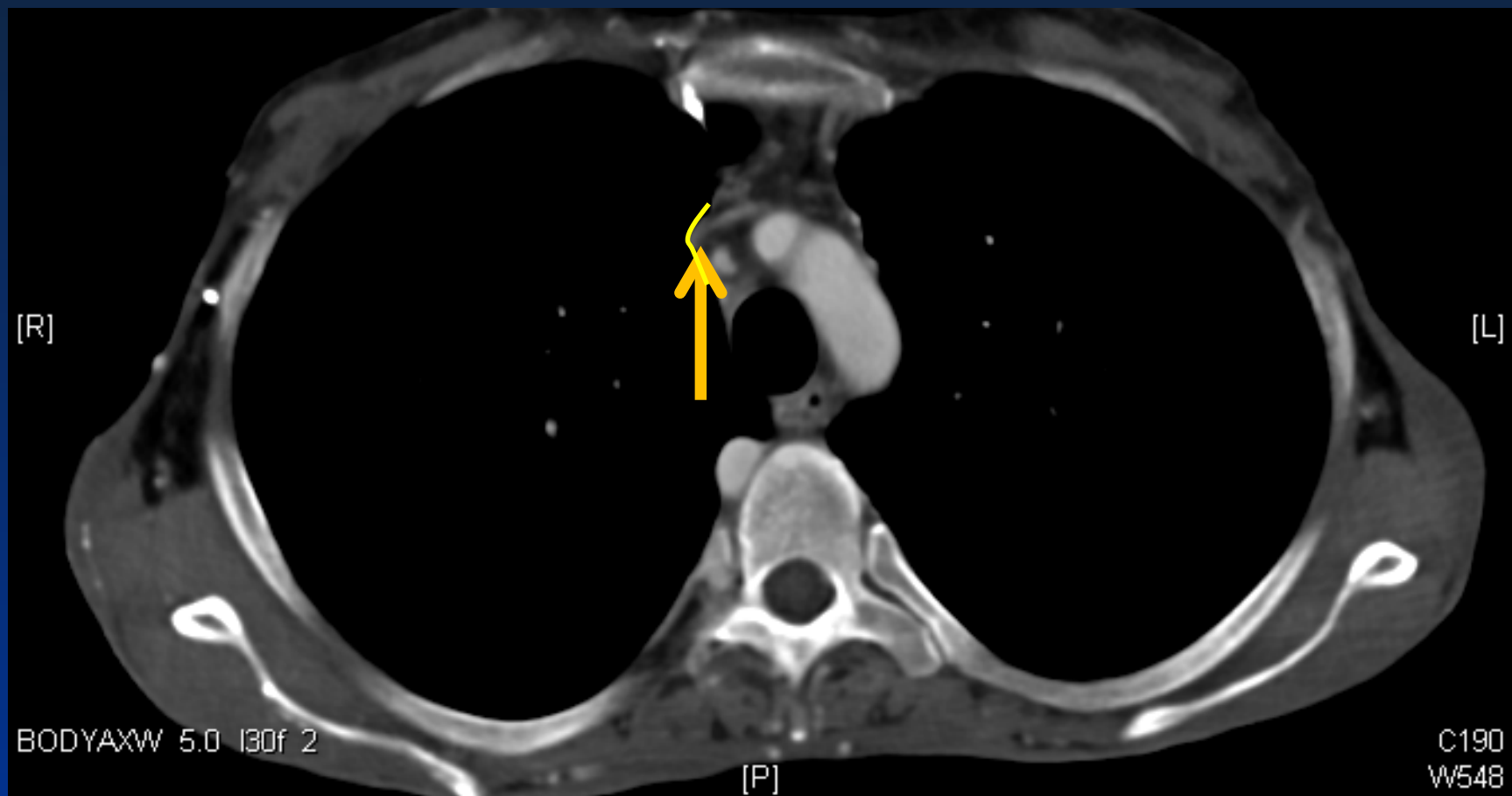




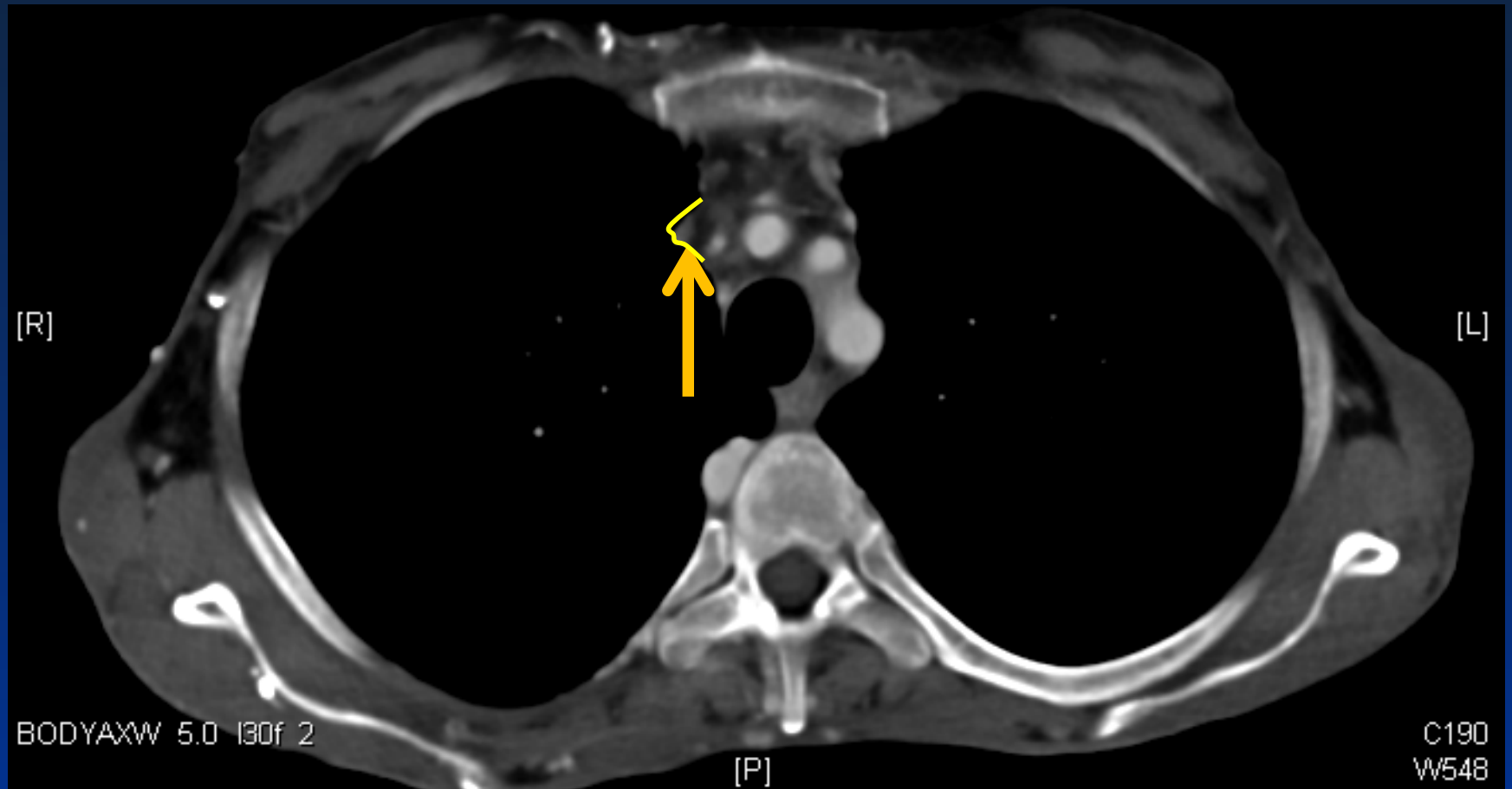


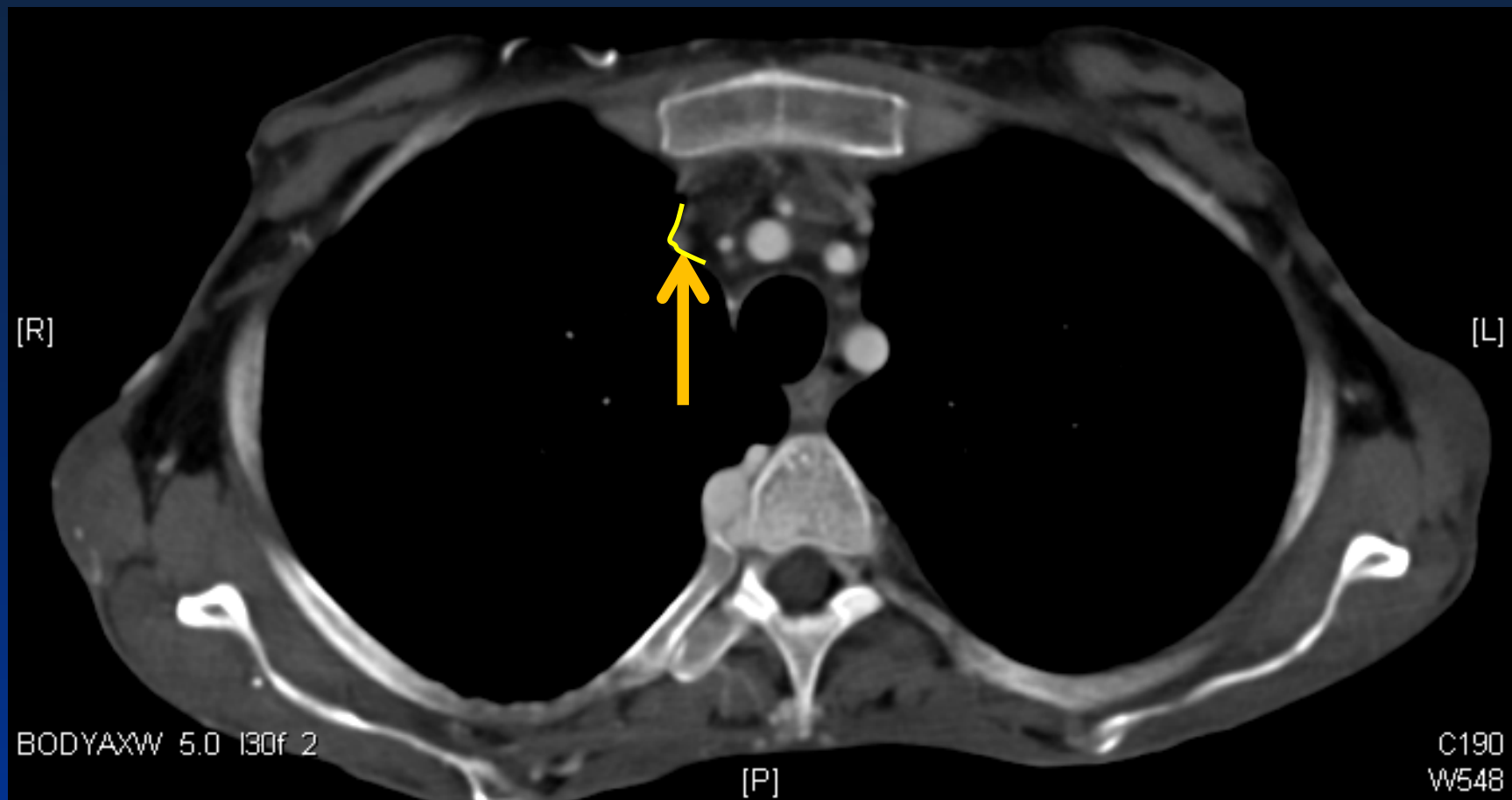


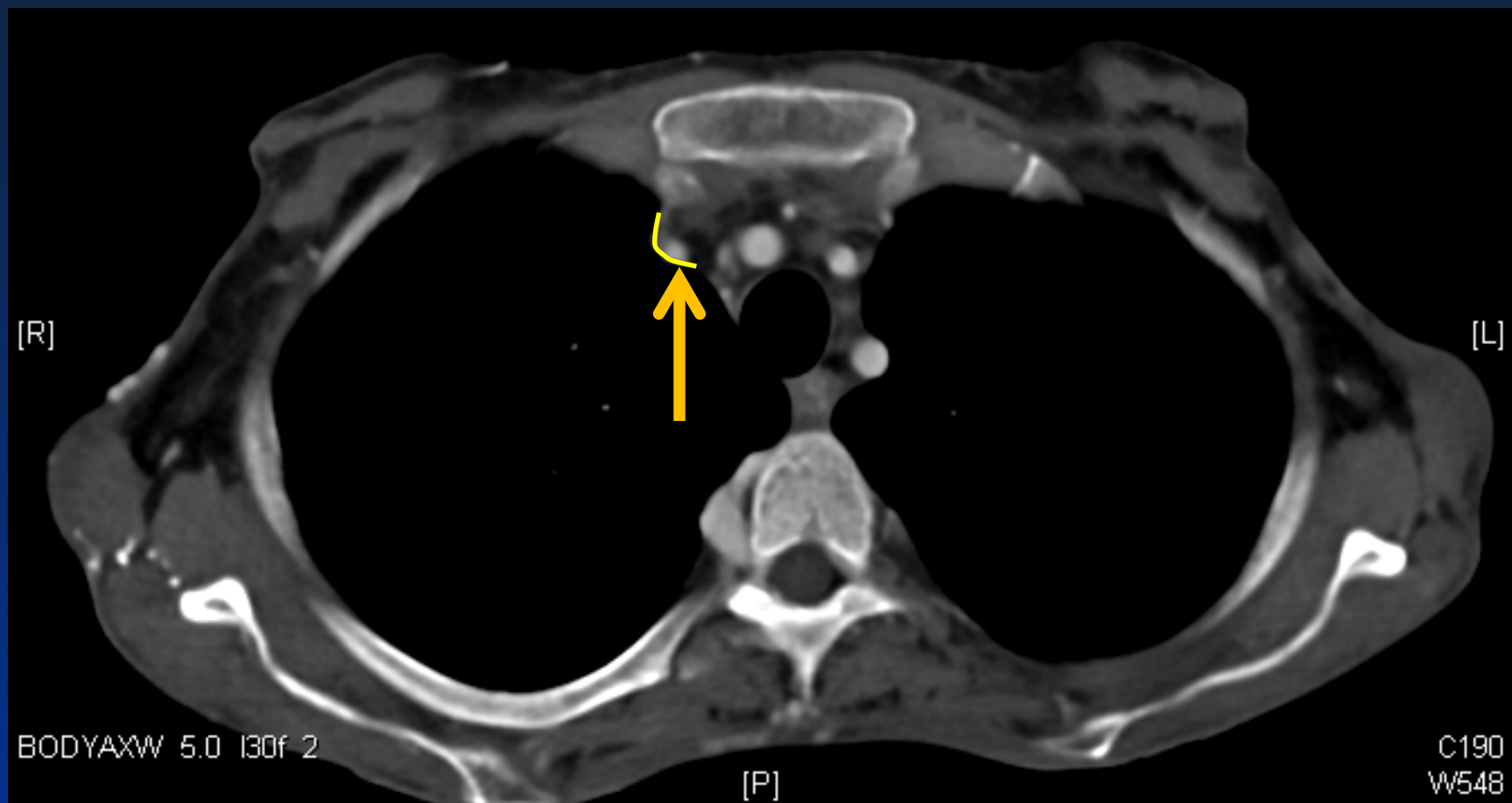




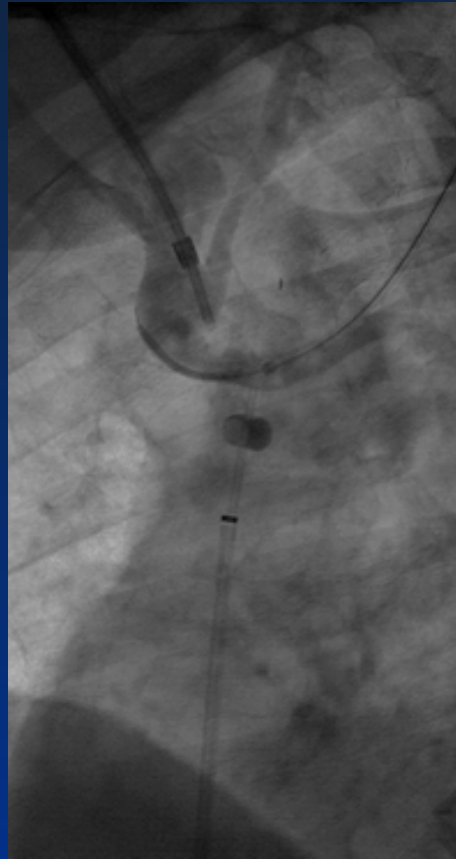
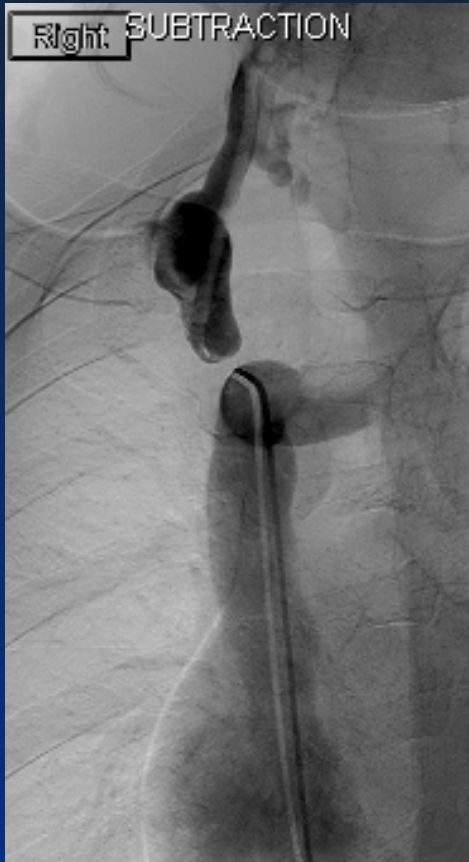
(string)





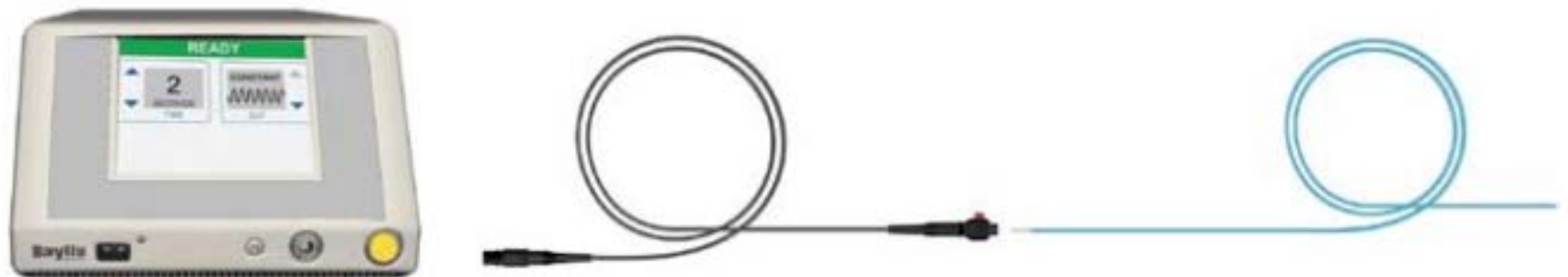


Sharp recanalization



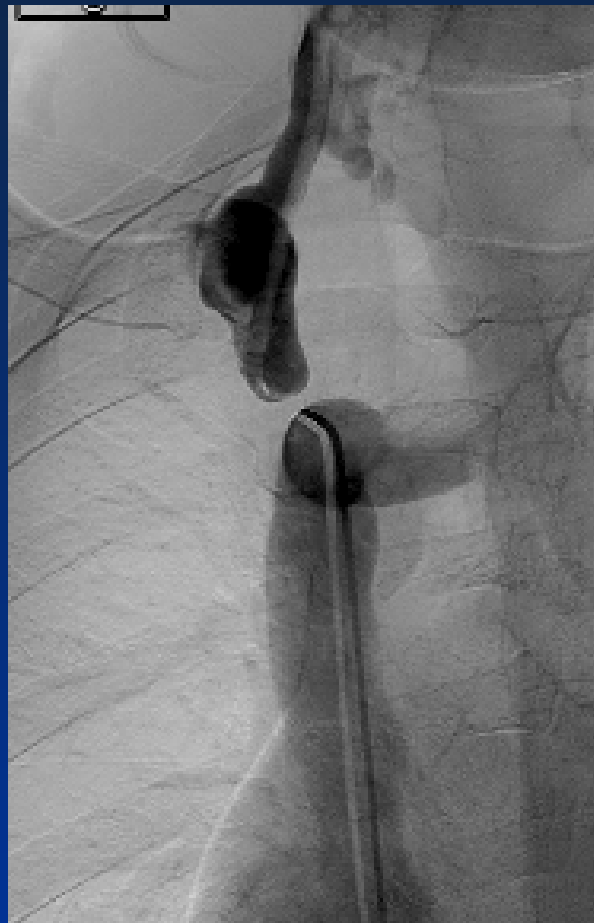
RF powerwire

- Baylis Medical
- Indications: *intended to create a channel in totally occluded peripheral vessels 3 mm or greater.*

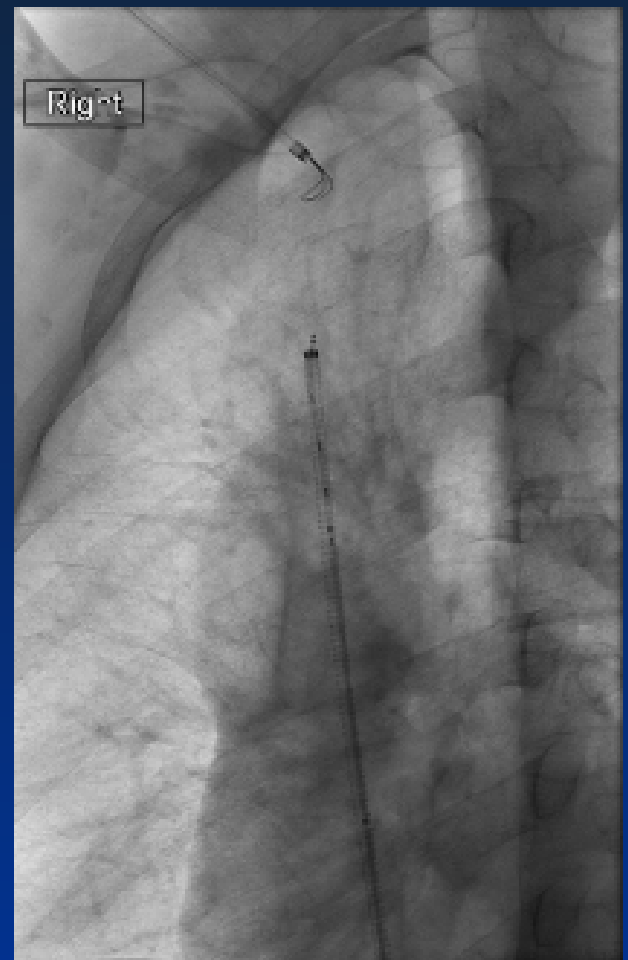
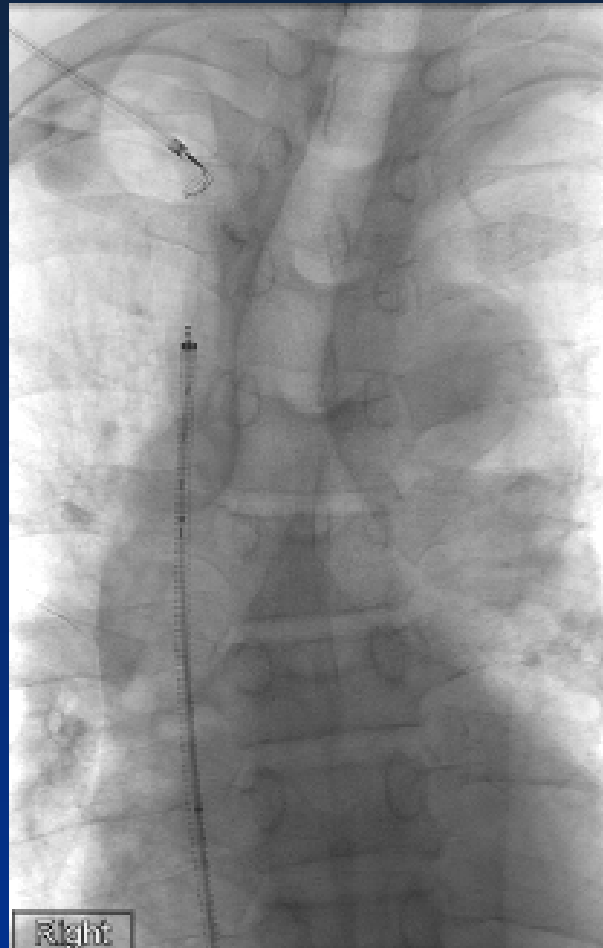
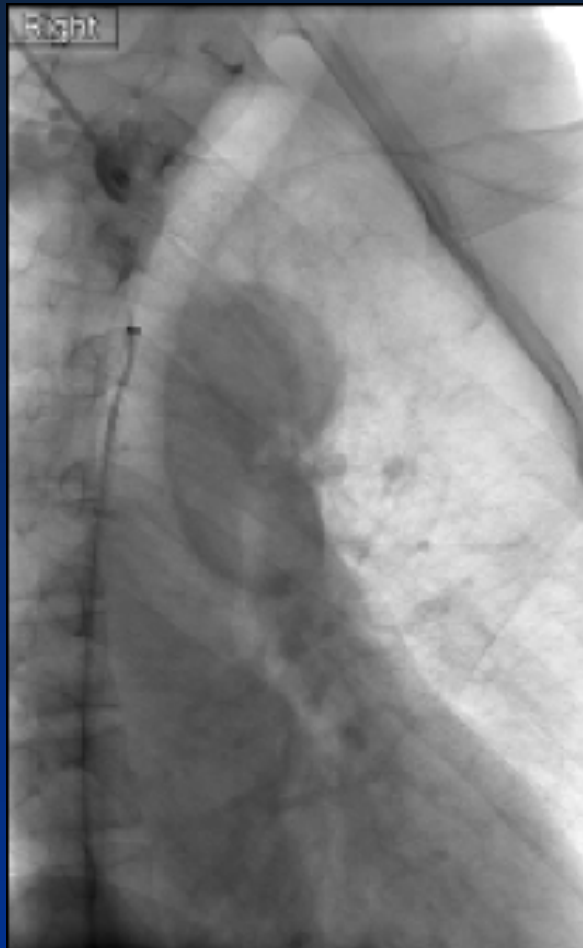


Ideal use

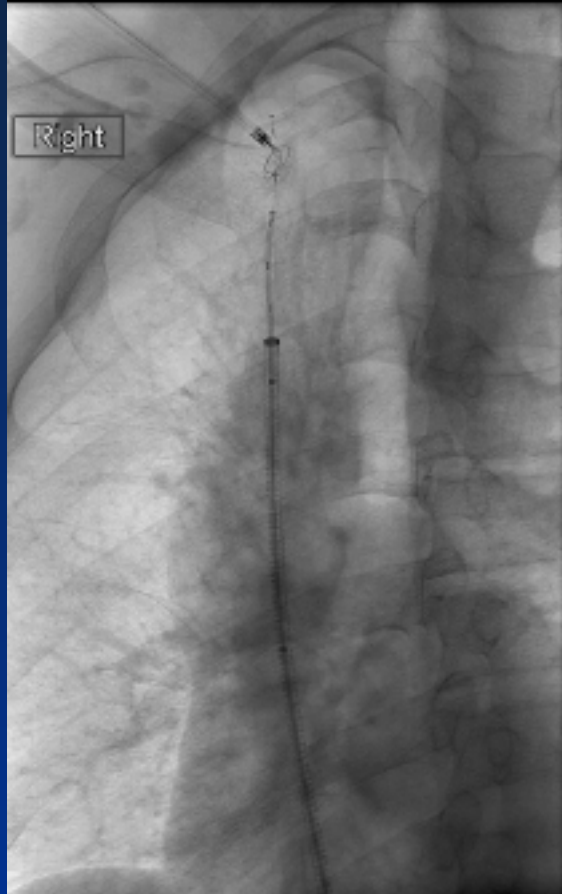
- Short-segment occlusion



Conventional Technique

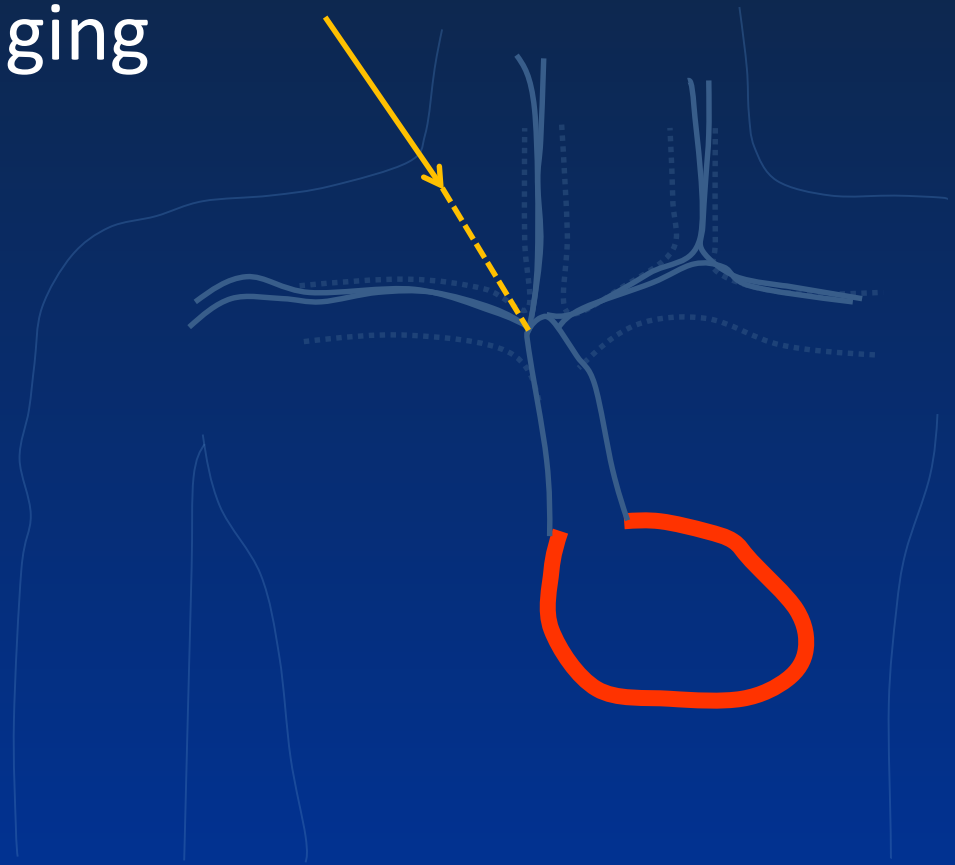


Conventional Technique

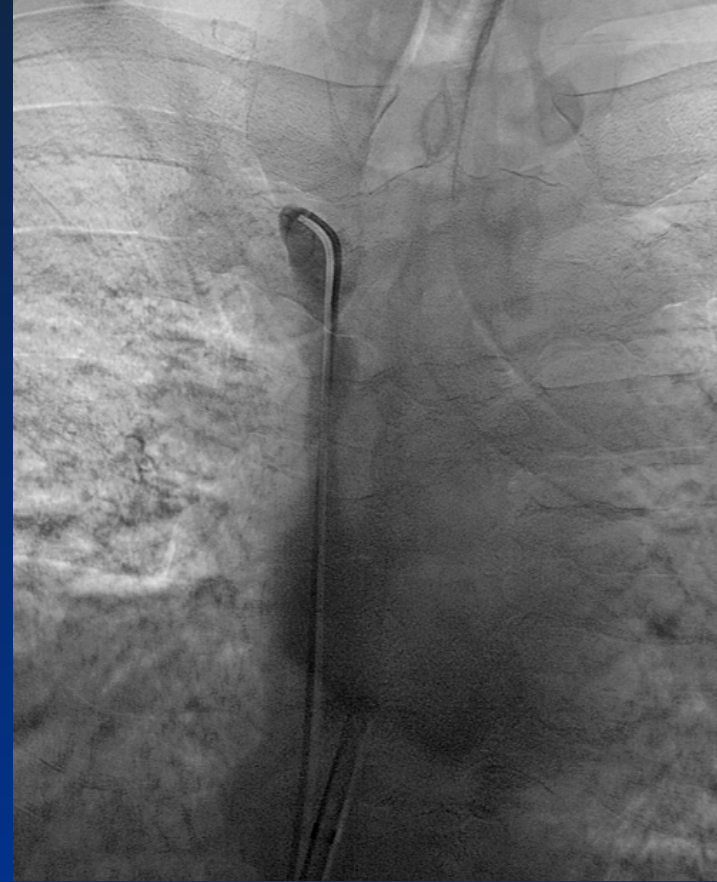
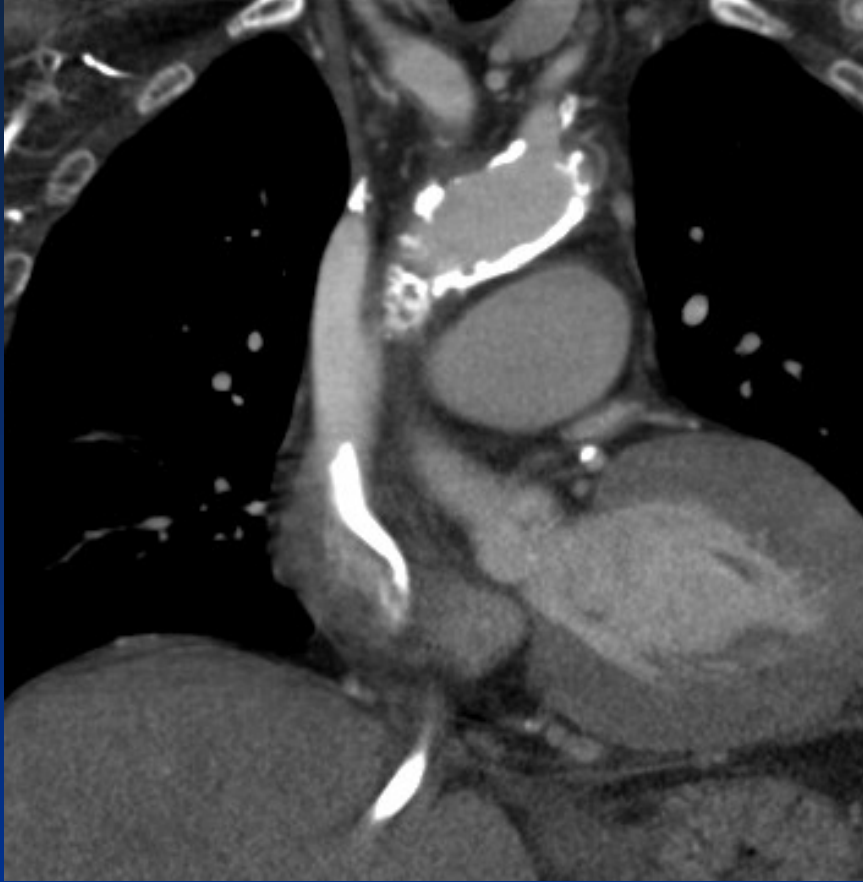


Percutaneous transmediastinal access

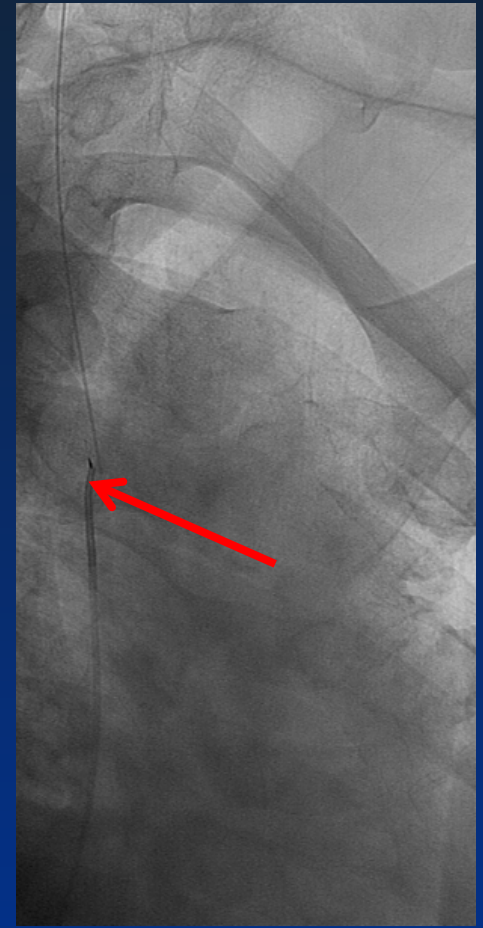
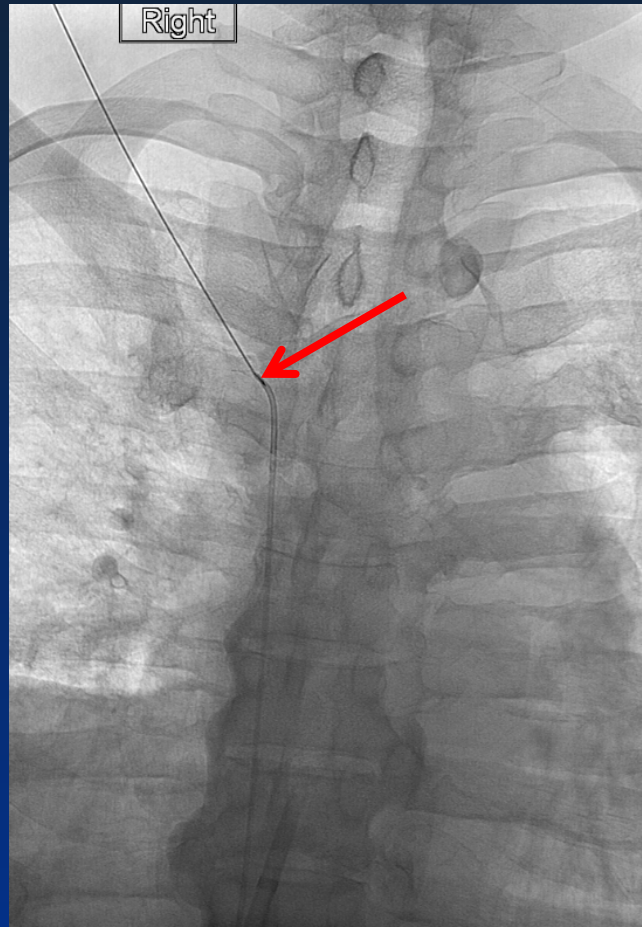
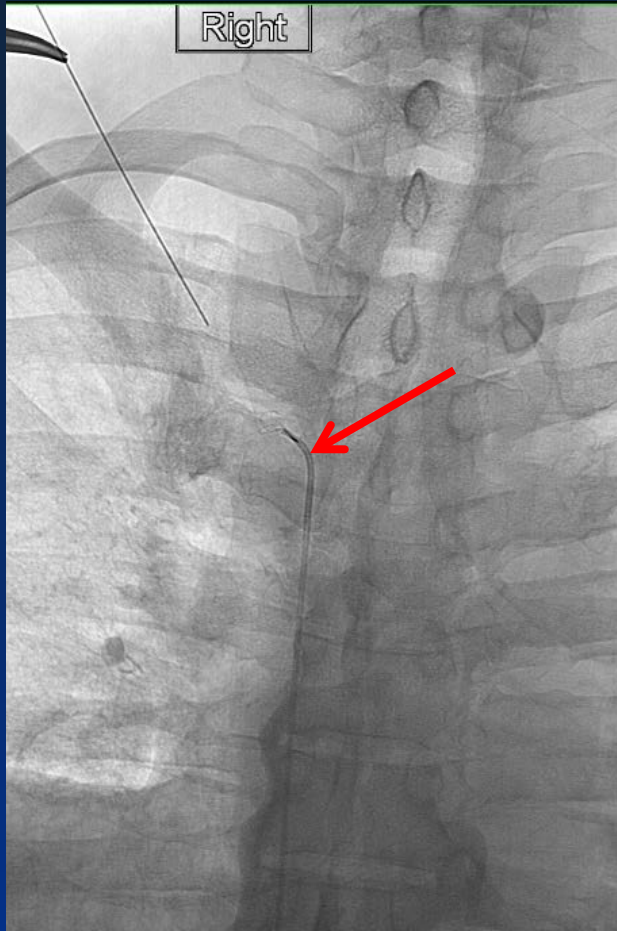
- Fluoro +/- Ultrasound guidance
- **Pre-procedural imaging



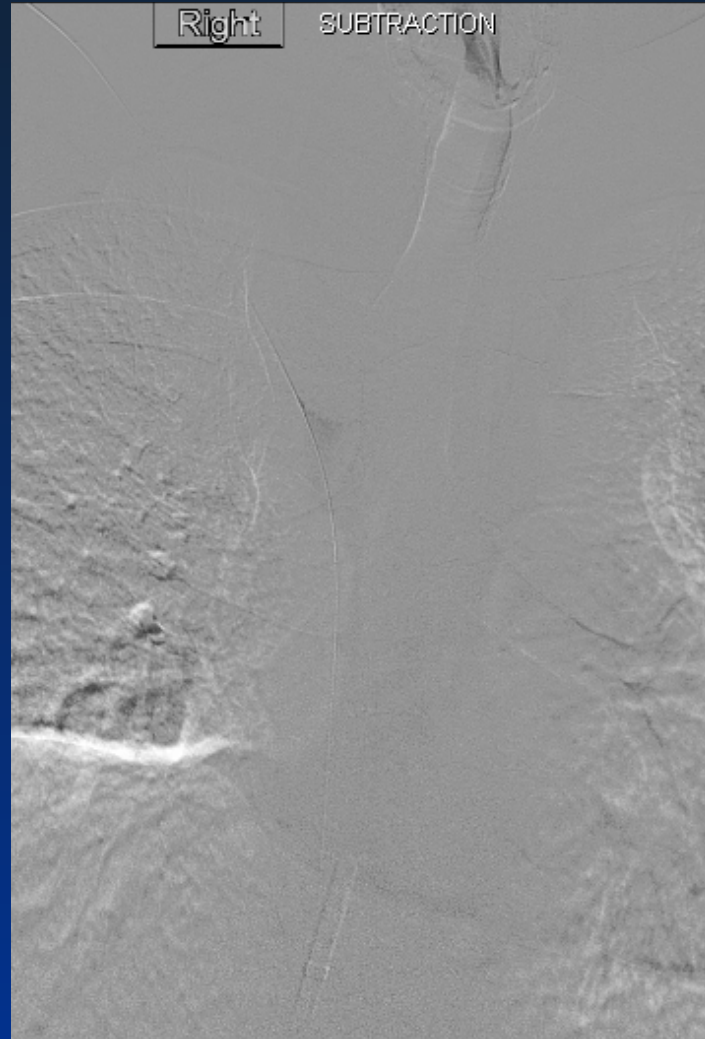
B/L Brachiocephalic occlusion



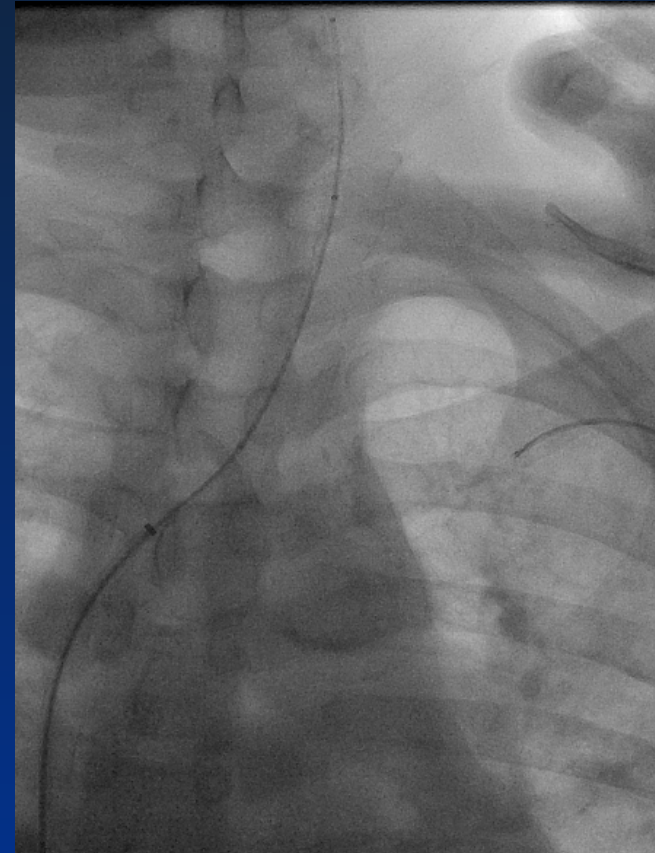
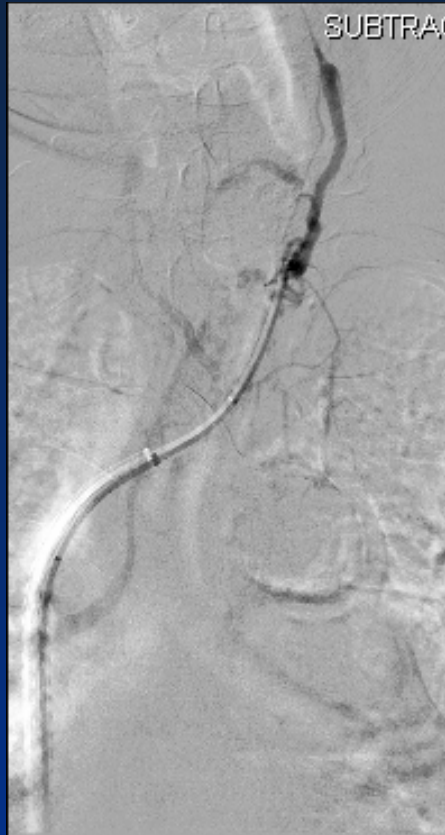
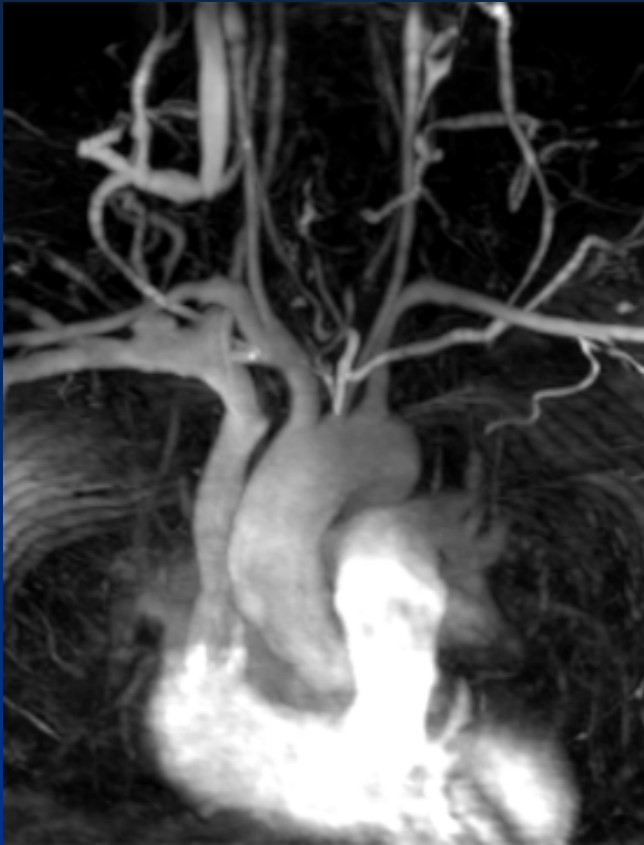
Fluoroscopic triangulation



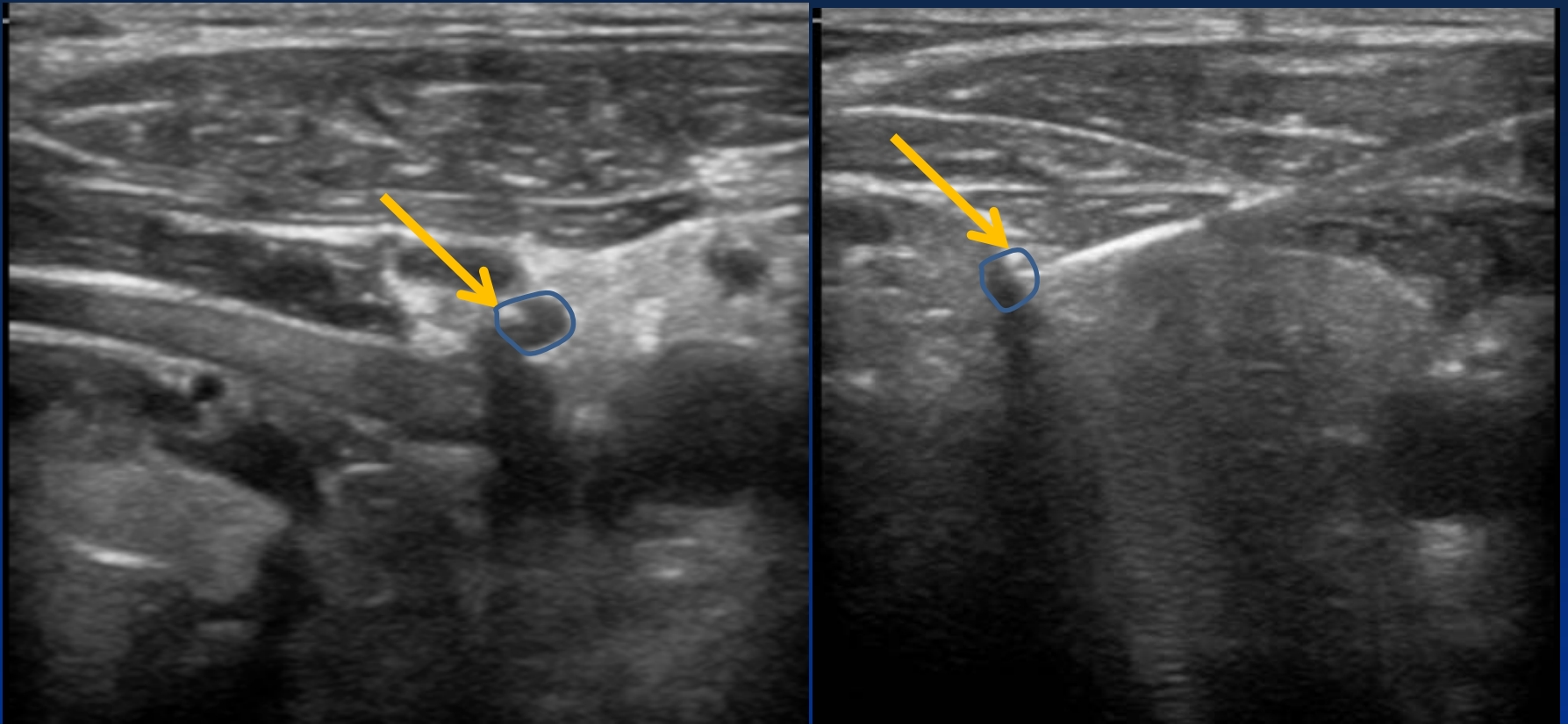
DSA Tractogram



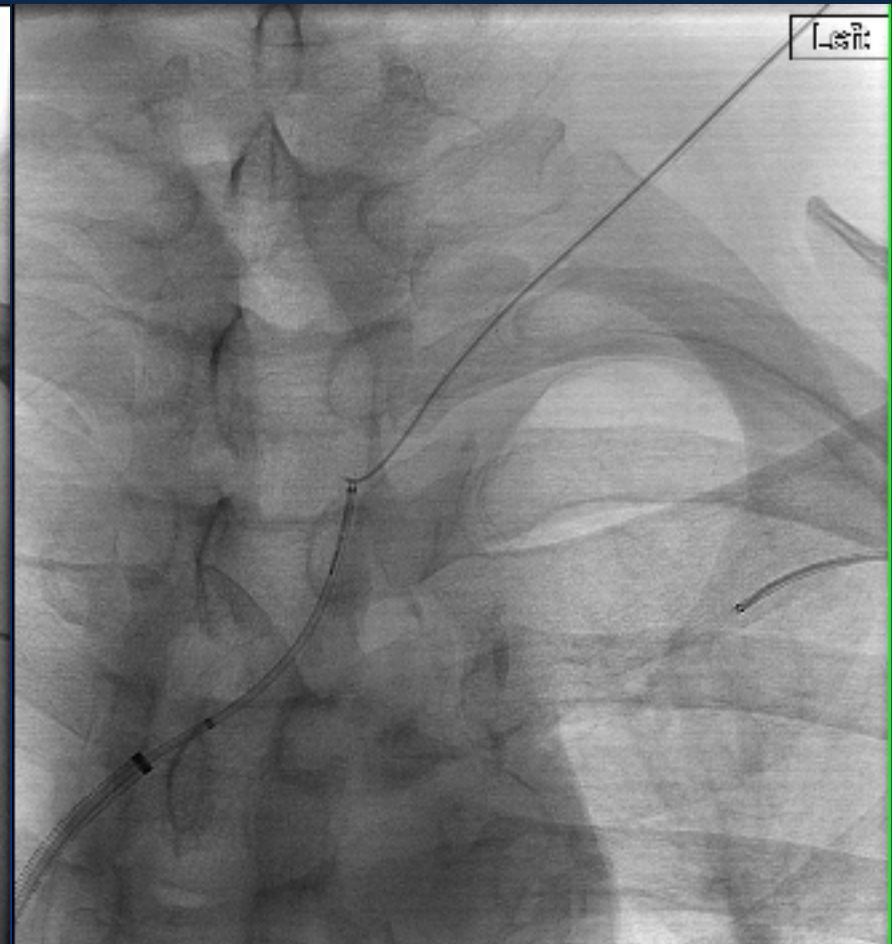
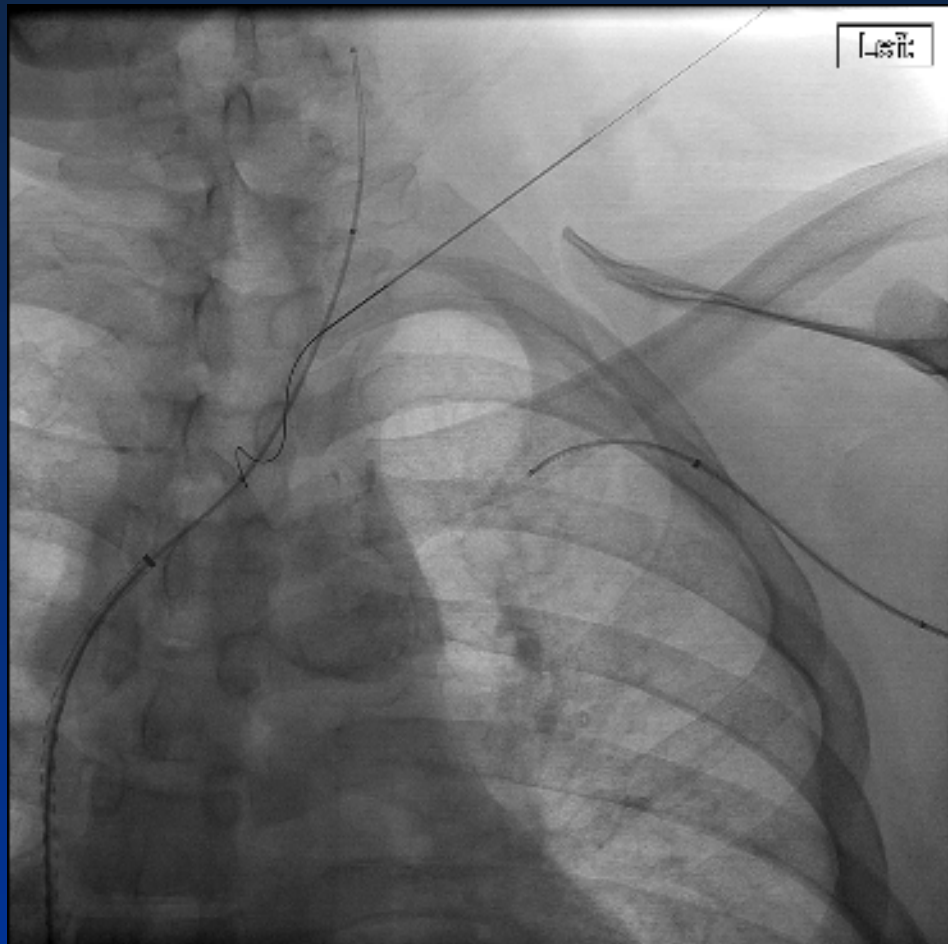
Combination technique



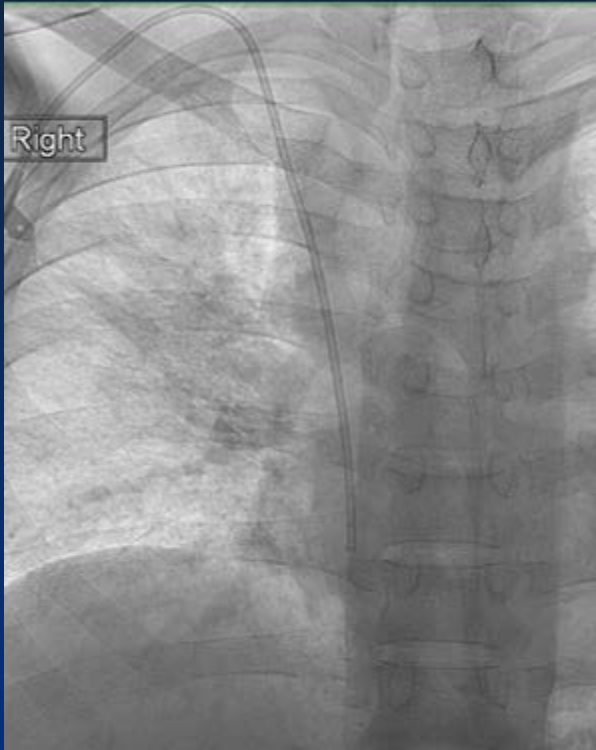
Ultrasound access to collateral



Snare → through-and-through access



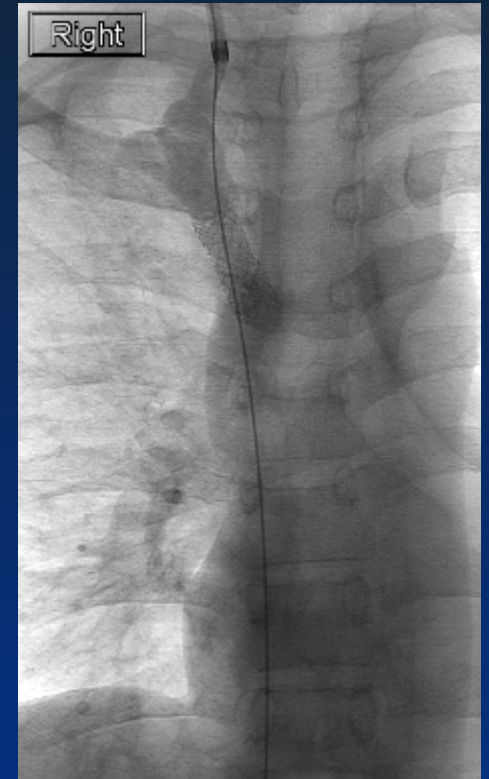
Final goal



Catheter



HeRO



stent

The background of the slide is a dark blue image. At the top, there is a stone lion sculpture, likely a guardian lion, with its head turned to the left. Below the lion, there is a reflection of a building, possibly a church or university building, in a body of water. The entire image is overlaid with a semi-transparent blue filter.

Thank you
charles.kim@duke.edu