

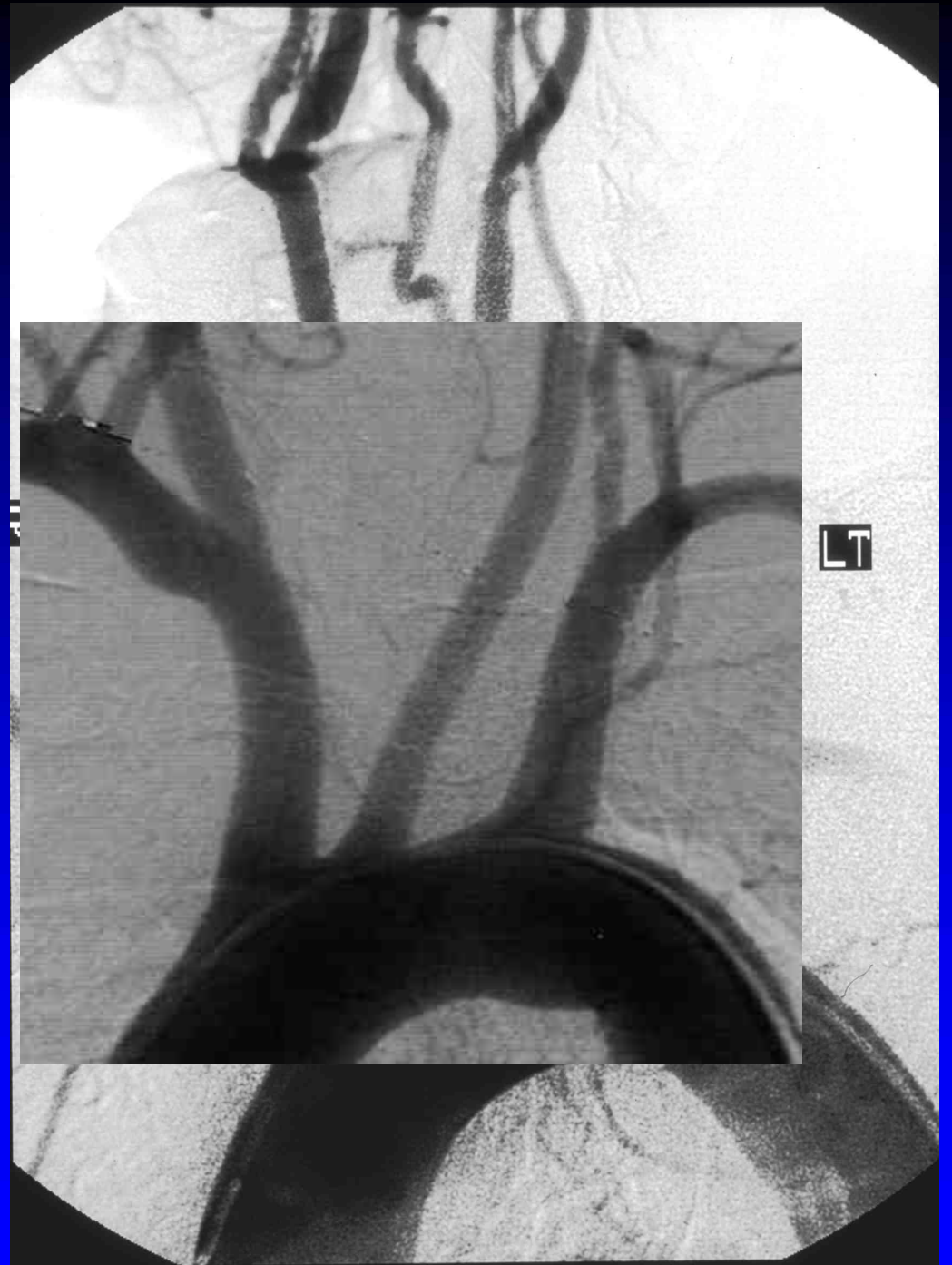
A 3D medical reconstruction of the aorta and carotid arteries, showing a complex branching pattern. The vessels are rendered in a golden-yellow color against a dark, textured background. The aorta is the central vertical vessel, with several branches extending upwards and outwards. The carotid arteries are visible on the right side, branching into the neck.

Complex Aorta and Carotid Anatomy

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Medical Director of the Vascular Center
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Aortic Arch

- Arch
 - Pigtail catheter
 - 30 - 45 degrees LAO
 - 20-25cc/sec for total of 30-35 cc of contrast
 - Consider 30 degree RAO projection to evaluate right subclavian origin



Aortic Arch: Variations

- 65% usual pattern
- 27% left common carotid from brachiocephalic
- 3% separate origin of left vertebral
- 5% various patterns, including right subclavian from distal arch

Aortic Arch Anatomic Variants

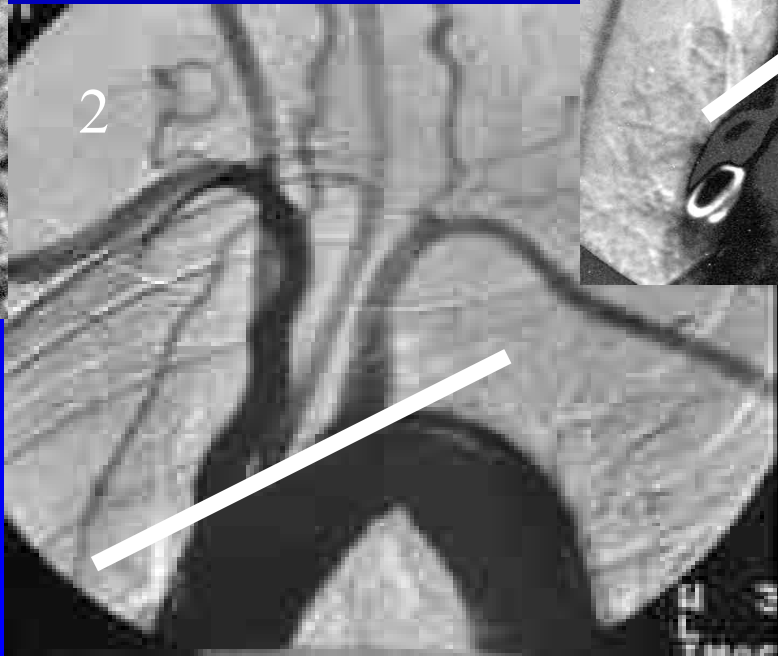
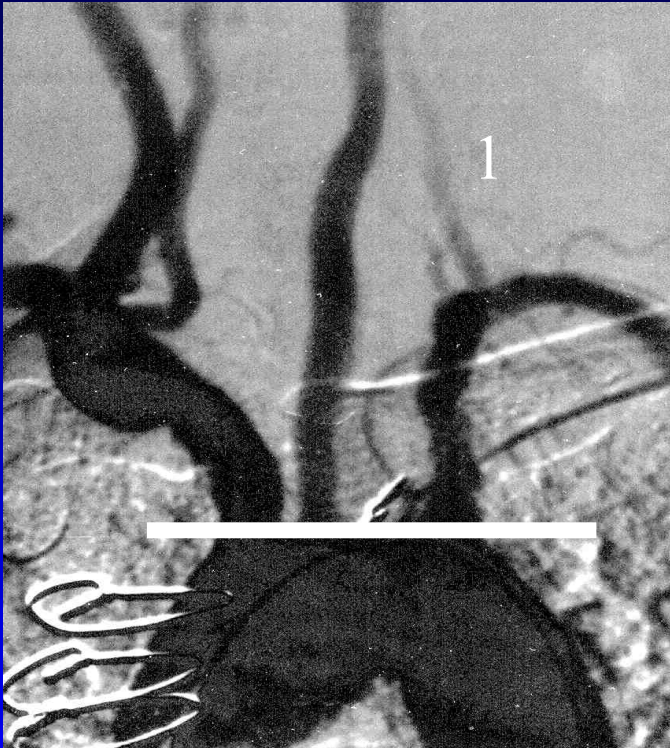


Normal

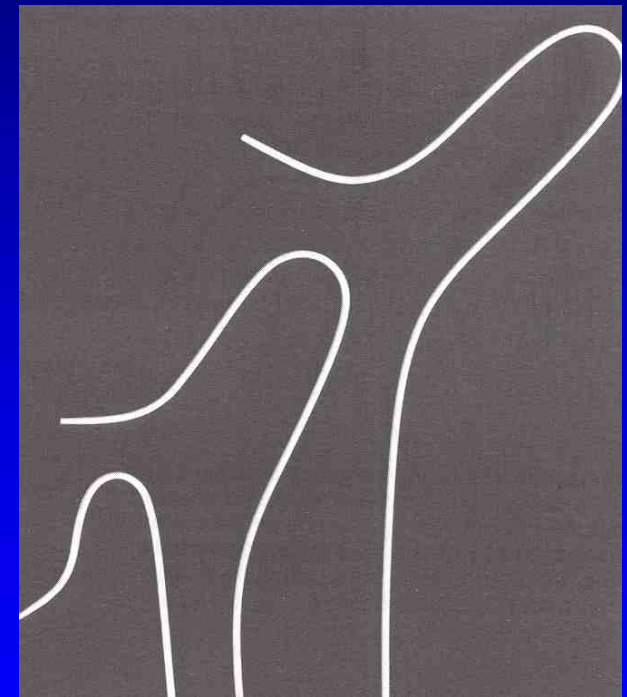


Bovine

Aortic Arch Types

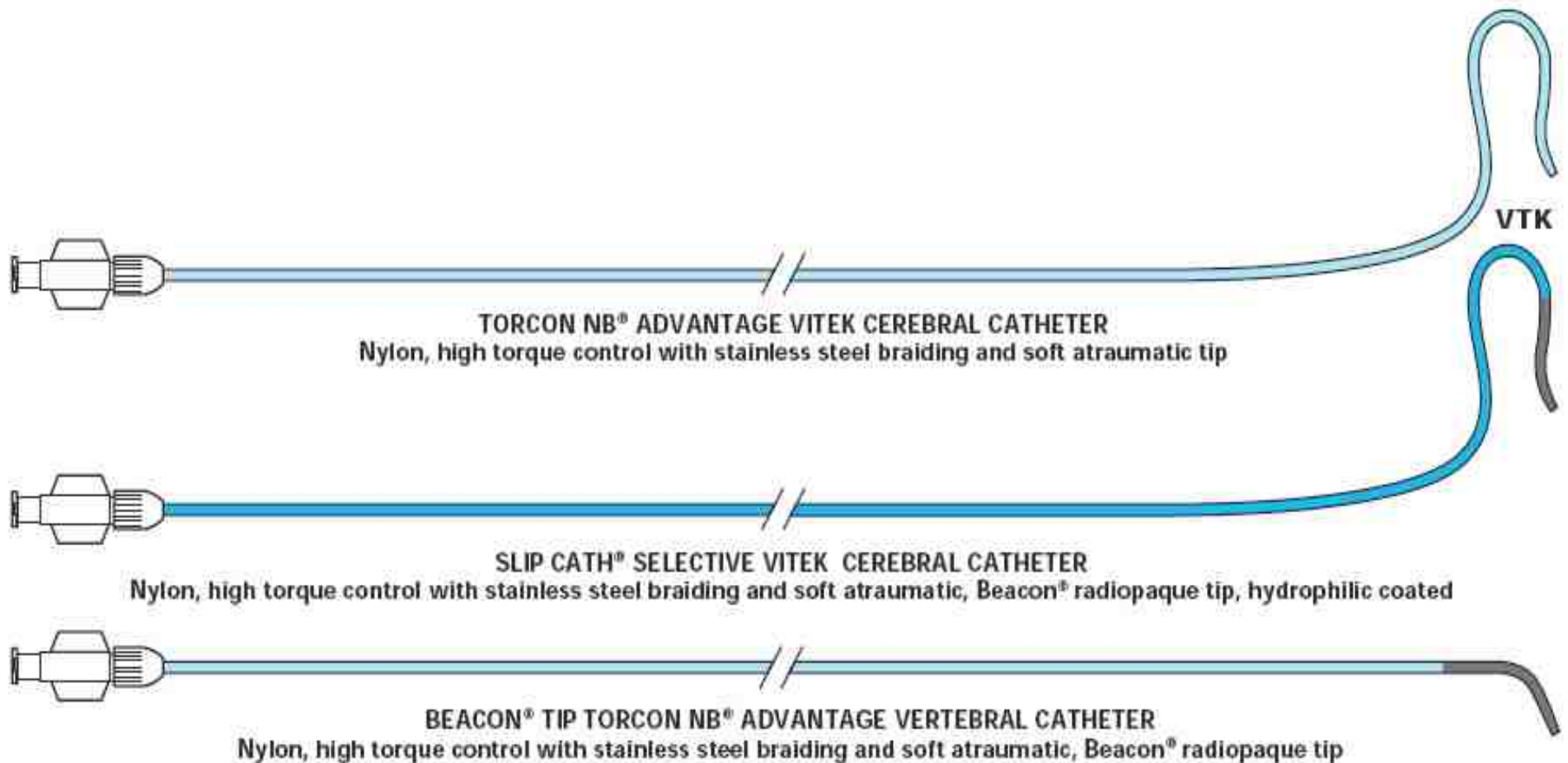


Selective Catheter Choice



Vitek, Simmons 1,2,3 Catheters

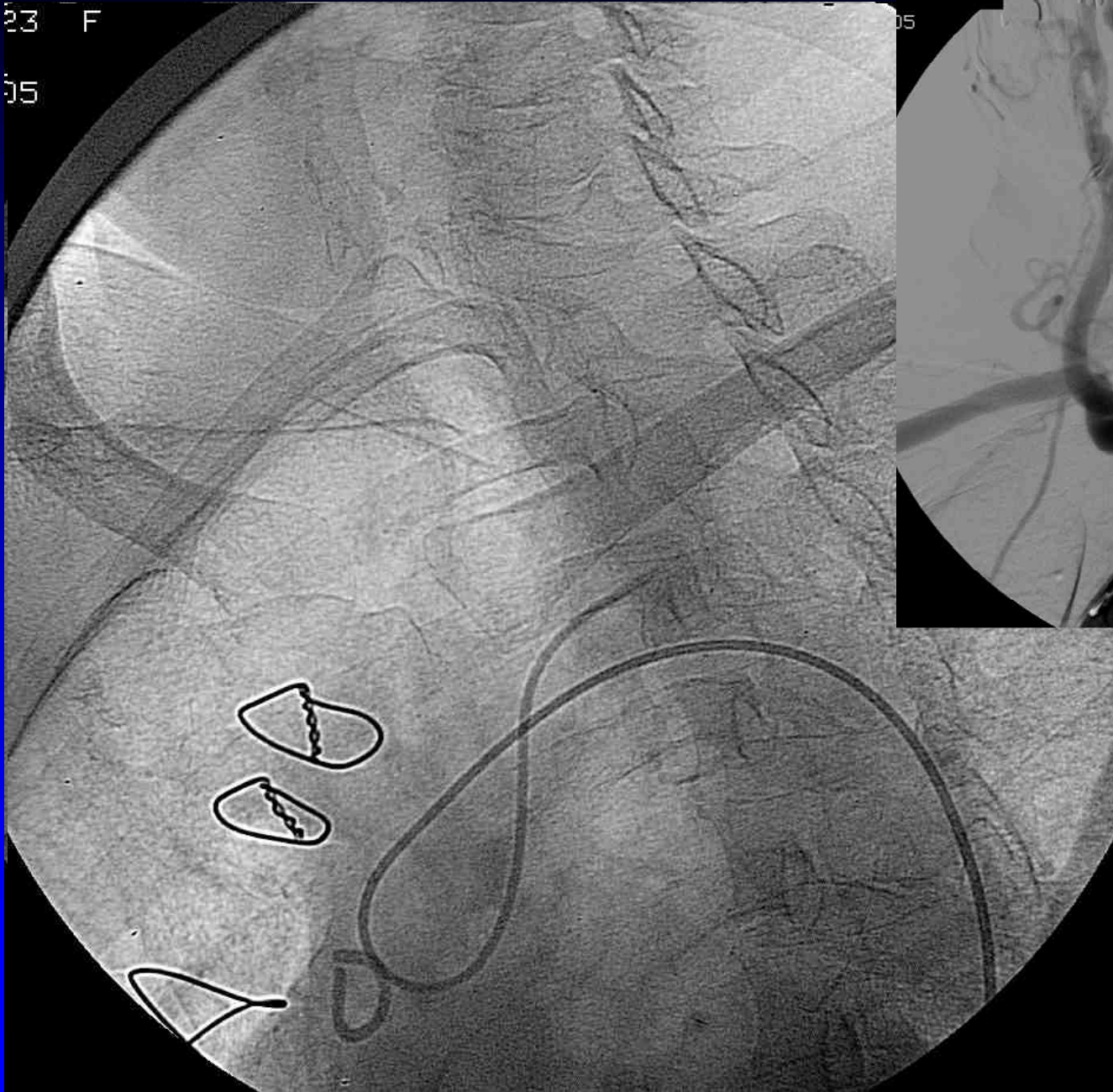
Carotid Access Catheters



125 cm catheters necessary for placement through Shuttle sheath

23 F

05



JOHN I

05

M

Difficult Bovine Arch Anatomy!



Rot 35°
Ang 0°
FD 13.0 inch



Left



0:00
3:00
12:03:11

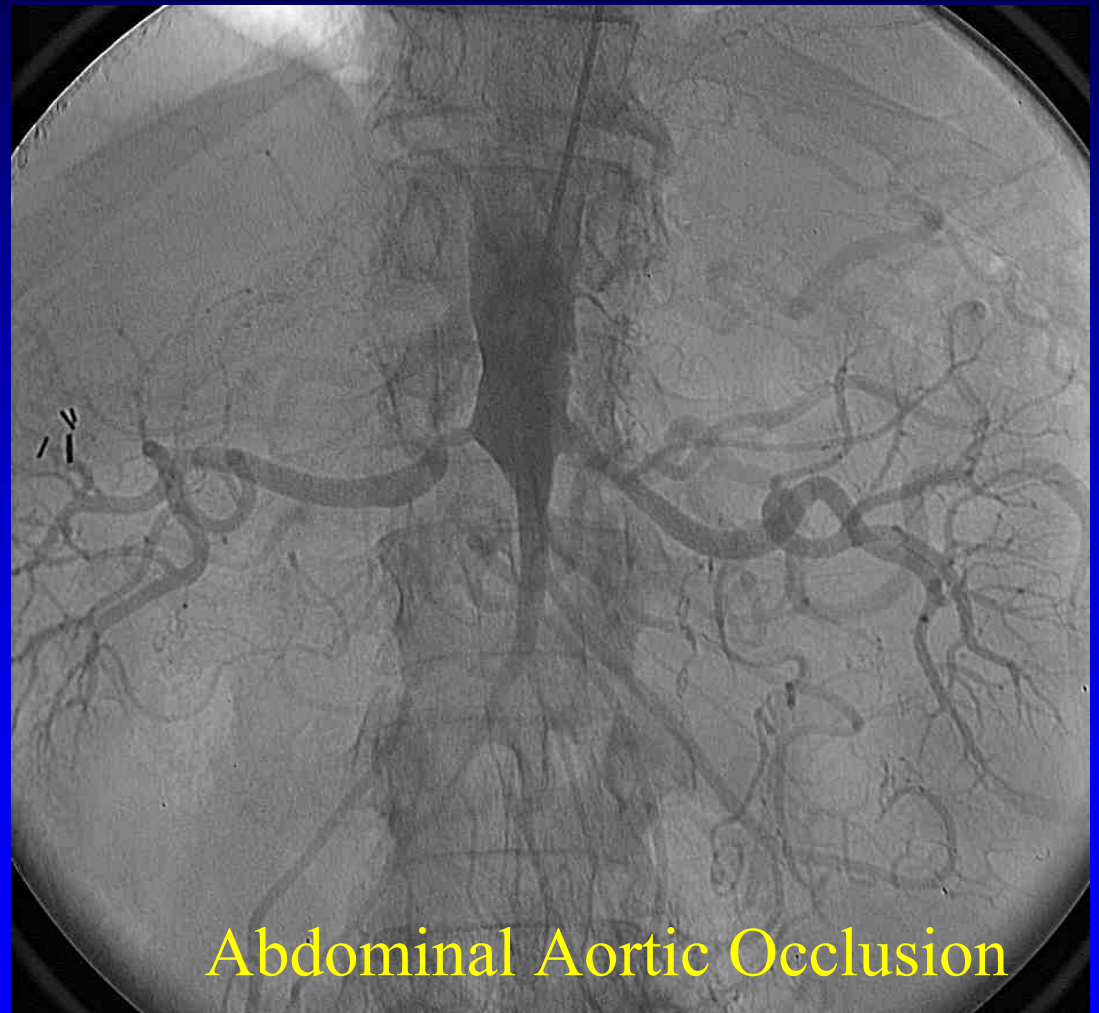
1-10 3

Access for Carotid Interventions

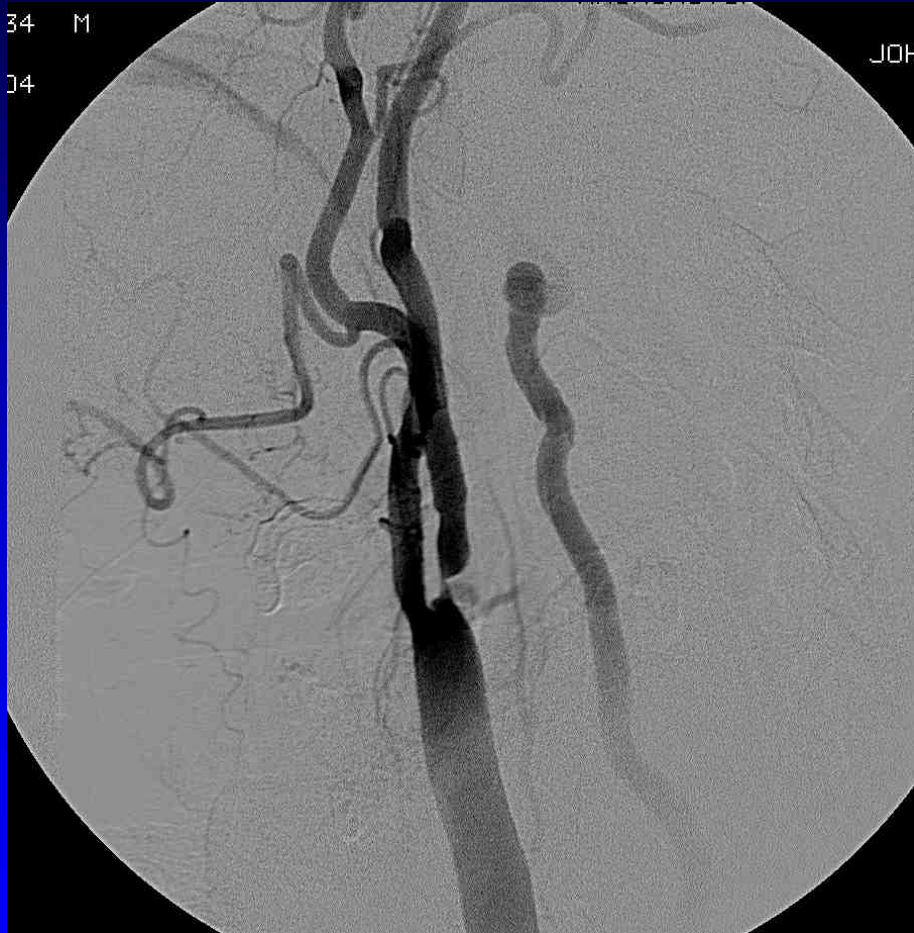
- Transfemoral
- Direct carotid puncture
- Transbrachial
- Transradial
- Transaxillary

Difficult Access

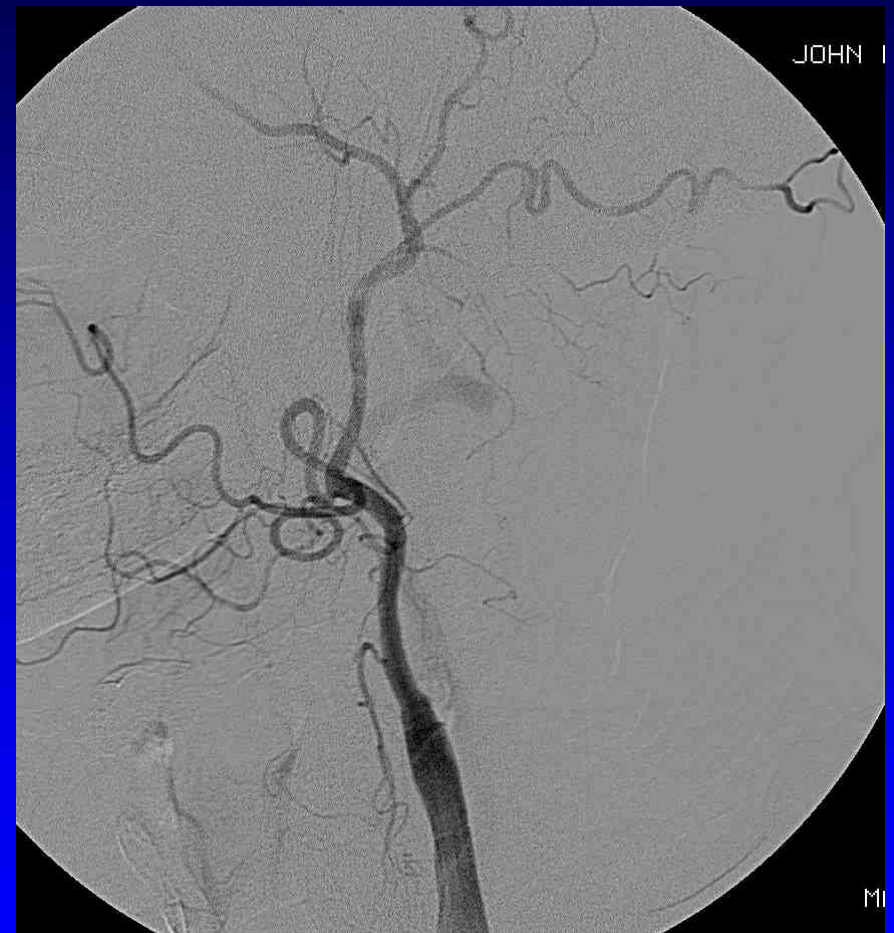
- 71 year old male
- Severe CAD, LV dysfunction, chronic renal insufficiency, PAD, severe, symptomatic carotid disease
- Referred for carotid stenting



Carotid Angiography

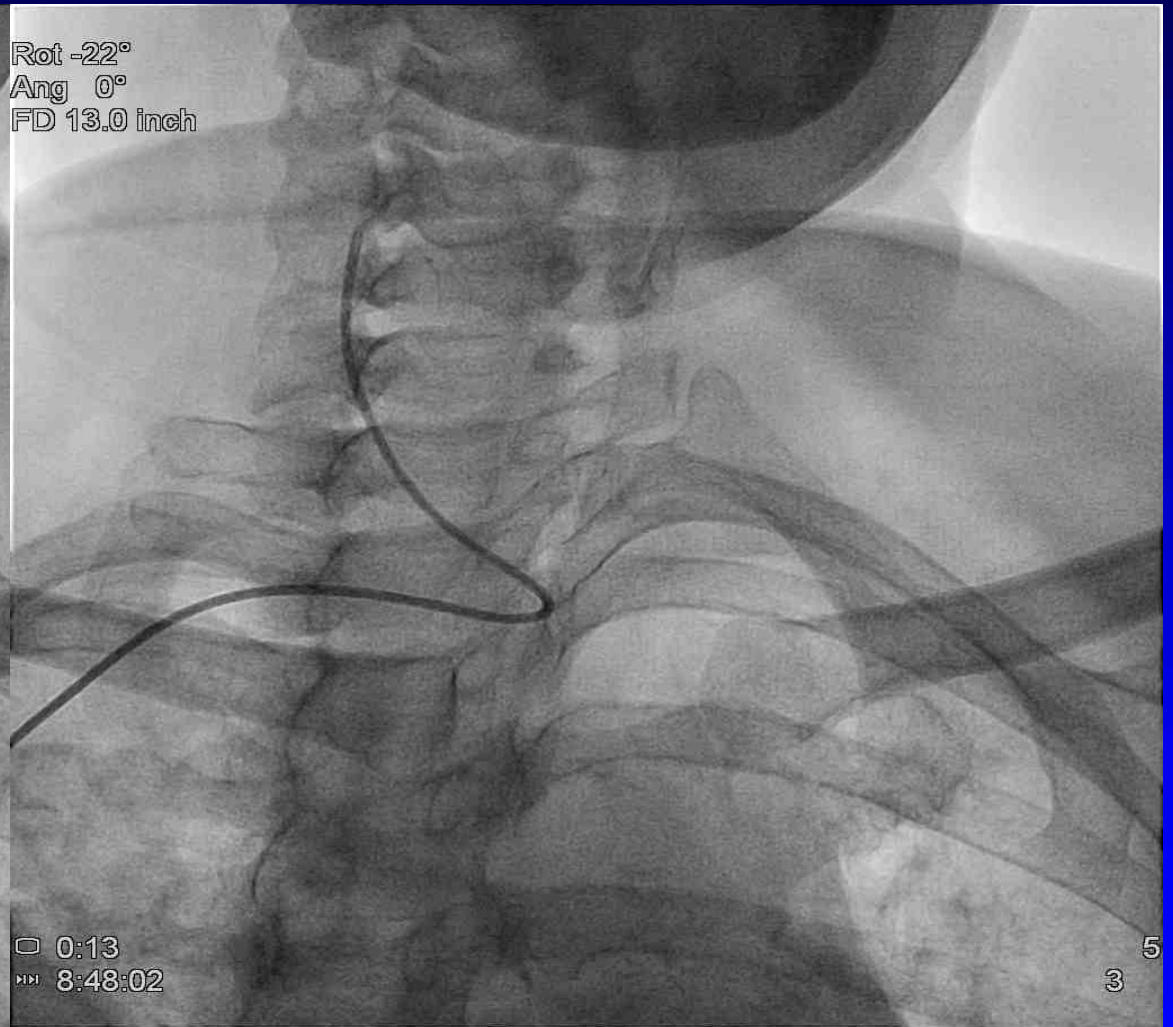
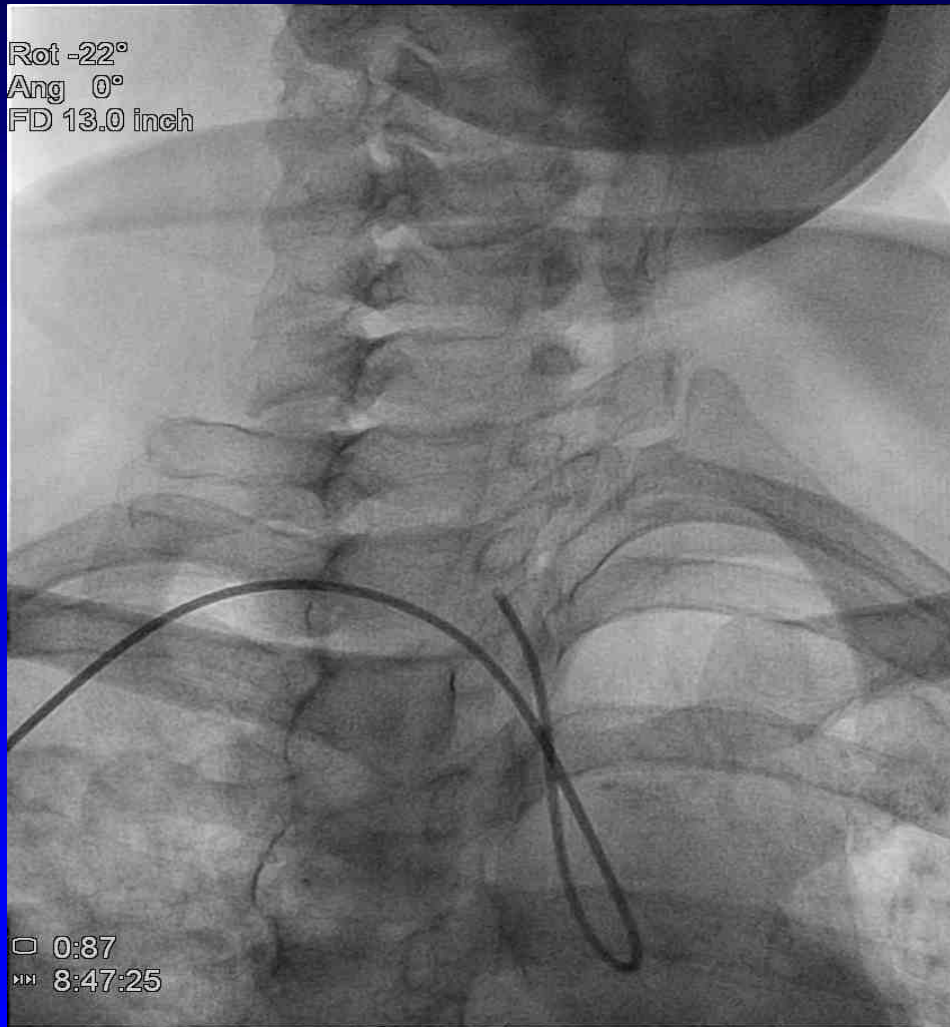


RICA



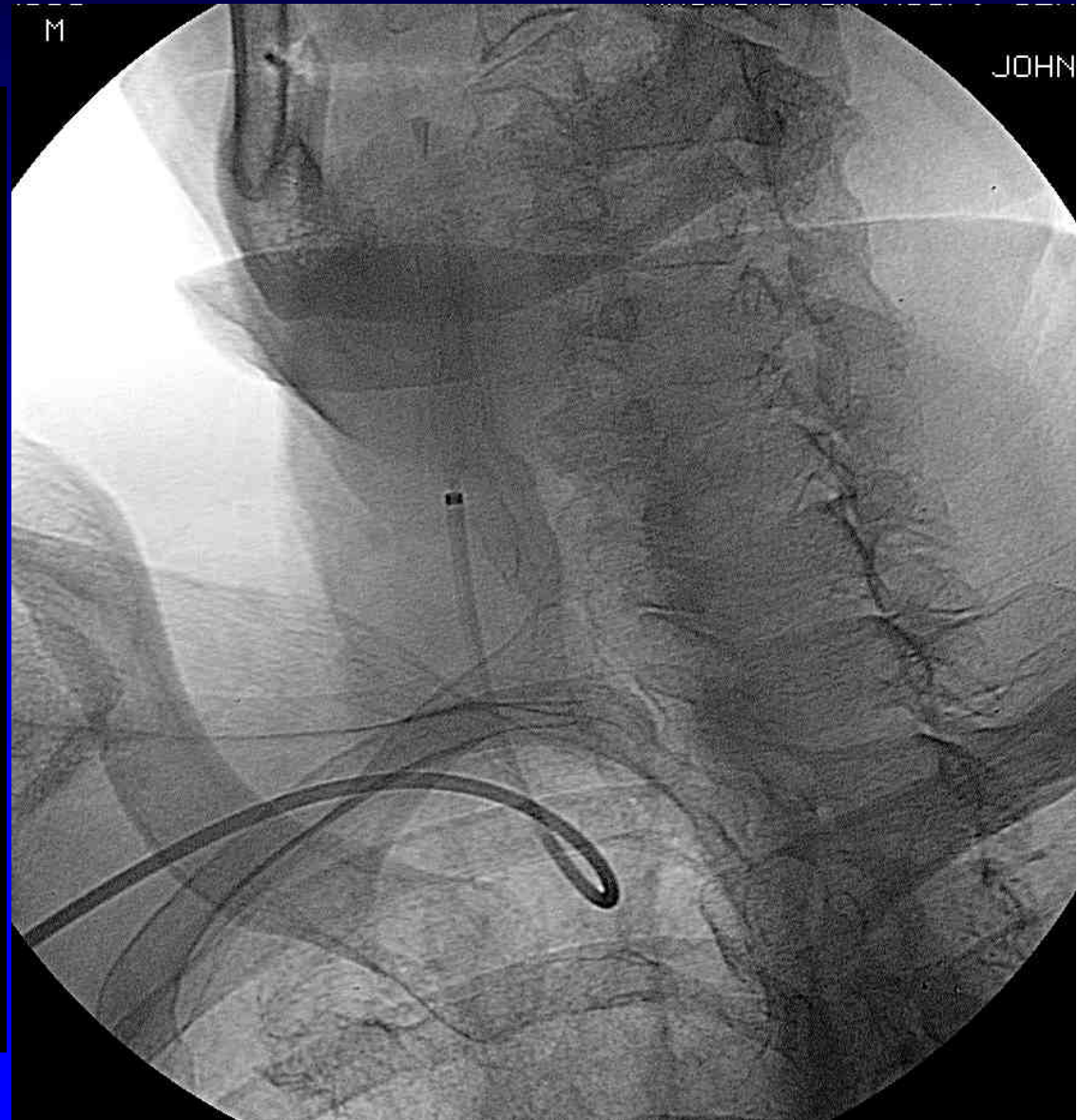
LICA

Right brachial - Simmons 2

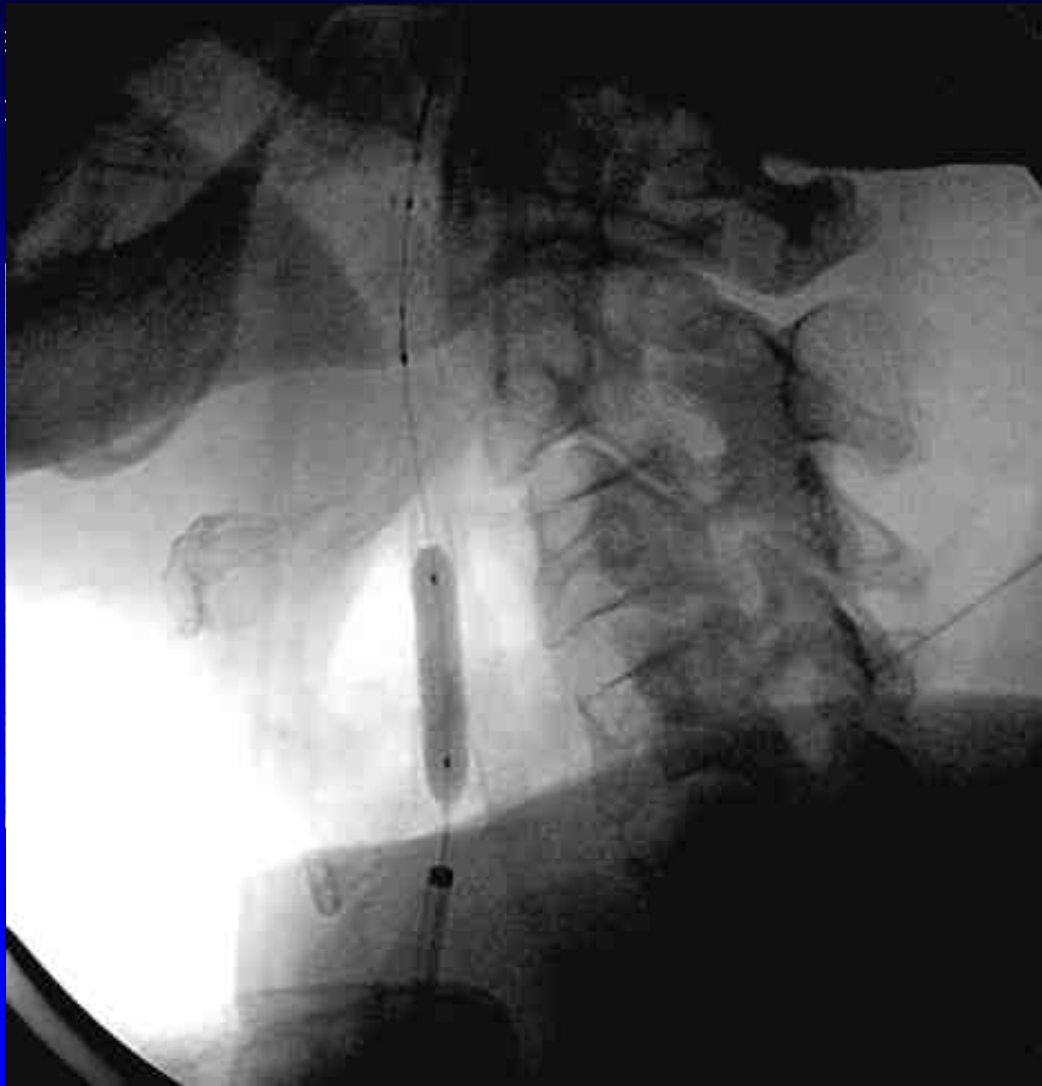


Case History

- 0.035 inch Supracore guidewire into external carotid artery
- 6 Fr Shuttle sheath over guide wire into common carotid artery



Case History



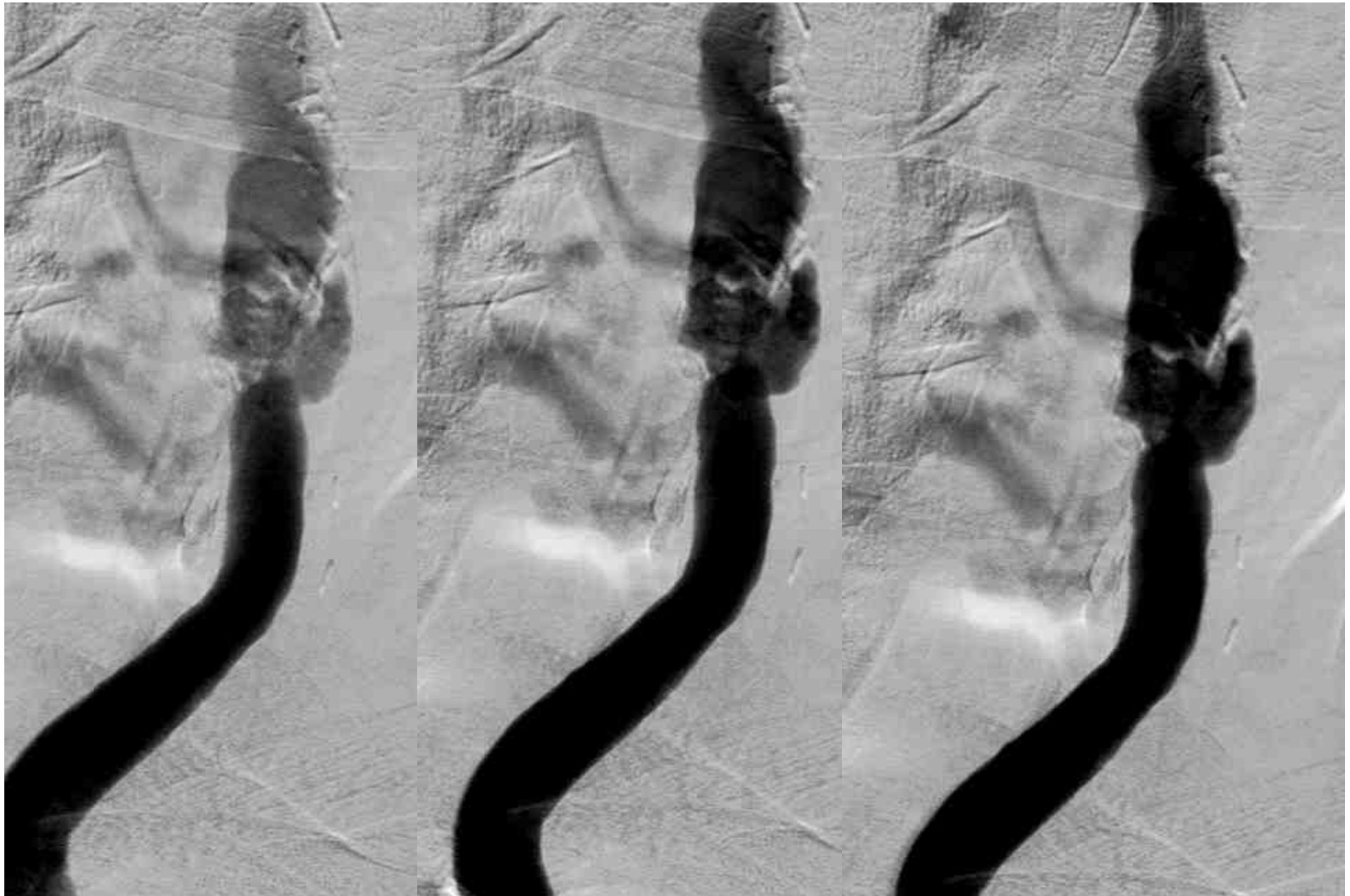
Right Arm Approach for Difficult Bovine Arch Anatomy

inch



Left

- Previous CABG
- Hx of complicated left CEA 1996
- Recent left retinal infarct
- Carotid angio: Complex, severe ICA stenosis

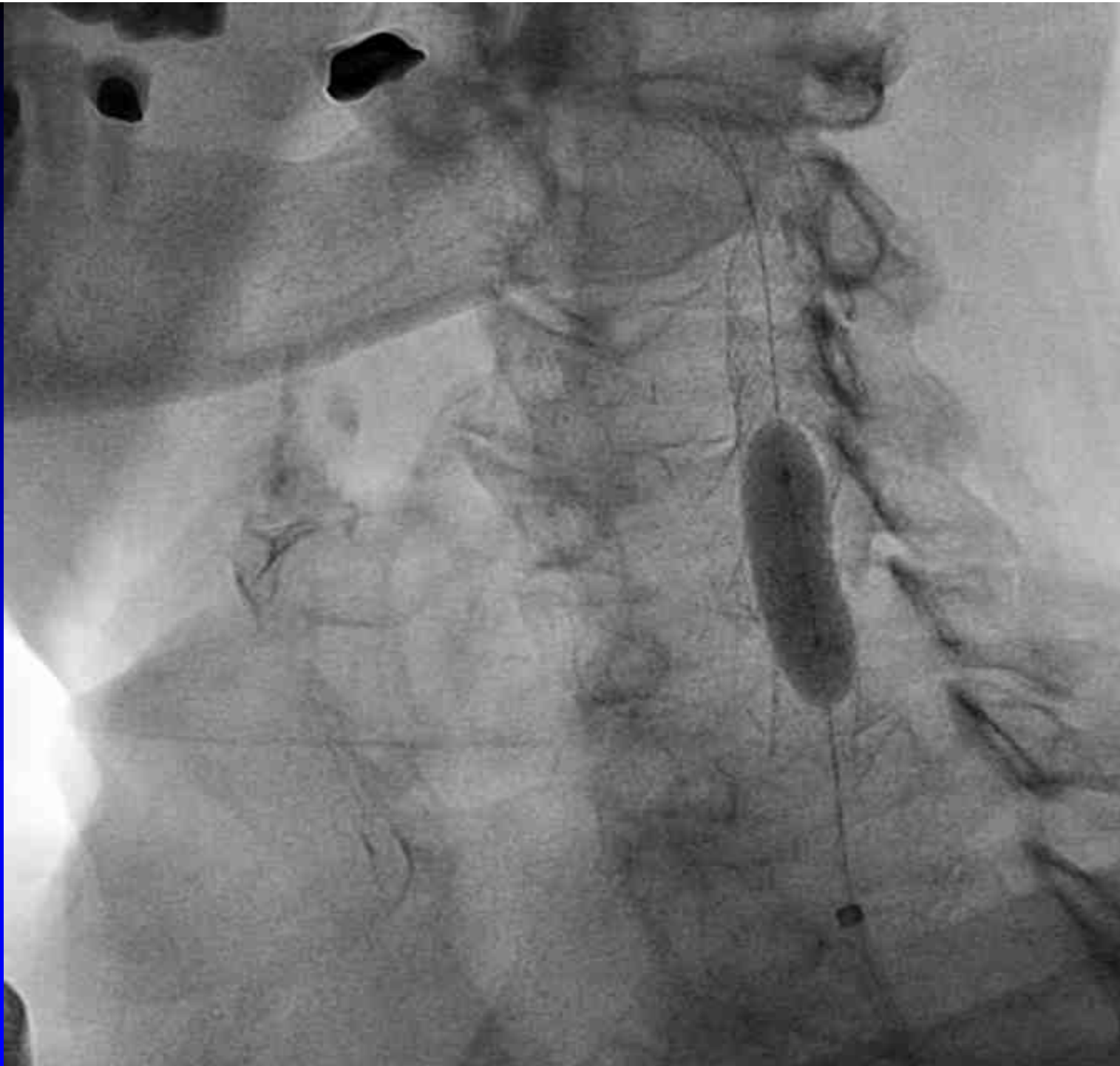




2 STENTS 10MM

This is a lateral X-ray of the spine. Two stents are visible, positioned in the vertebral bodies. A stenosis is indicated by four arrows pointing to a narrowing in the spinal canal. The image is framed by a blue border.

STENOSIS

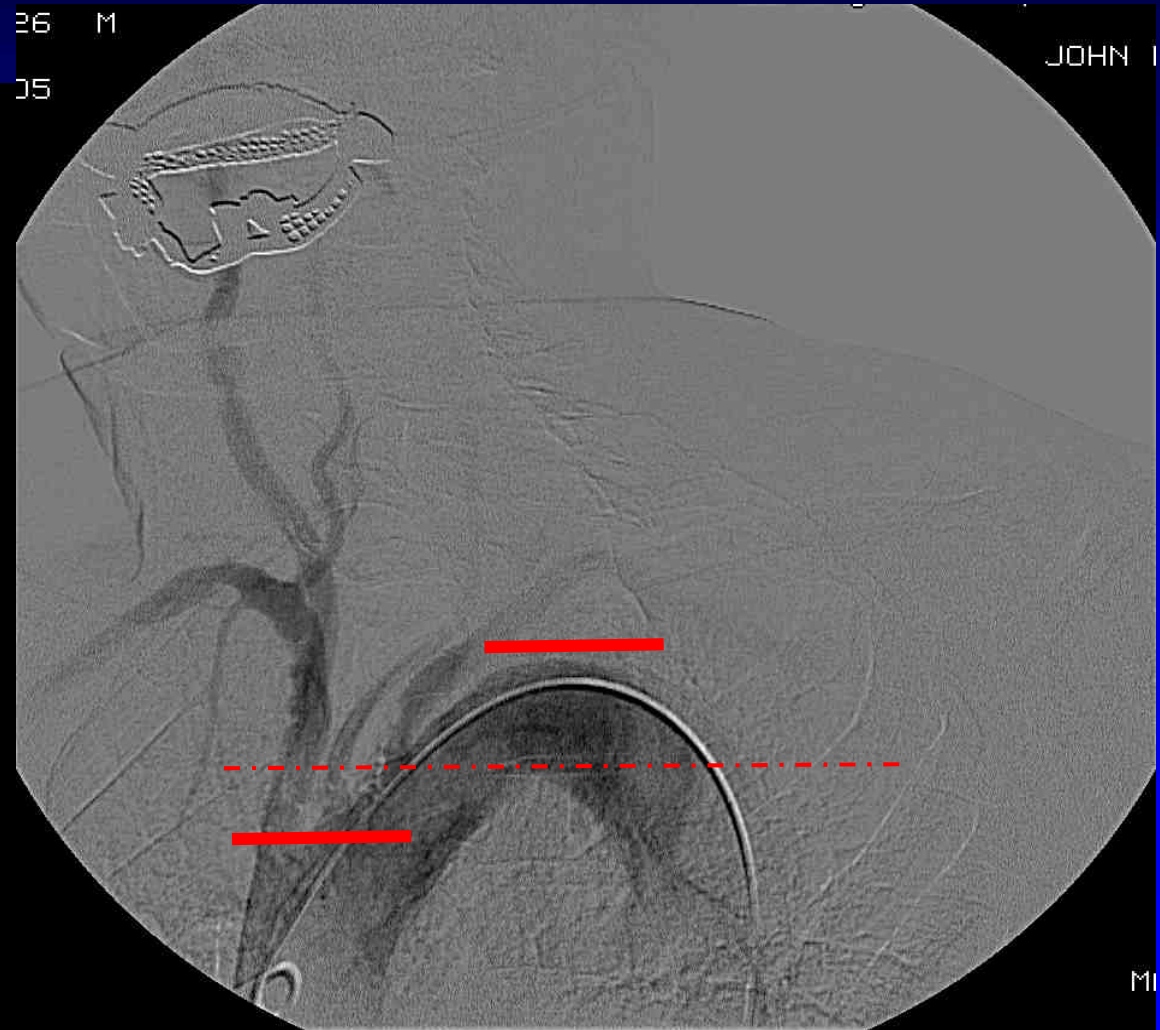




LEFT FINAL

Safe Access for Carotid Stenting?

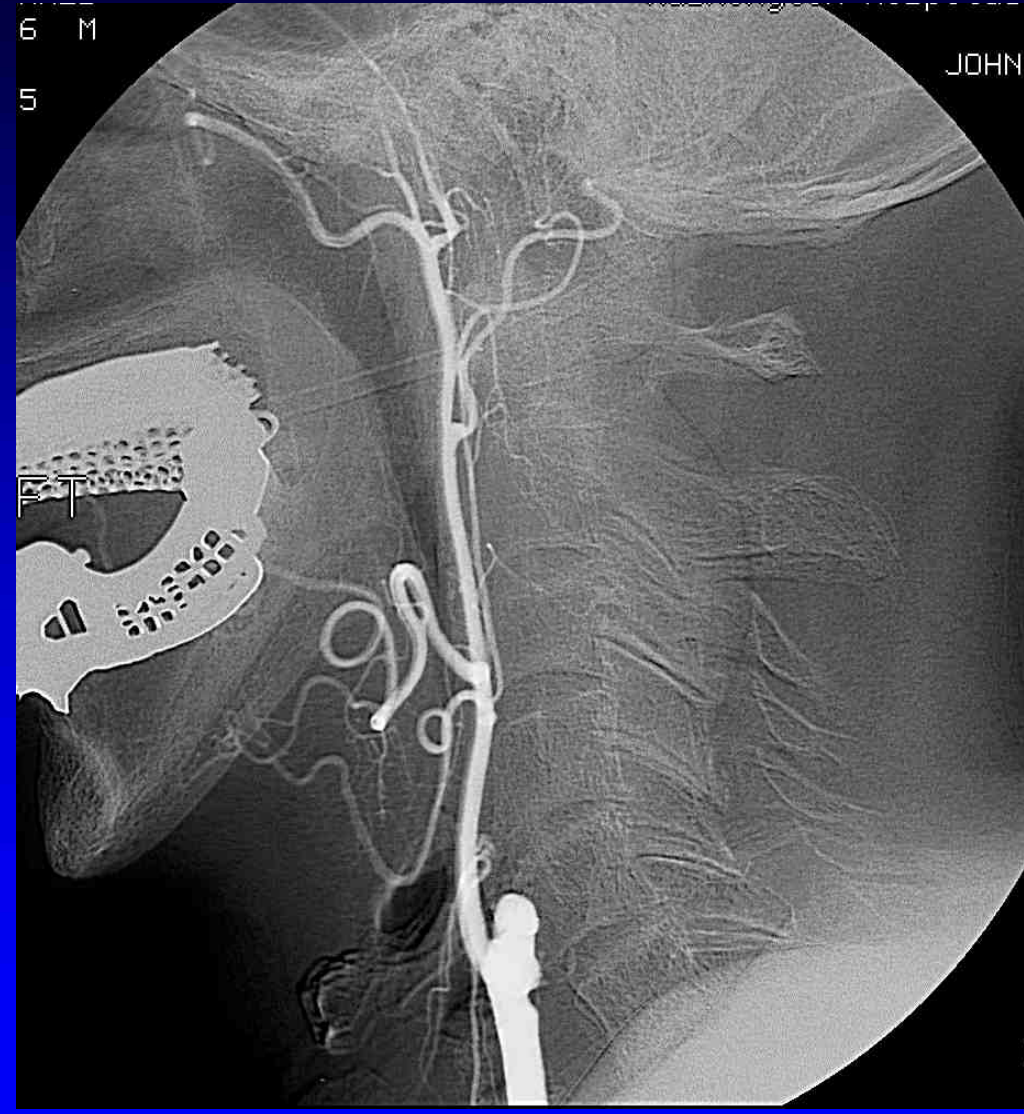
- 72 year old male
- Severe CAD
- Renal insufficiency
- LICA occlusion
- Severe, symptomatic RICA stenosis



Carotid Angiography



RICA



LICA

Technique

Guiding Catheter from a Distance

- 8 Fr Guiding catheter from the aortic arch (Hockey Stick, Simmons, Amplatz)
- Only attempt if anatomy at carotid bifurcation is straight forward
- Consider use of a buddy wire in the subclavian artery or external carotid artery for extra support

Case History



Baseline



Final Result

History

- 56 years old female
- Smoker
- Left CEA 7 years ago and right CEA 6 years ago
- Right carotid bruit with carotid duplex scan showing recurrent stenosis of her distal right CCA with a PSV of 428cm/s and EDV of 154cm/s

Rot -41°
Ang -0°
FD 17.0 inch

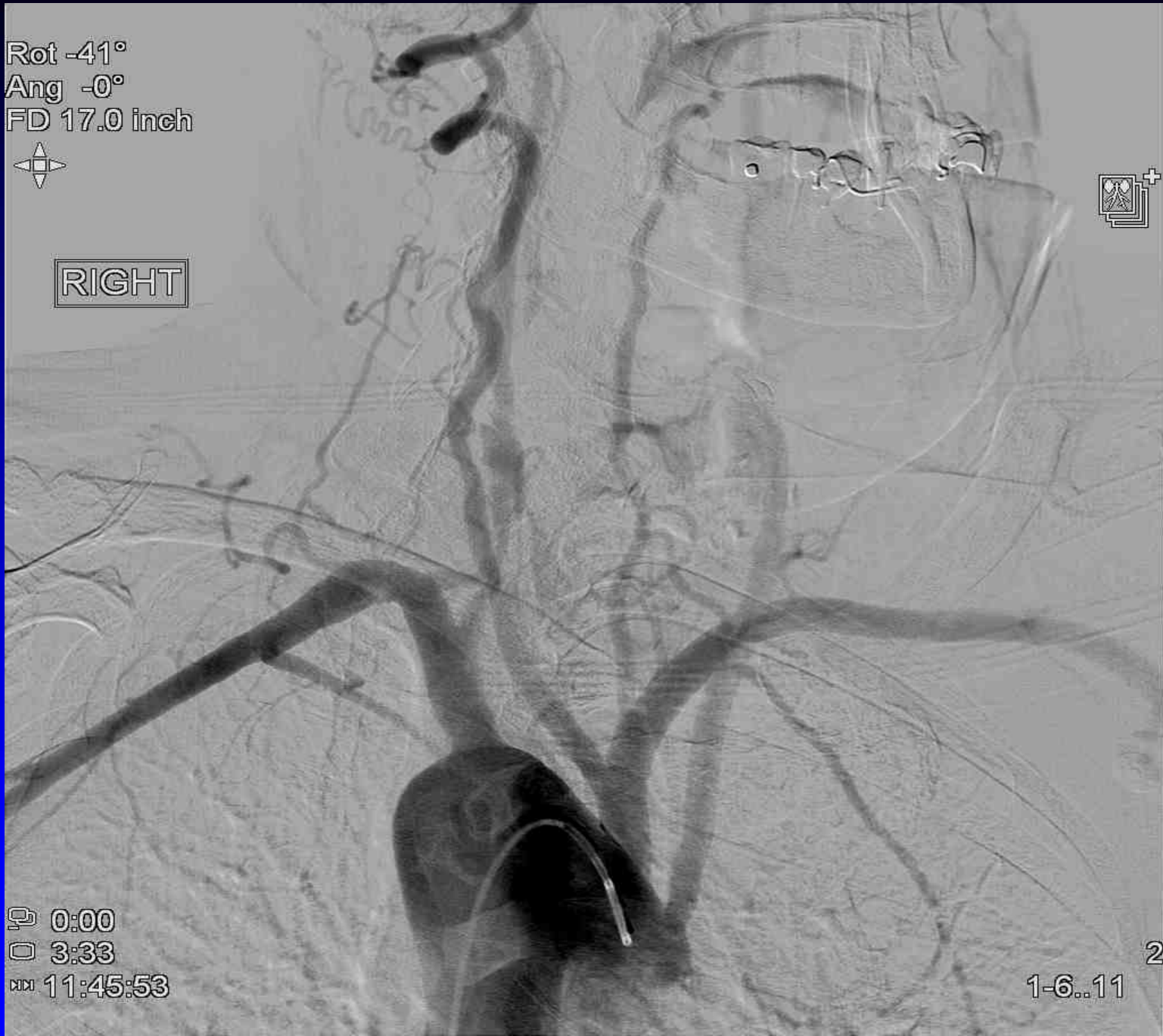


RIGHT

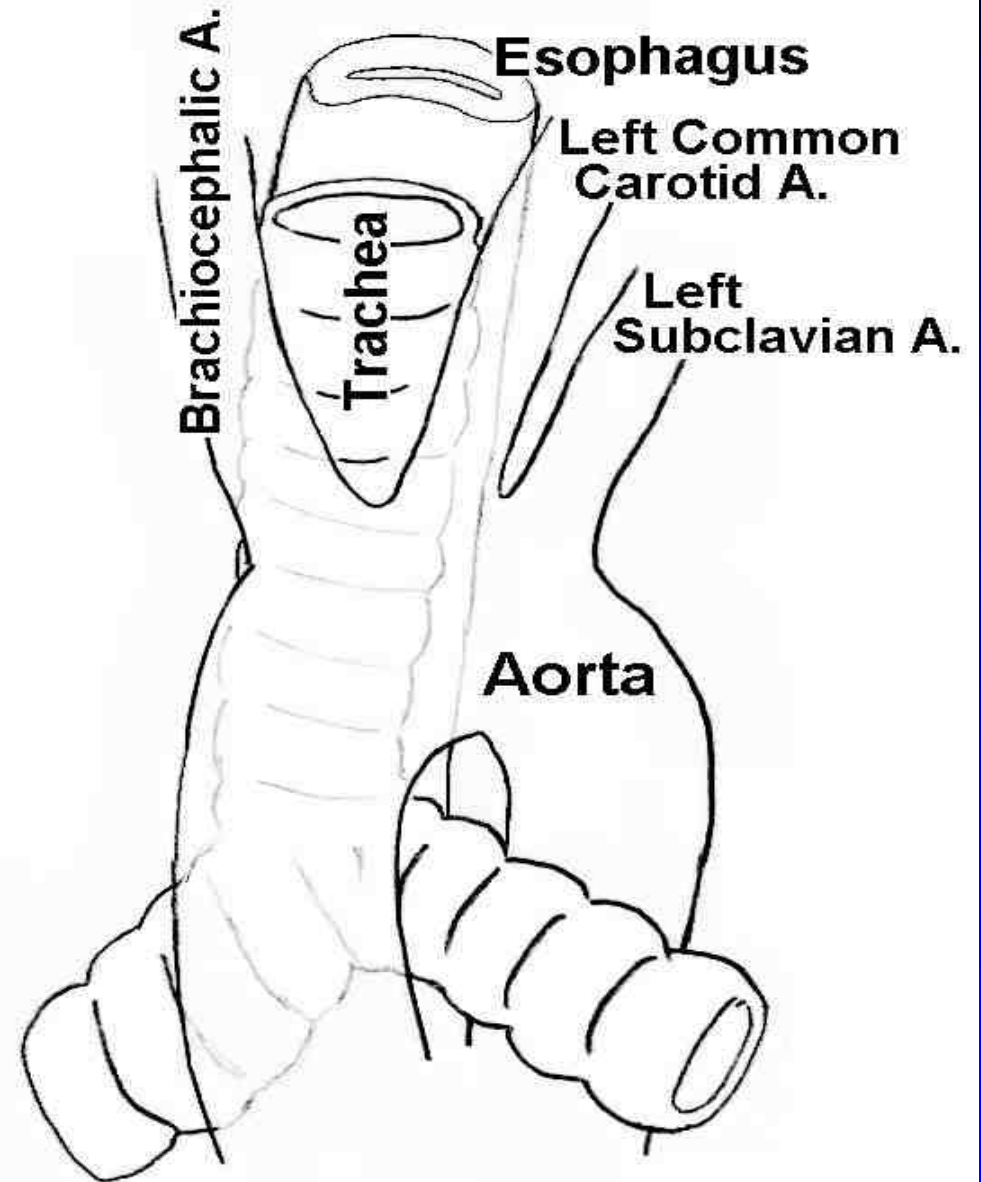
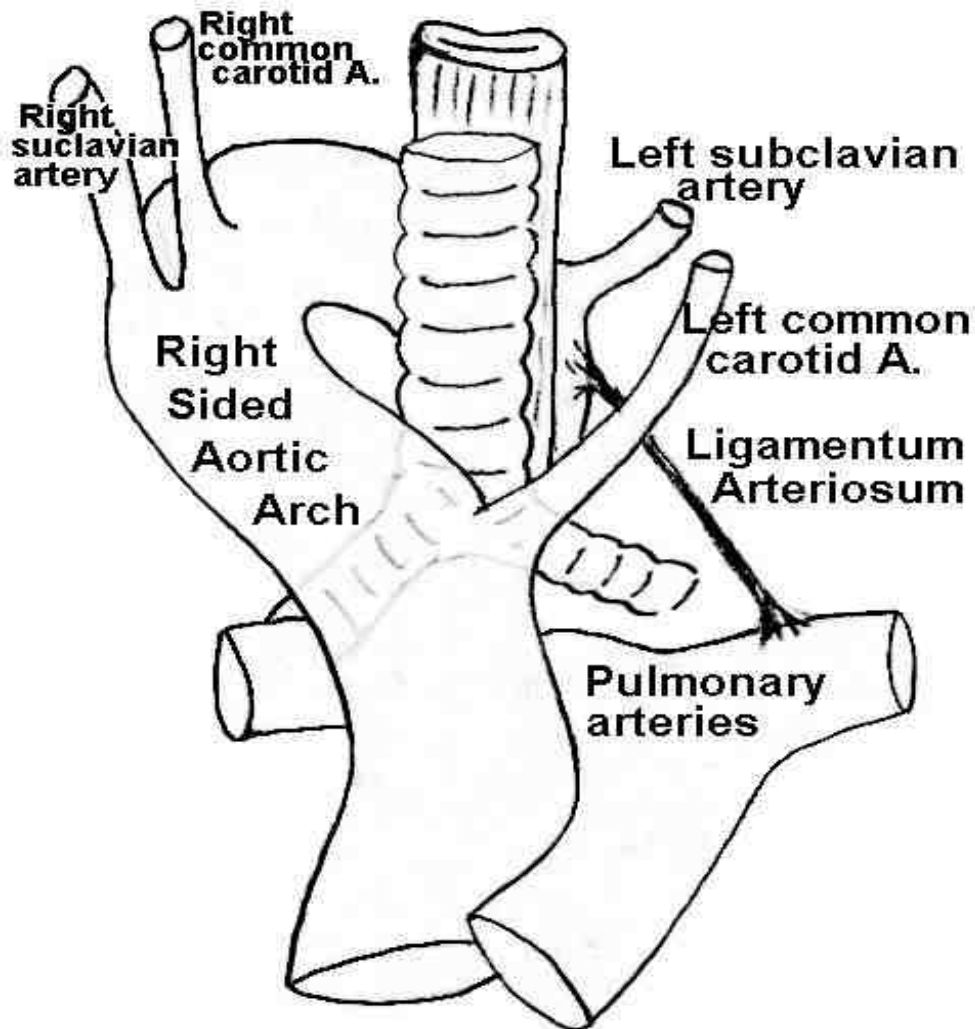


0:00
3:33
11:45:53

1-6..11 2

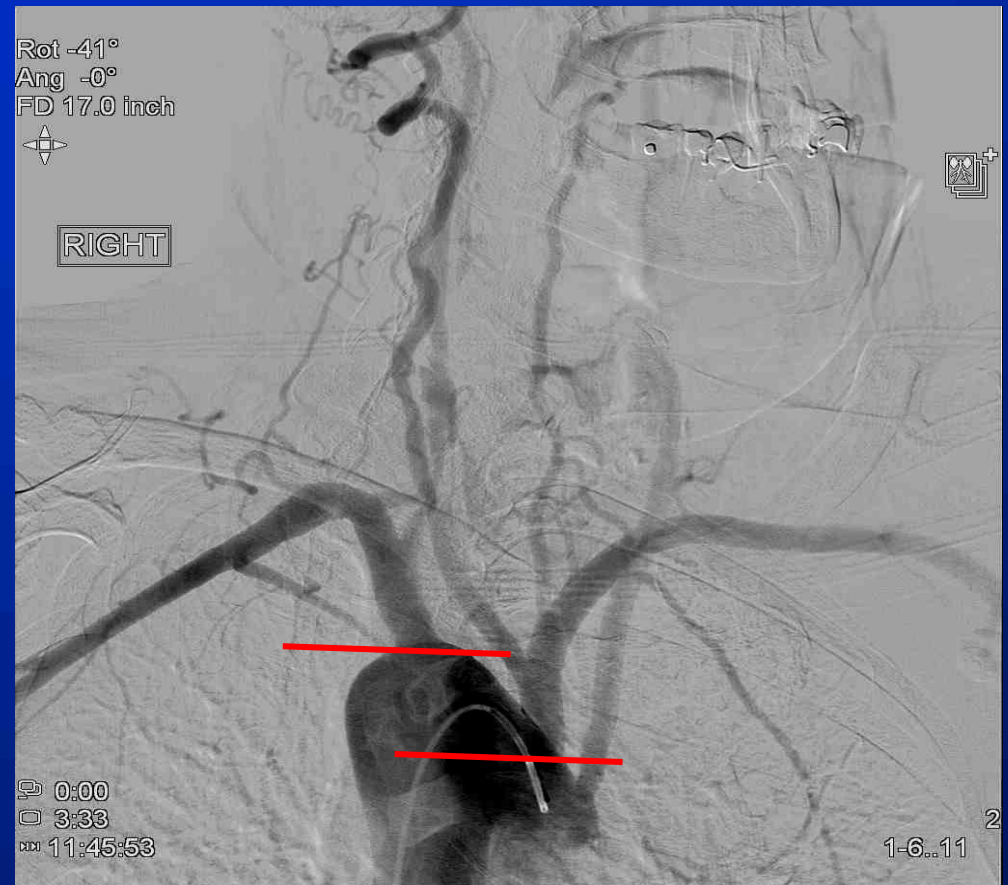


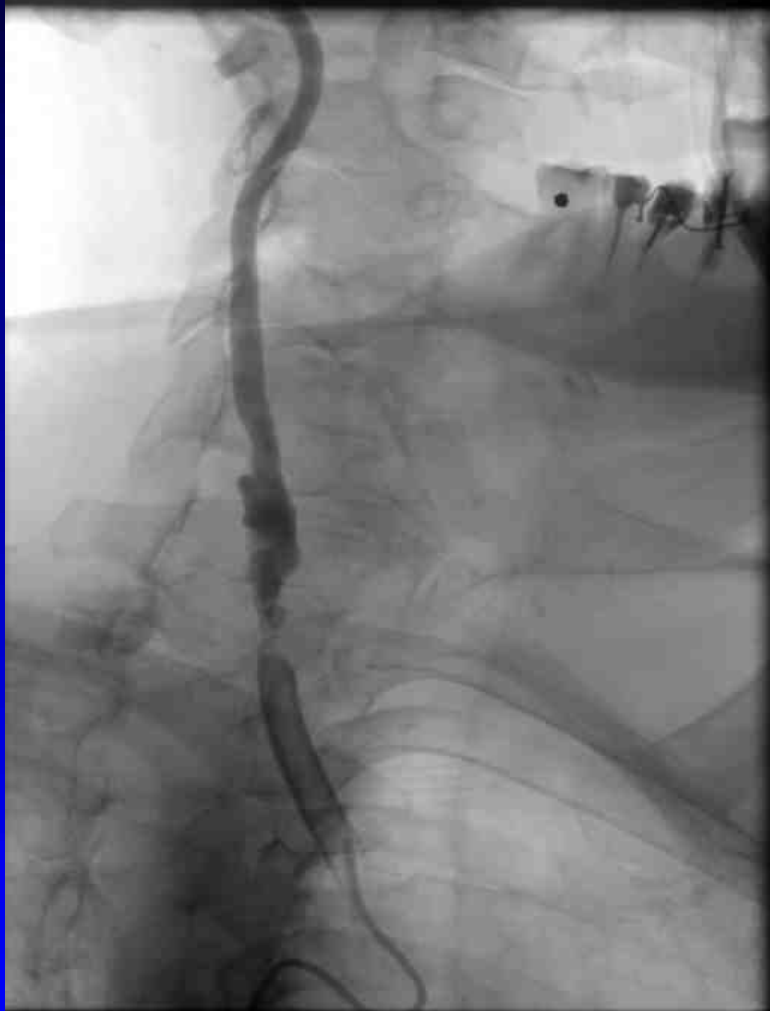
Right Sided Aortic Arch with Anomalous Left Subclavian A.



Right Aortic Arch

- First branch LCCA
- Second branch RCCA
- Diagnostic angiogram with 5F Simmons 1 catheter.





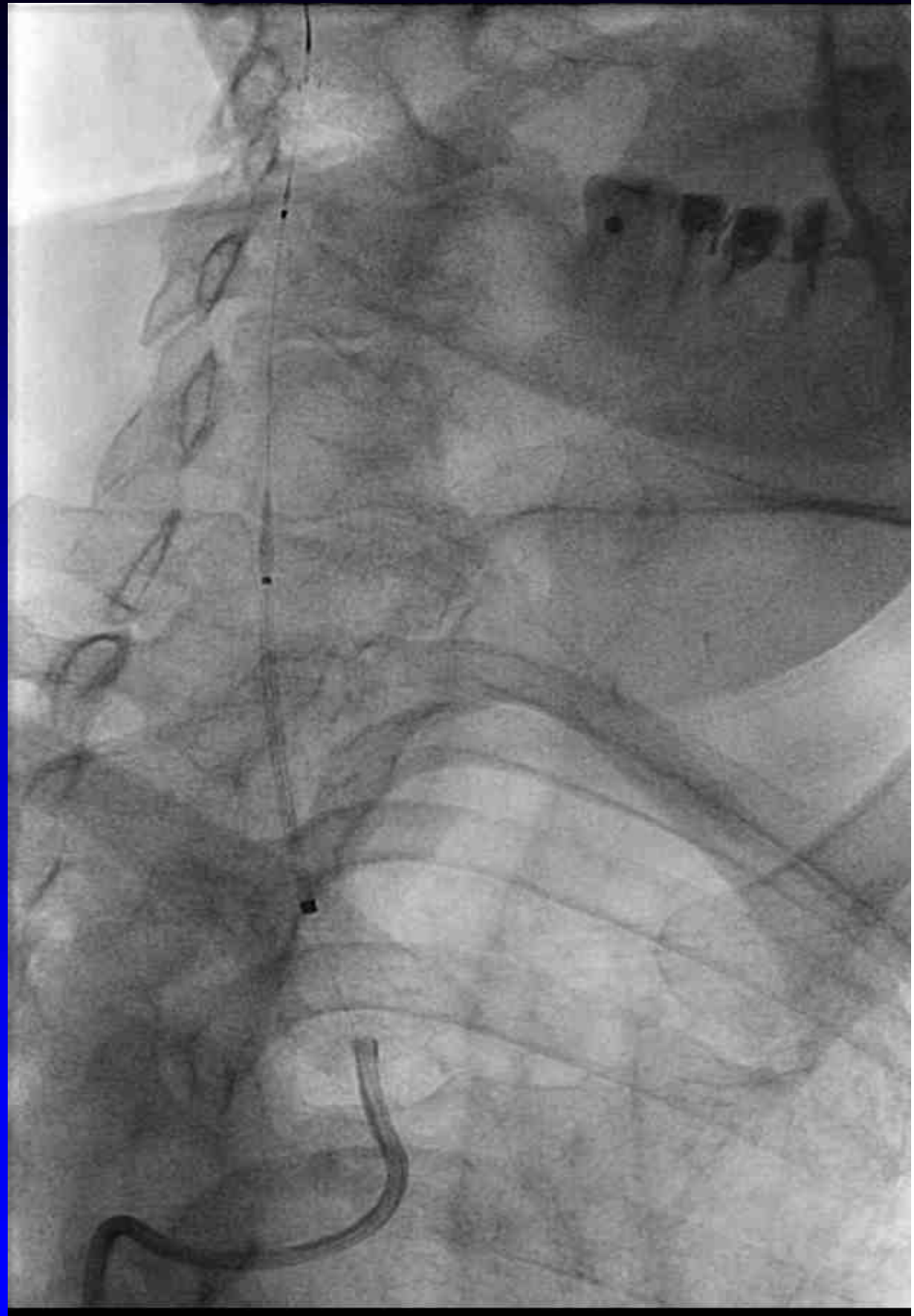
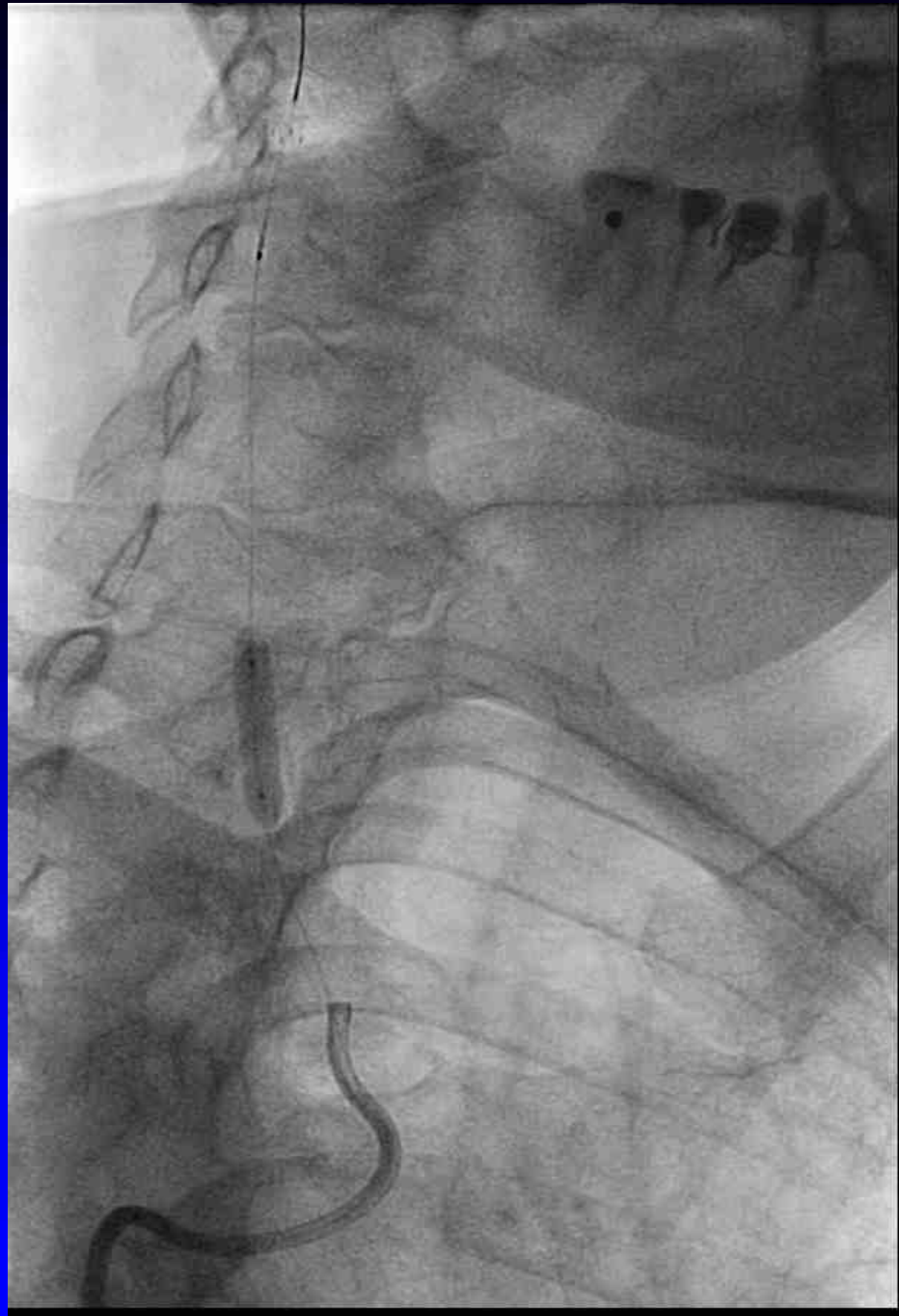
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RIGHT



Right Carotid Intervention

- 8 Fr Amplatz Left 3 Guiding catheter
- AccUNET Filter
- Acculink 8 mm x 4 cm stent
- Post dilated with a 6 mm balloon





Final Thoughts

- Complex carotid anatomy can be approached safely if you are familiar with the appropriate equipment and techniques
- You must always analyze the risk/benefit ratio (think 3% for asx patients)
- Know when to say no or when to back off if things are not progressing smoothly