

How to Overcome the Complex Anatomical Barrier in Carotid Artery Stenting

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Disclosures

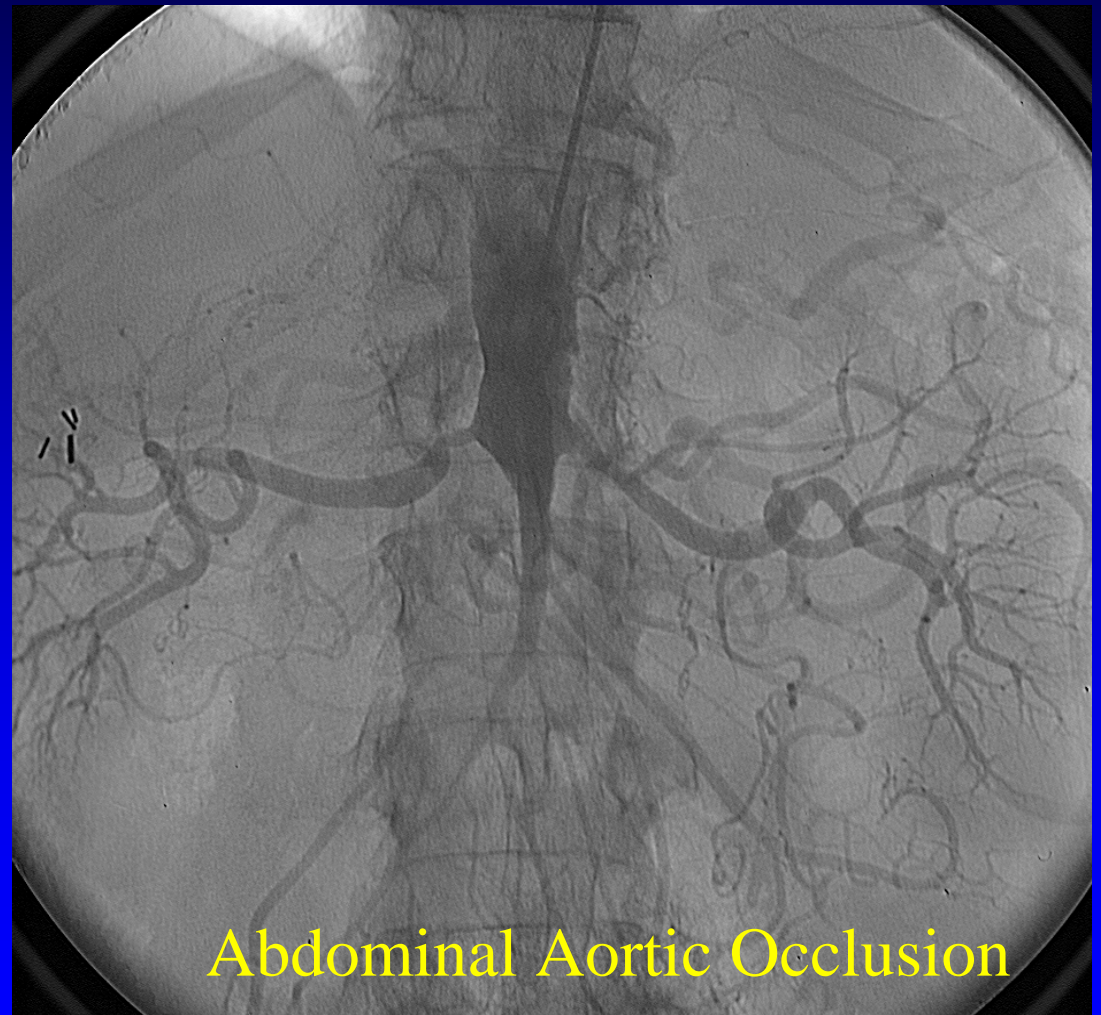
- Consultant: Spectranetics
- Advisory Board: Cordis, BSC, Medtronic, eV3, Edwards Lifesciences, Angioslide, Angioscore, Biocardia, SquareOne, NexGen, ReVascular, Novostent
- Equity Interest: AccessClosure

Complex Anatomy

- Difficult access
- Complex arch anatomy
- Severe carotid tortuosity/angulation
- Lesion complexity
 - Dense calcification
 - Ulceration
 - Tandem lesions
 - Instant restenosis

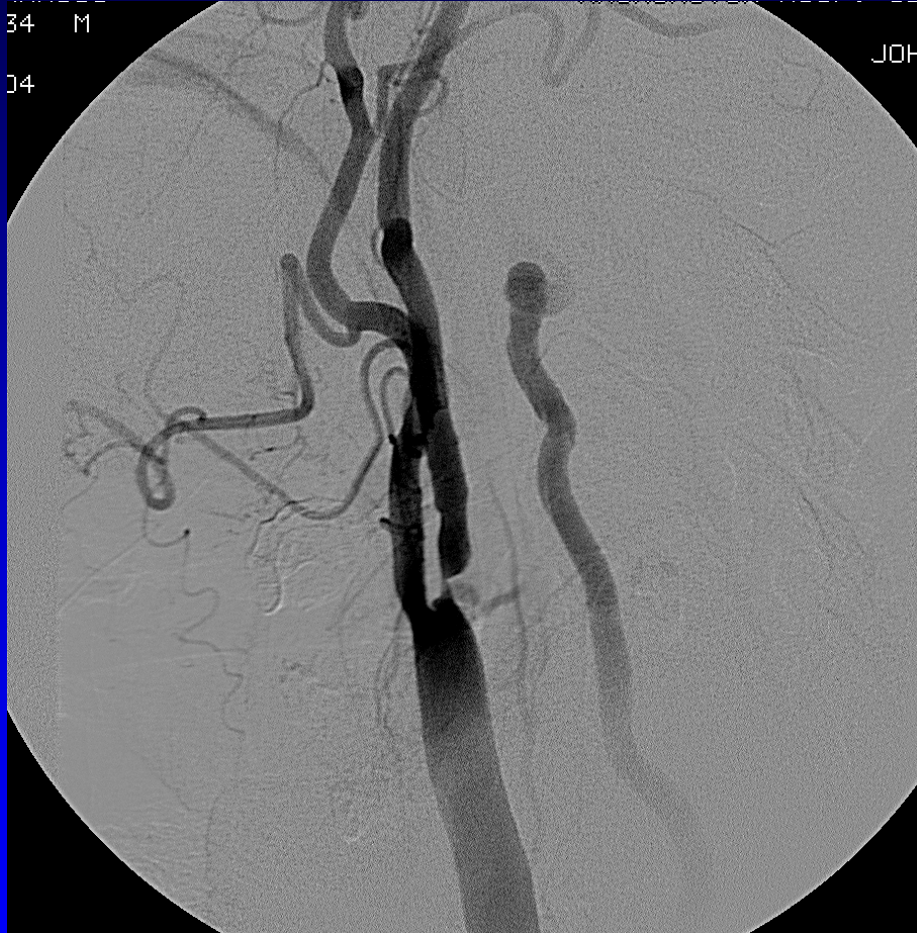
Difficult Access

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

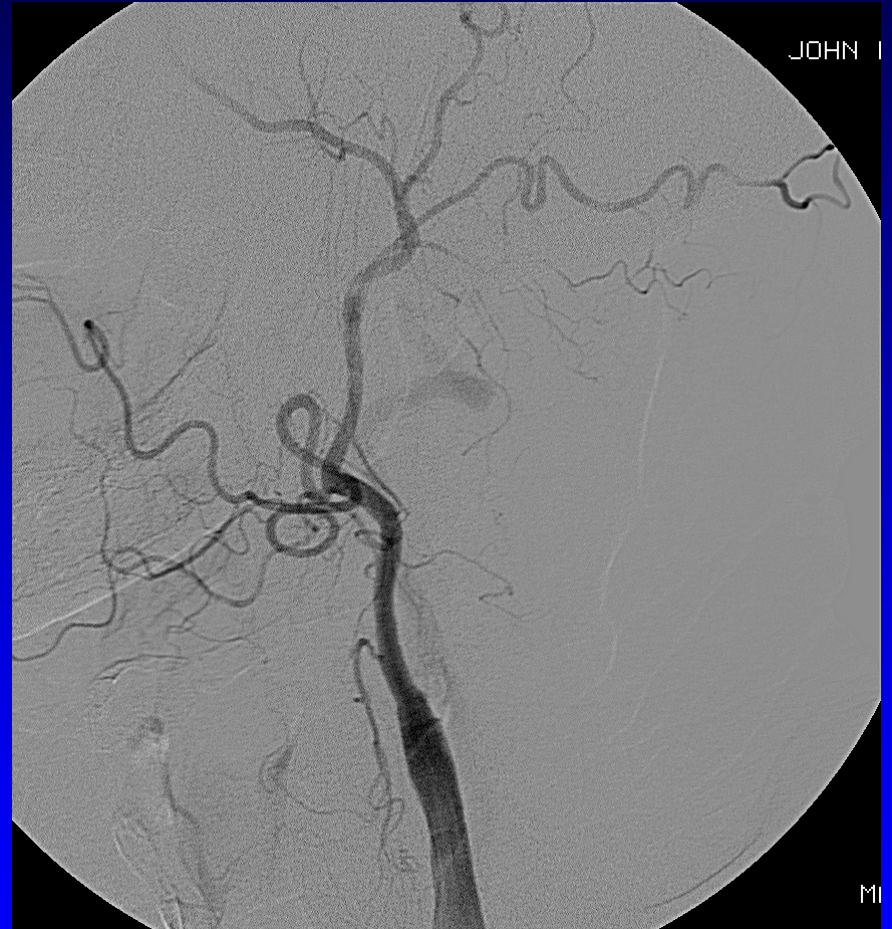


Abdominal Aortic Occlusion

Carotid Angiography



RICA

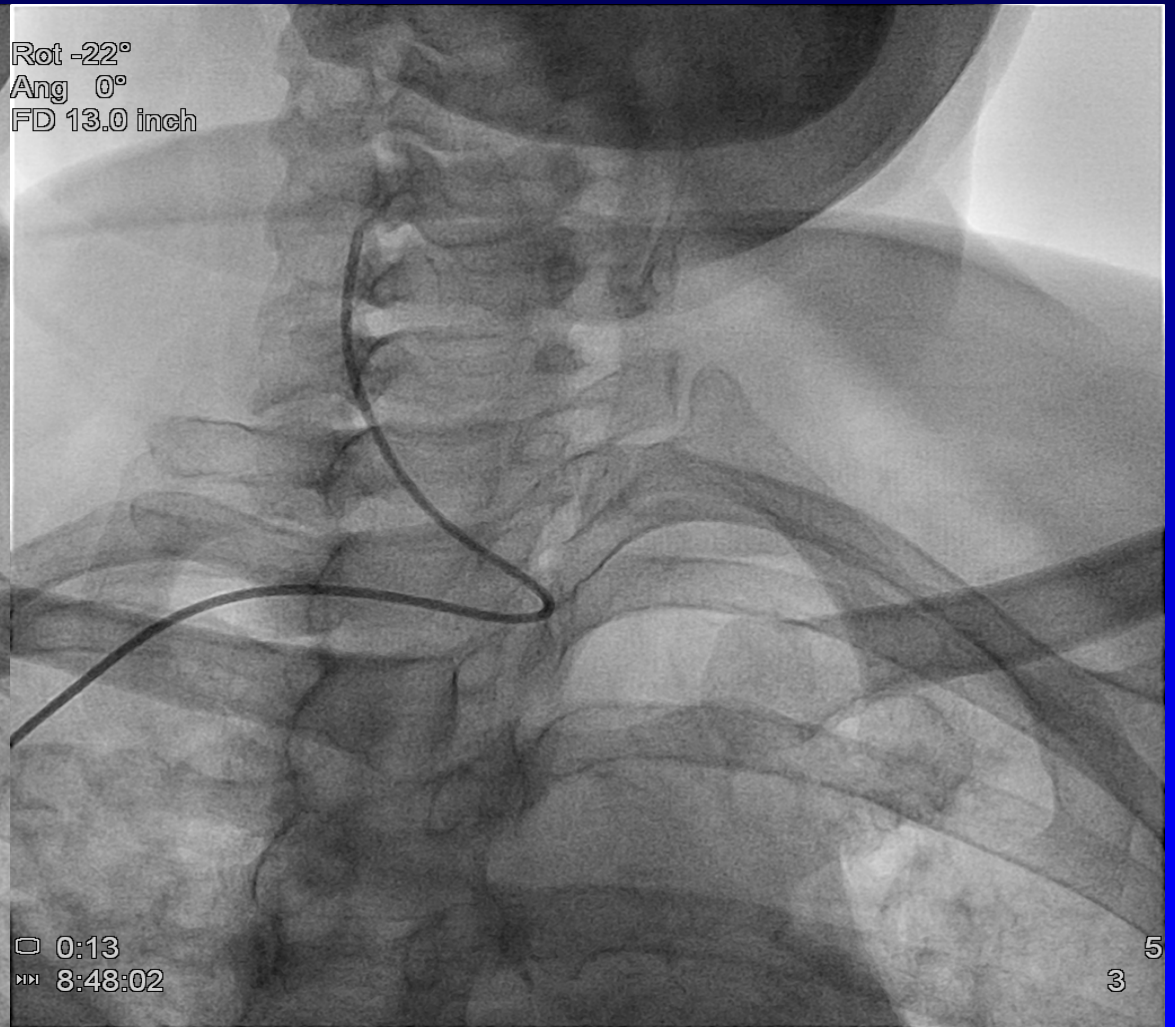
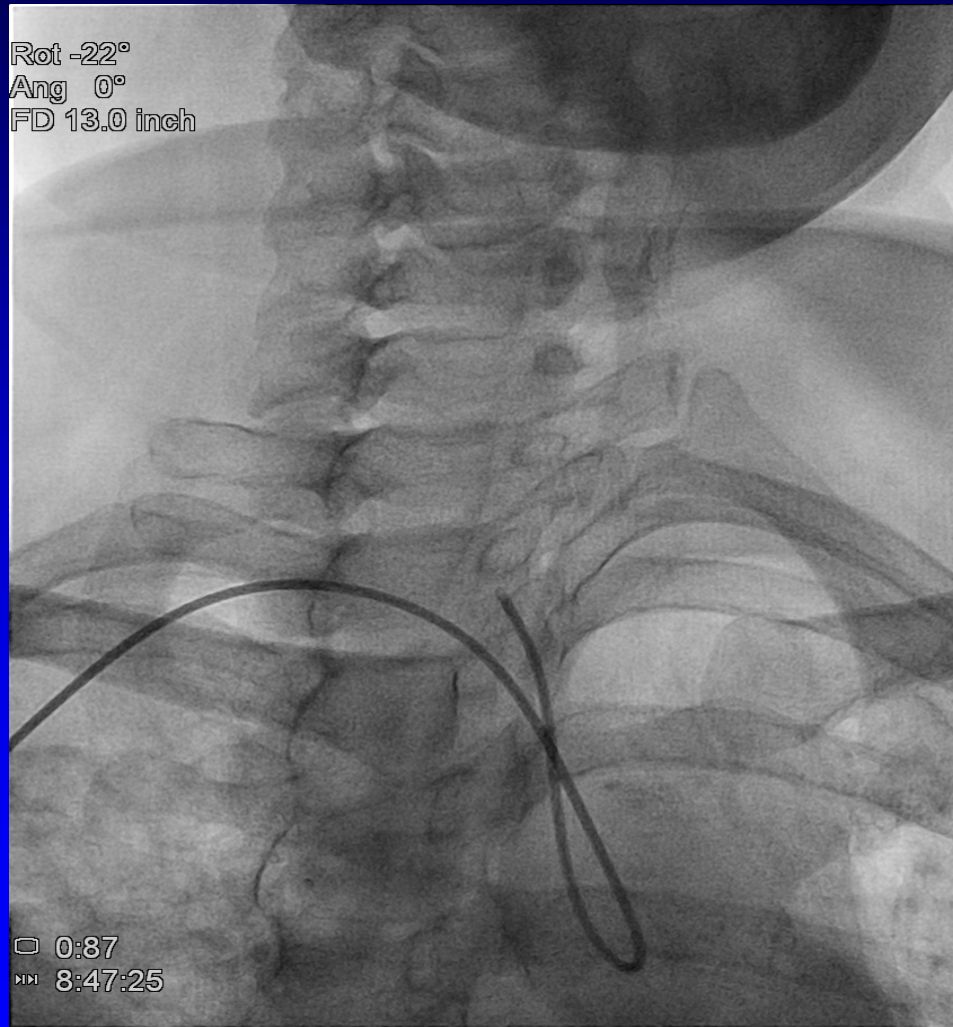


LICA

Access for Carotid Interventions

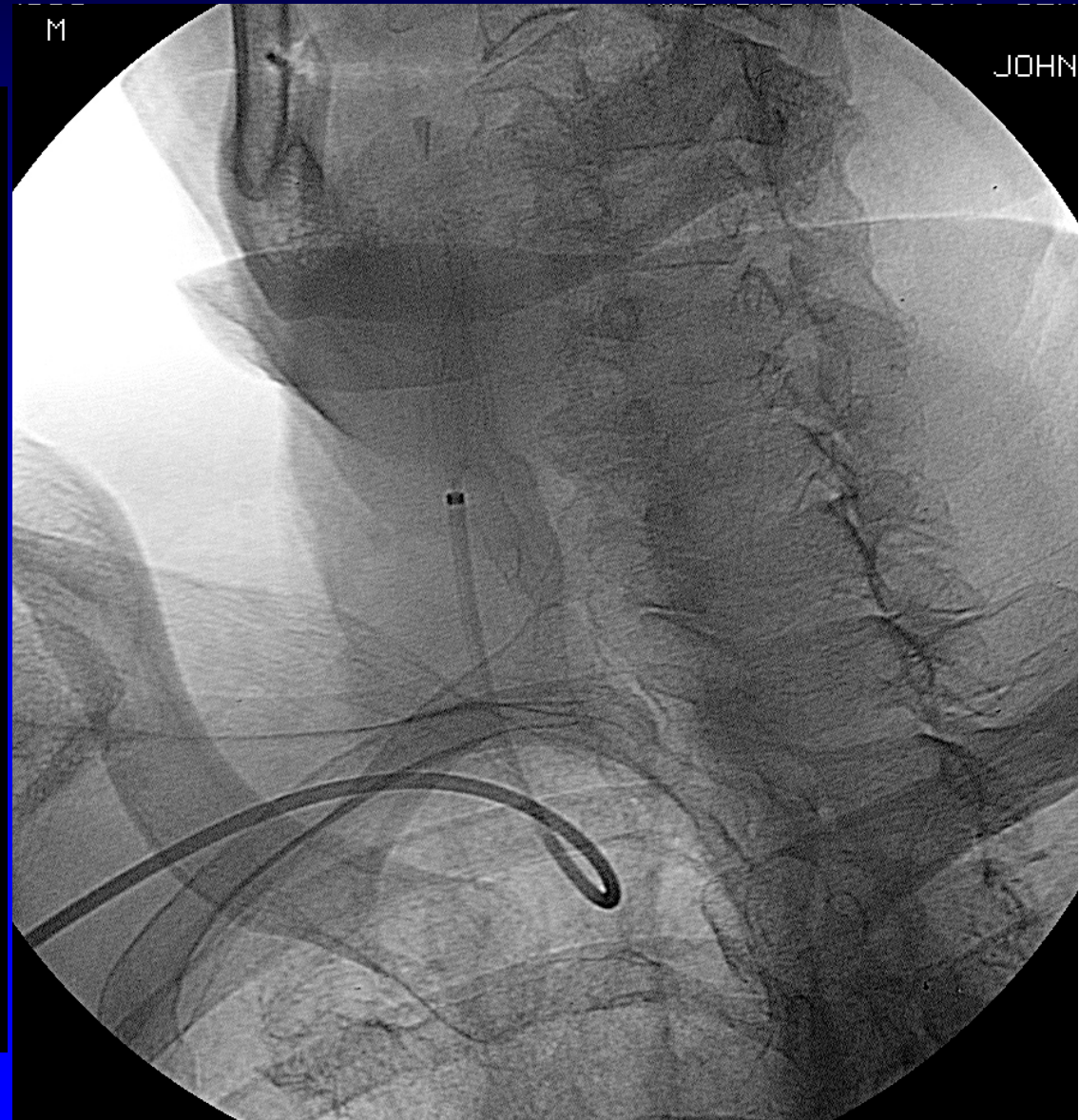
- Transfemoral
- Direct carotid puncture
- Transbrachial
- Transradial
- Transaxillary
- Transseptal!!
- Superficial temporal artery “through and through” technique!!!!

Right brachial - Simmons 2

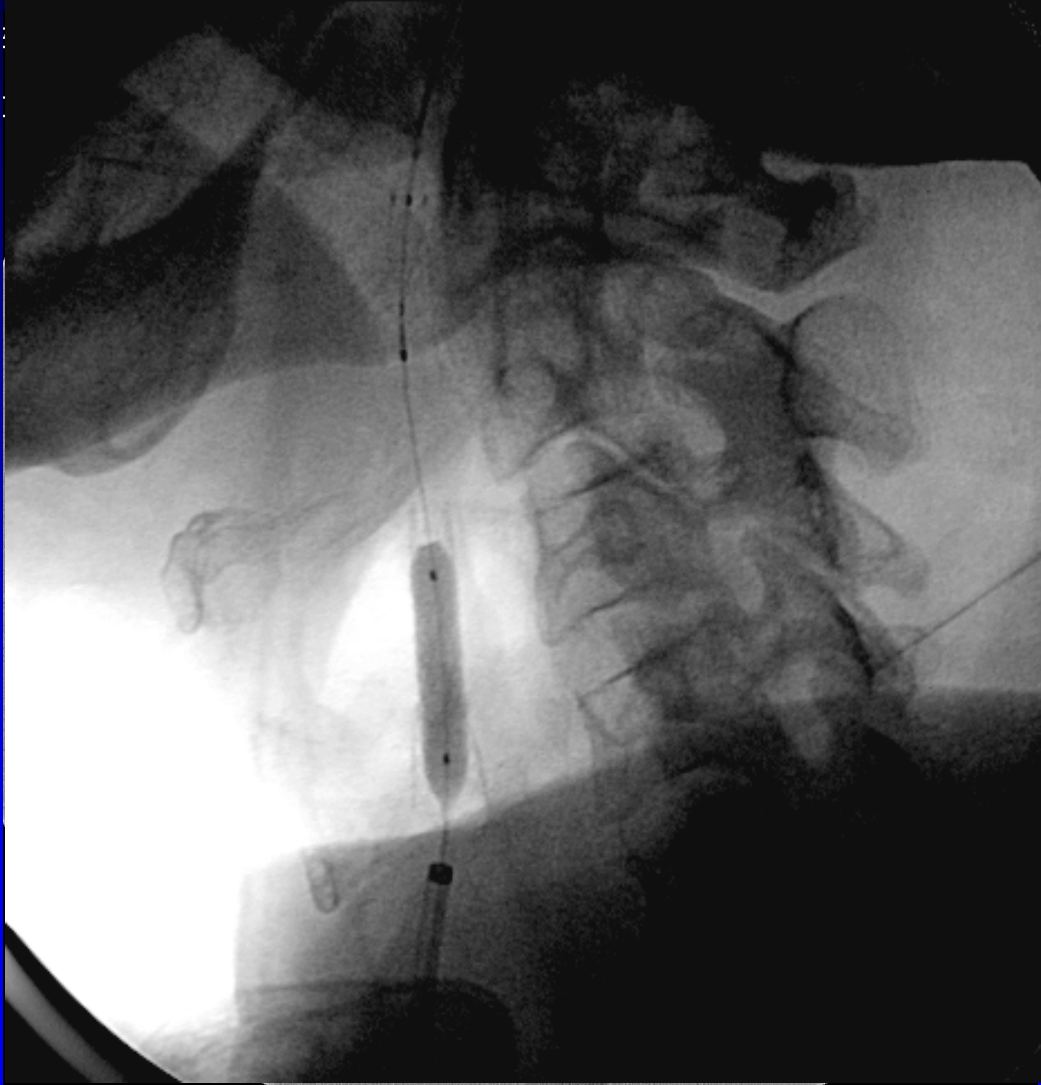


Case History

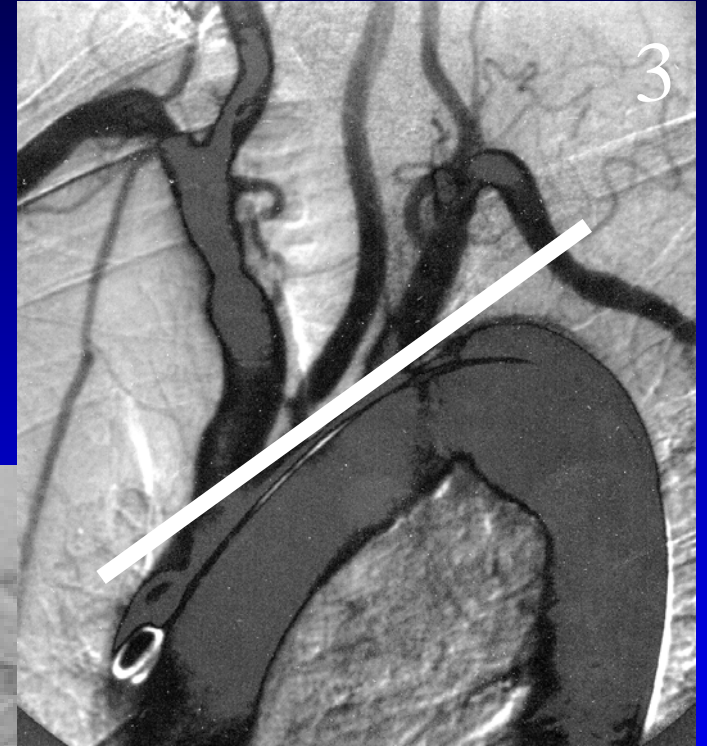
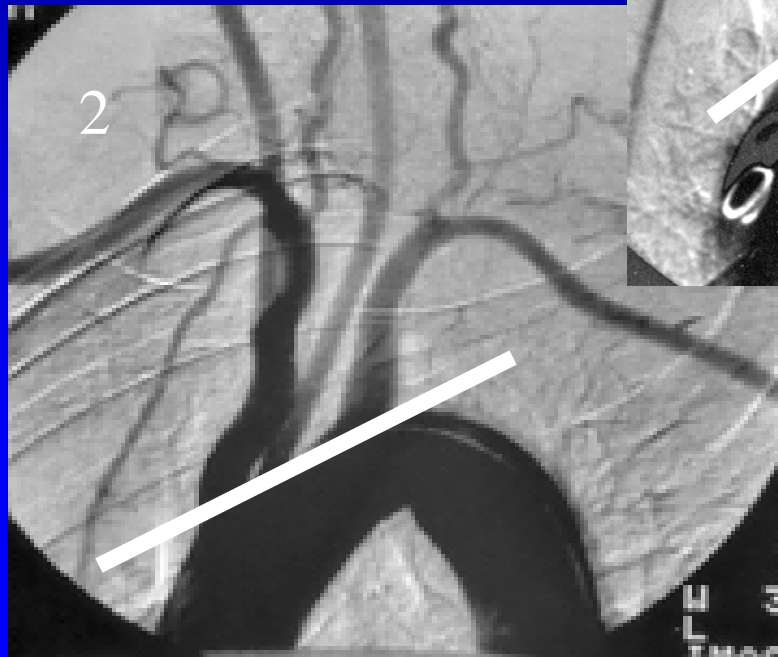
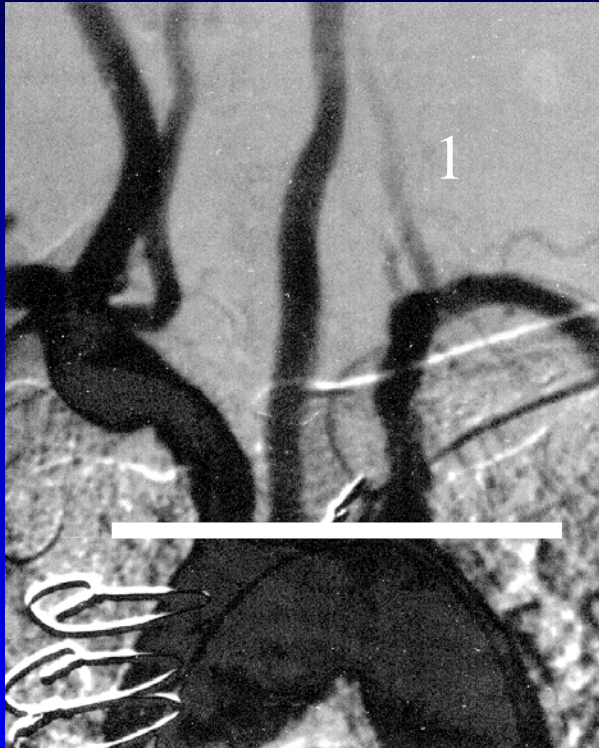
- 0.035 inch Supracore guidewire into external carotid artery
- 6 Fr Shuttle sheath over guide wire into common carotid artery



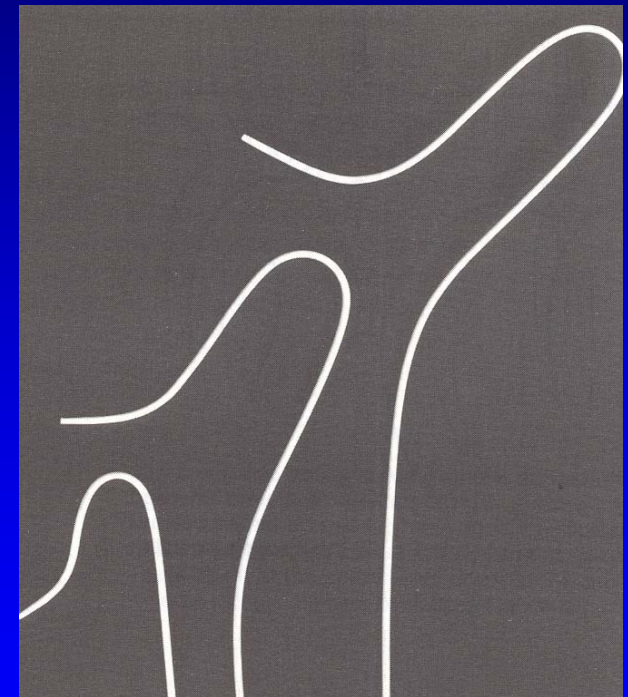
Case History



Complex Arch Anatomy

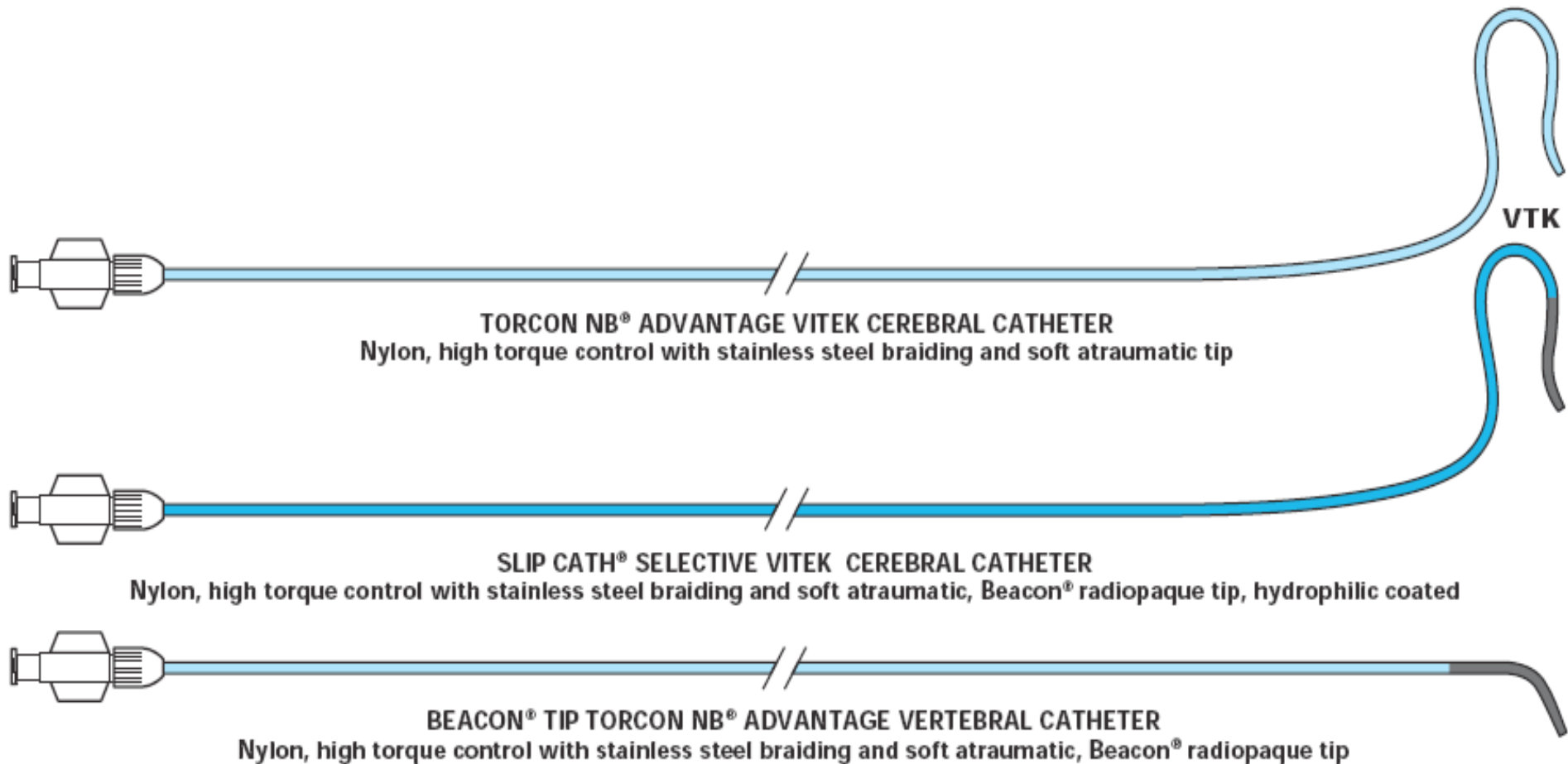


Selective Catheter Choice



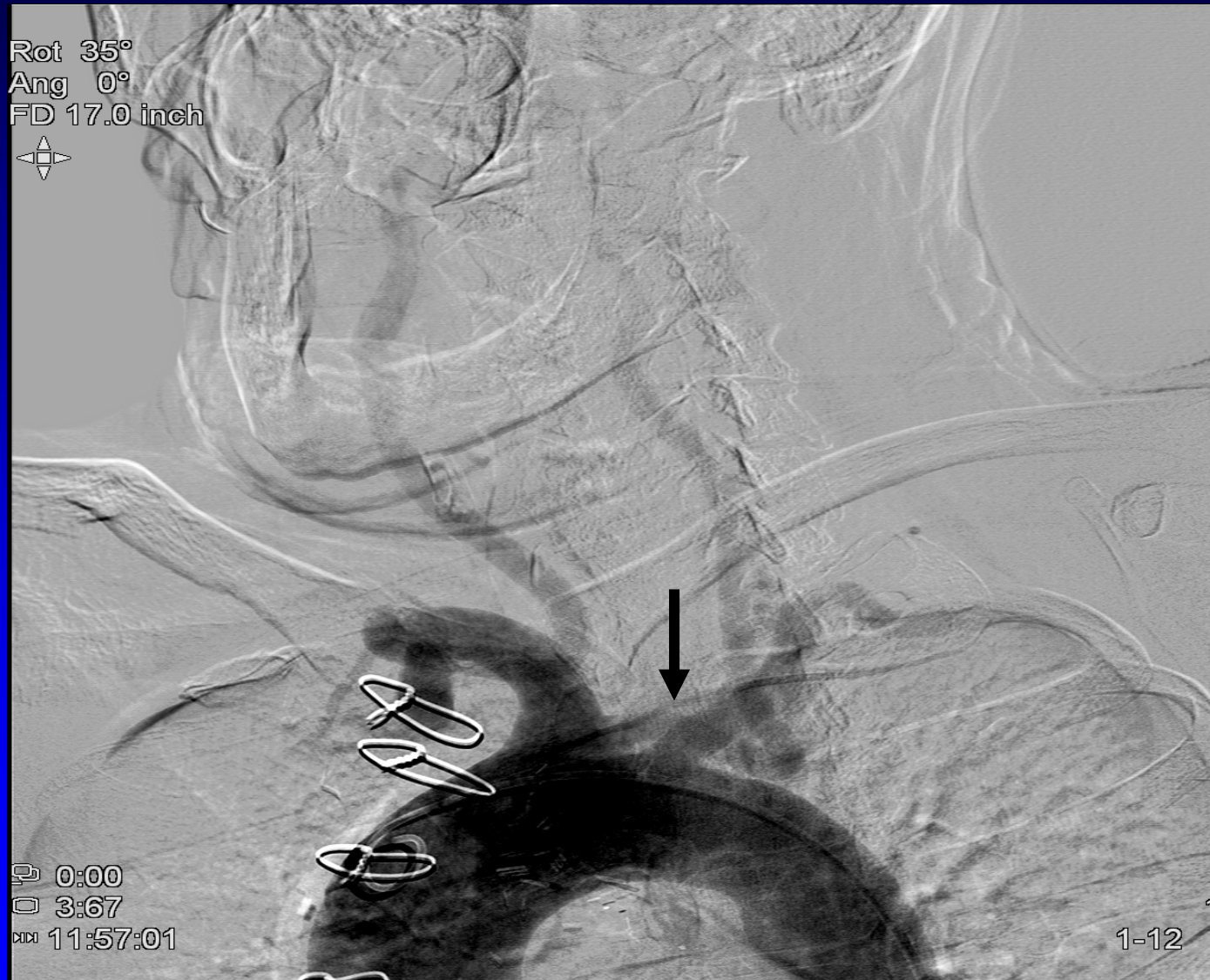
Vitek, Simmons 1,2,3 Catheters

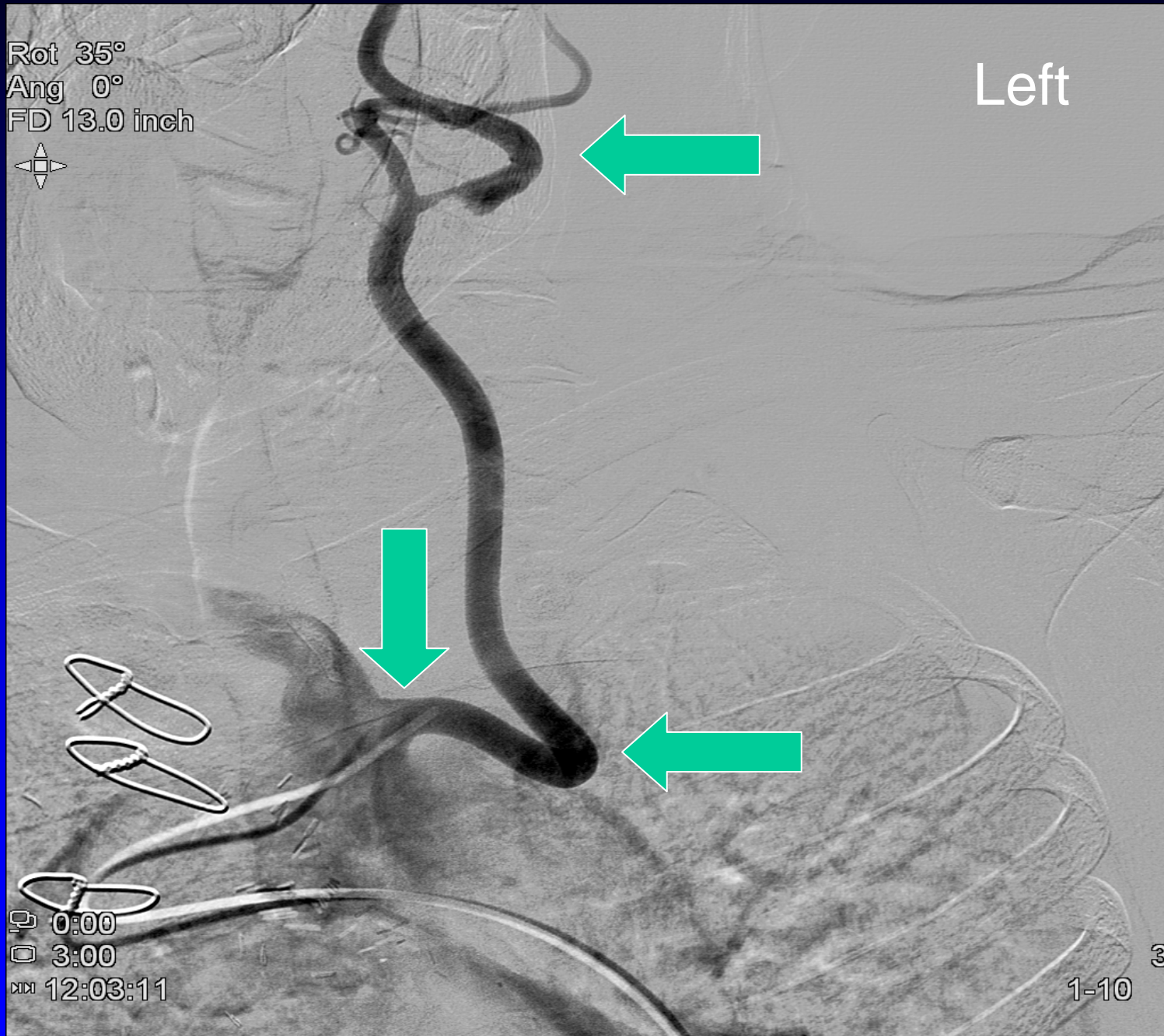
Carotid Access Catheters



125 cm catheters necessary for placement through Shuttle sheath

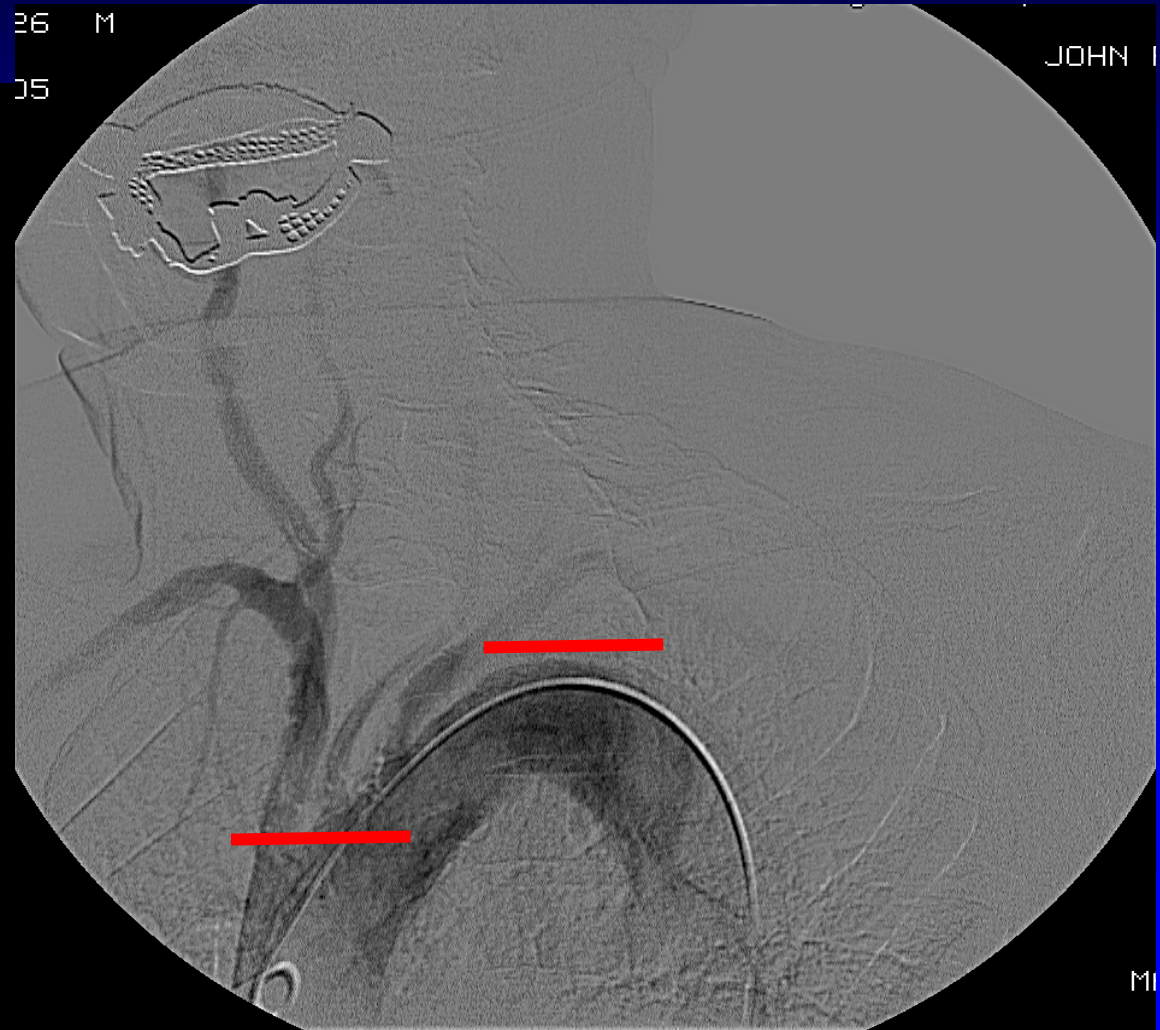
Know When to Say No!





Safe Access for Carotid Stenting?

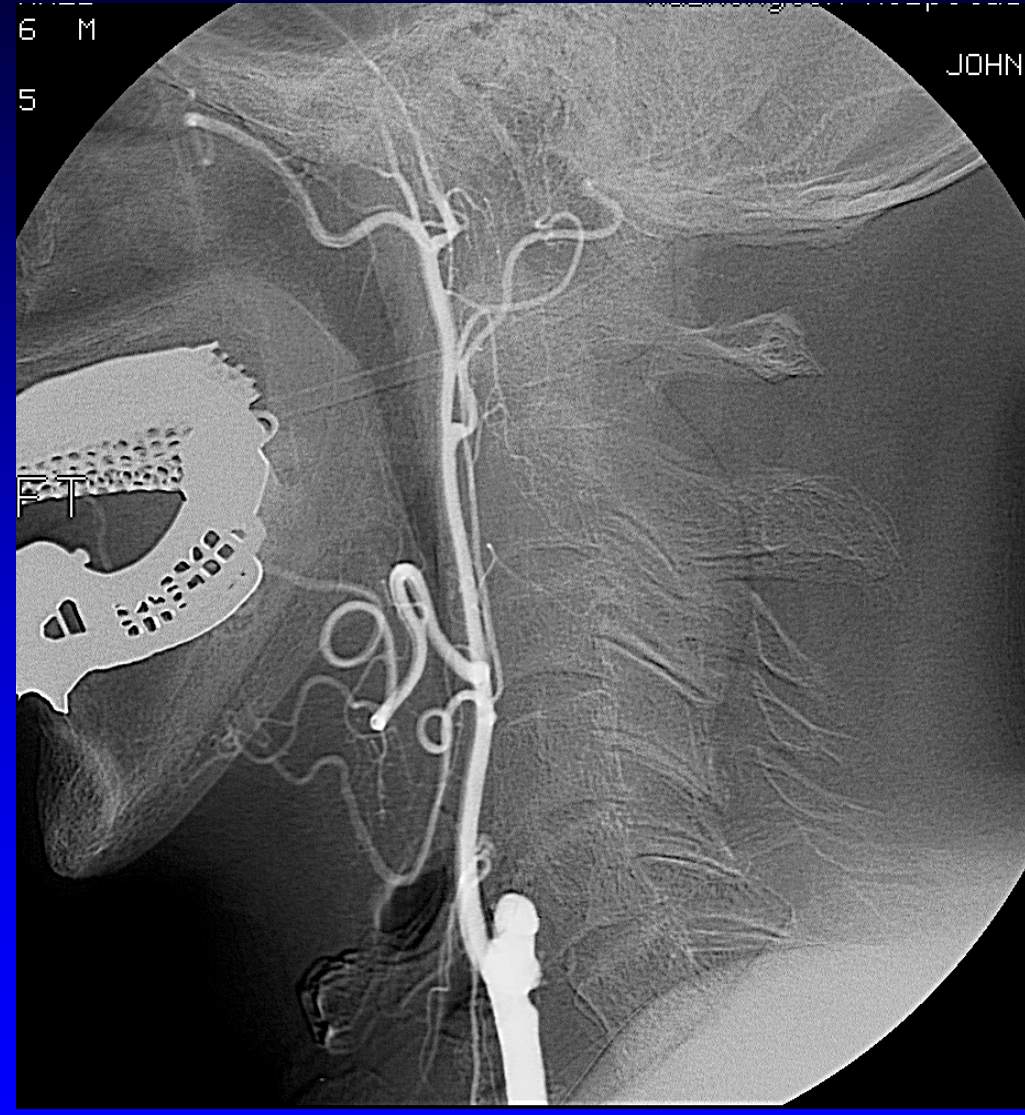
- 72 year old male
- Severe CAD
- Renal insufficiency
- LICA occlusion
- Severe, symptomatic RICA stenosis



Carotid Angiography



RICA



LICA

Technique

Guiding Catheter from a Distance

- 8 Fr Guiding catheter from the aortic arch (Hockey Stick, Cordis)
- Guidant carotid stent platform
 - 6.5 mm Accunet filter
 - 8 mm x 3 cm Acculink stent

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

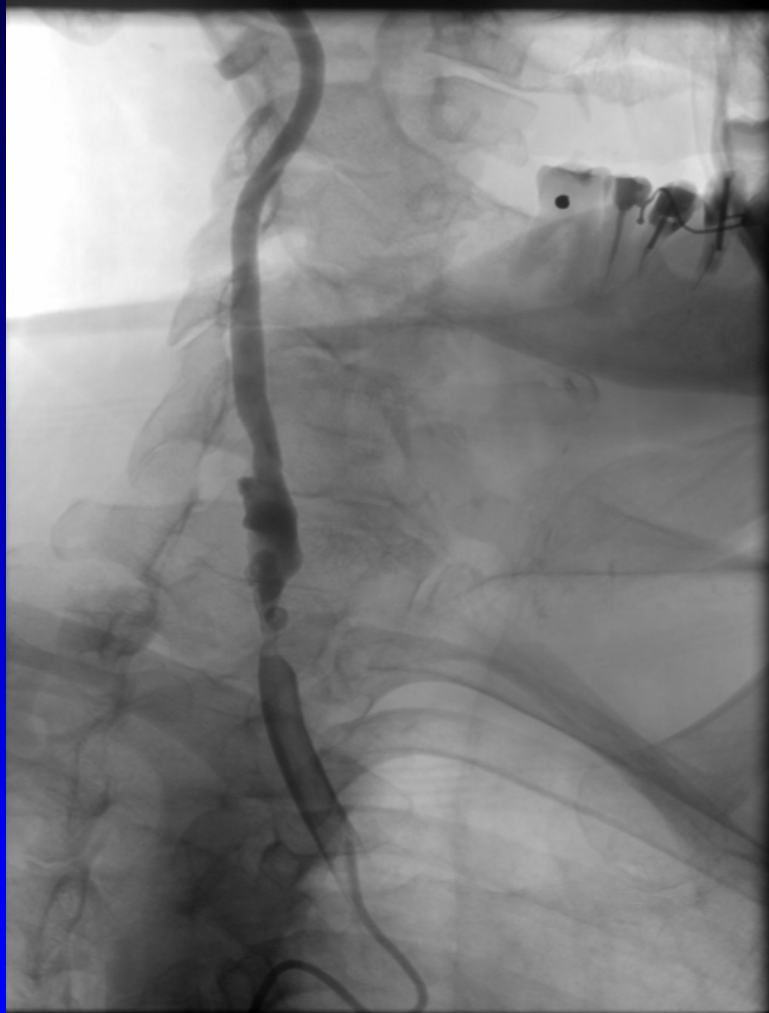


0:00
3:33
11:45:53

1-6..11 2

Right CCA stenosis

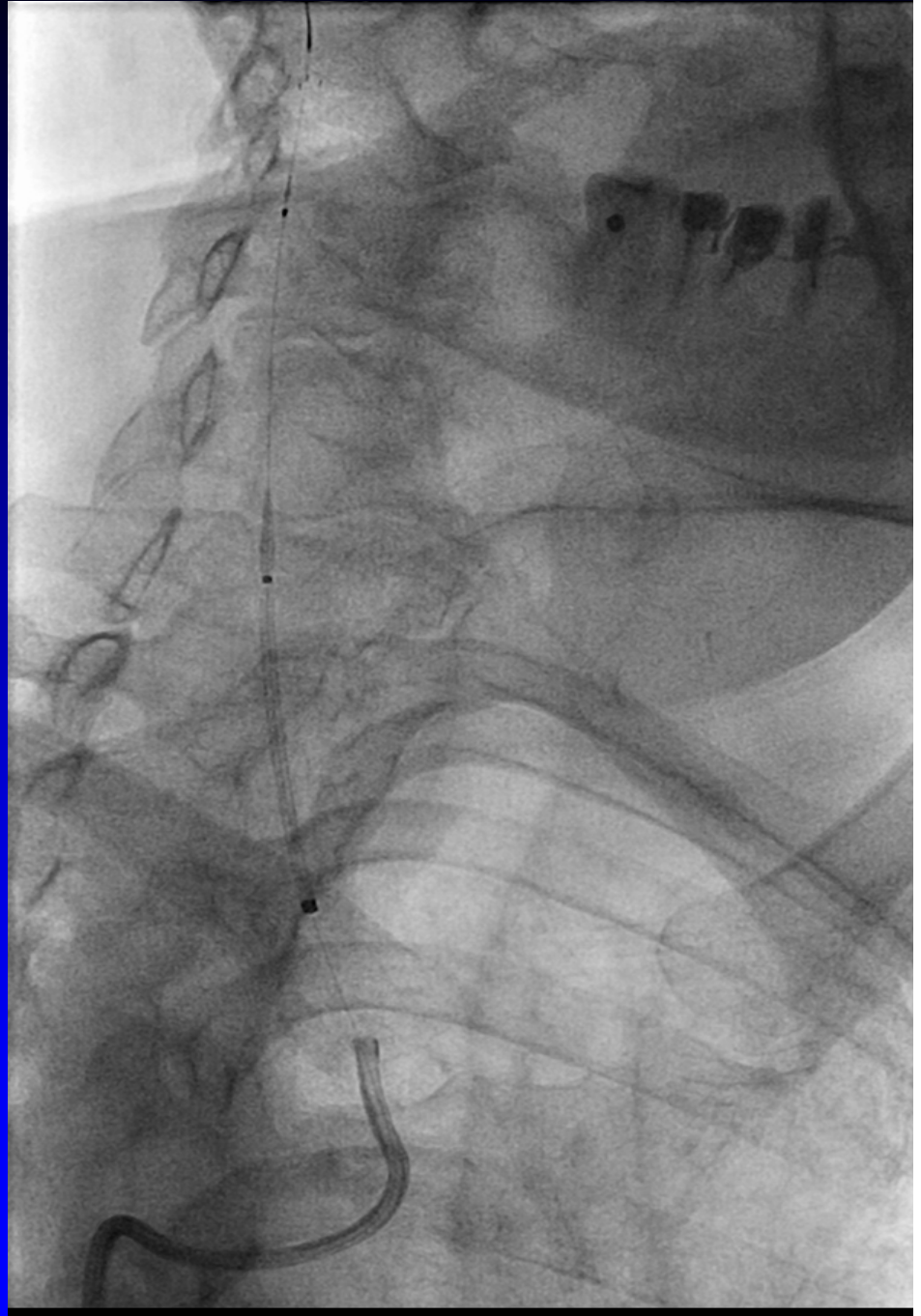
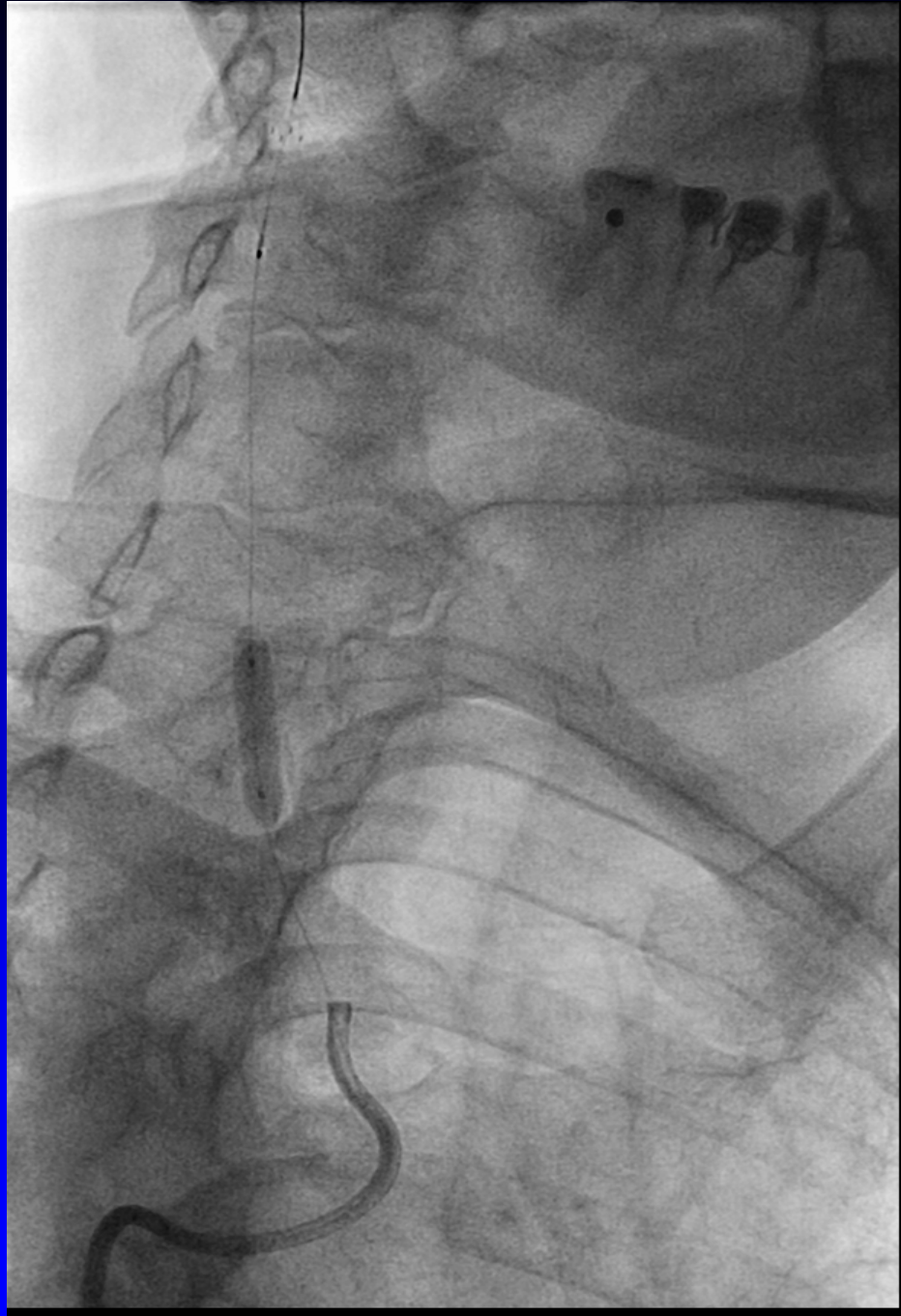
- Deep ulcerations of her right CCA.
- Right ECA was occluded.
- Diagnostic angiogram with 5F Simmons 1 catheter.
- Guiding catheter was a 8F Vista AL3
- Distal protection was a 6.5mm Accunet



ch

RIGHT







Carotid Tortuosity

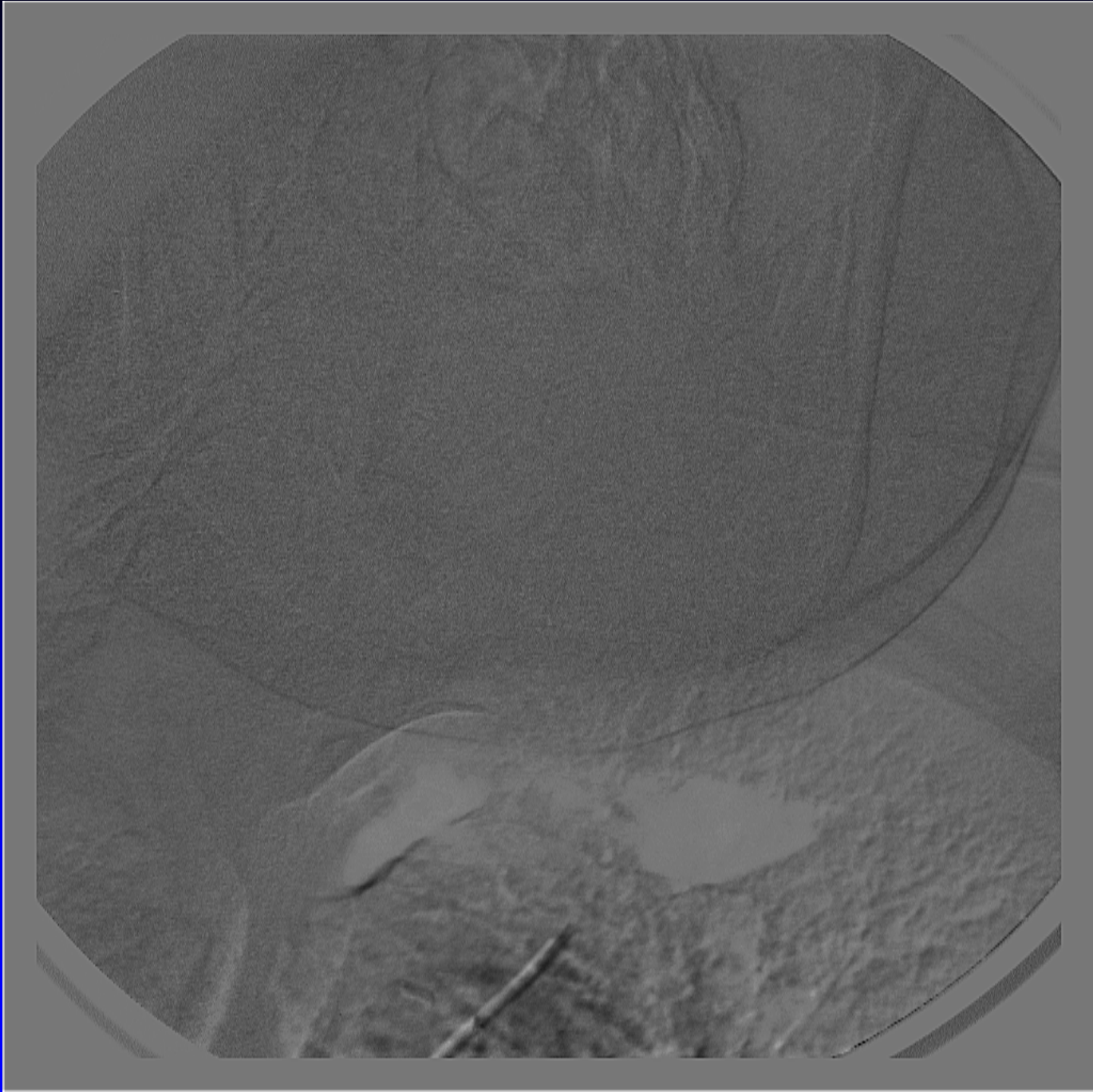


Dealing with Carotid Tortuosity

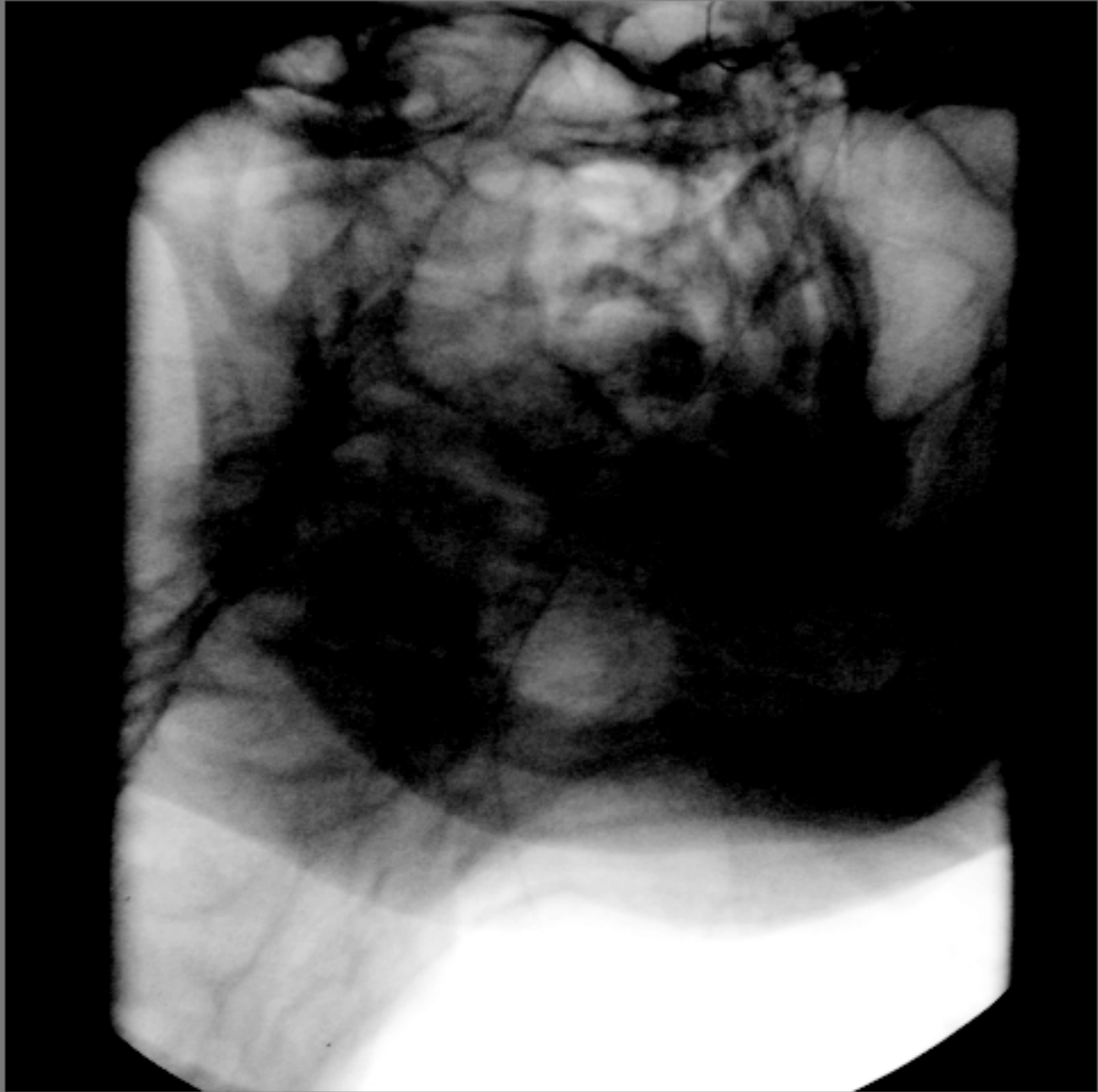
- Be prepared for displacement of kinks or bends
- Be familiar with the different embolic protection devices and their pros/cons in tortuous anatomy
- Be prepared to use the “Buddy Wire” technique
- Don’t be fooled by vessel straightening artifact

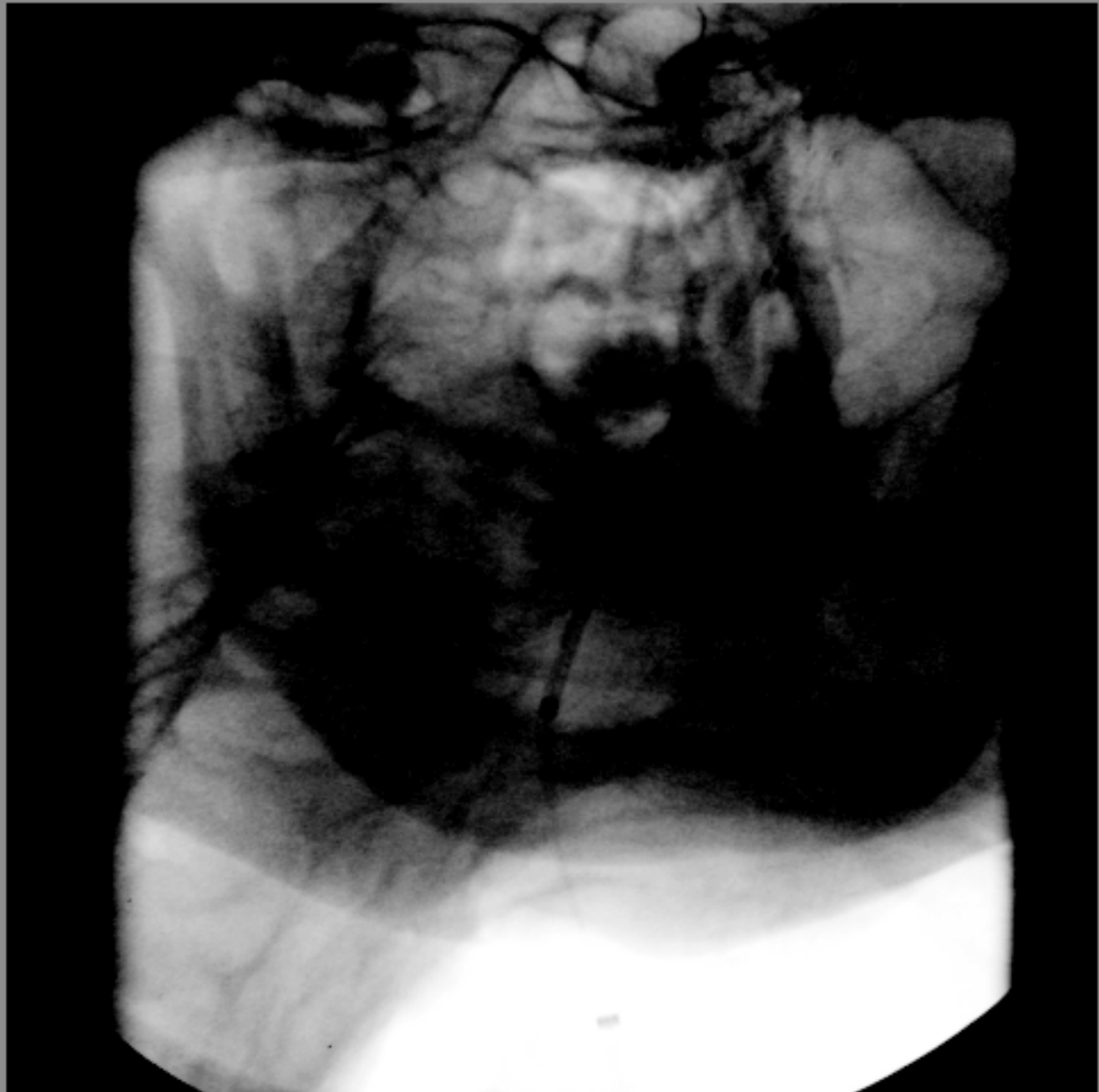
Case History

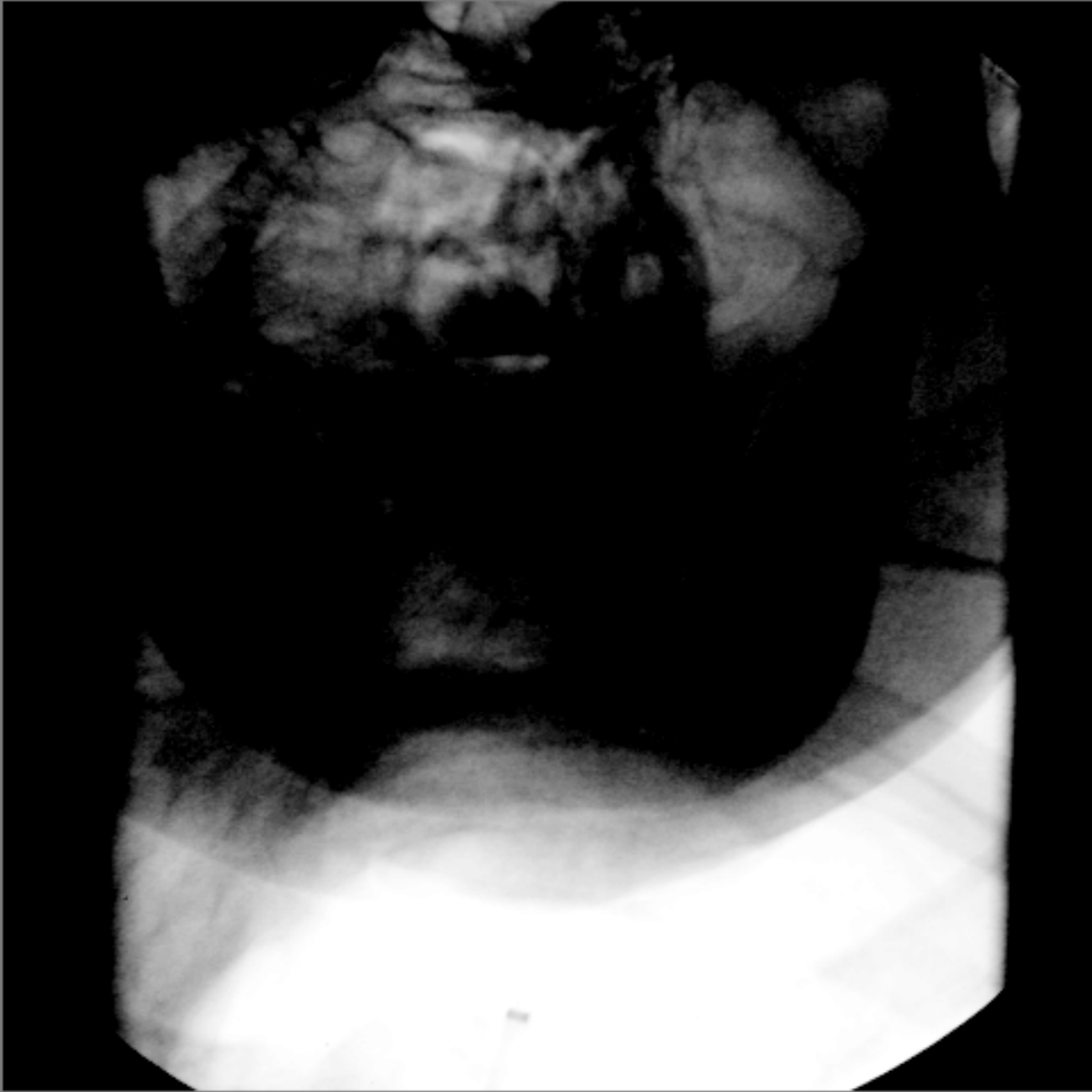
- 65 year old female
- Symptomatic left carotid artery stenosis (80-99% by duplex)
- No significant right carotid artery stenosis
- Severe underlying CAD – not completely revascularized











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
- Know when to say no or when to back off if things are not progressing smoothly