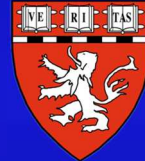


Cases in Carotid Disease

*Clinical Approach to Vascular Ultrasound
and RPVI Review*



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Cases in Carotid Disease

Disclosures

- None



Cases in Carotid Disease

Introduction

- Carotid disease: Stroke prevention
- Mechanism of stroke: >95% emboli
- Stroke prevention: Rx carotid plaque
- Carotid intervention: CEA, CAS
- Imaging is paramount to determine disease diagnosis and clinical parameters
- Provides Treatment Options

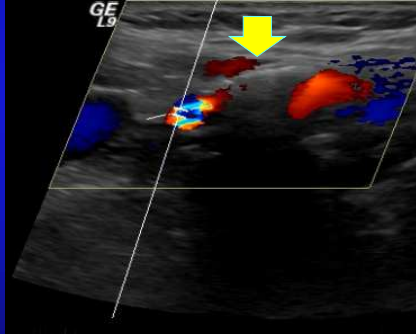
Cases in Carotid Disease

Cases

- Patient cases selected to understand the anatomic correlation with the clinical presentation
- Understanding the clinical scenario is helpful to undertaking the Carotid Duplex
- Paramount to undertaking the interpretation of the Duplex findings and the medical implications

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Carotid Duplex



- Be gentle with pressure on the neck (carotid emboli = stroke)
- Acoustic shadowing of calcium in the neck: try different angles to “see around the calcium”

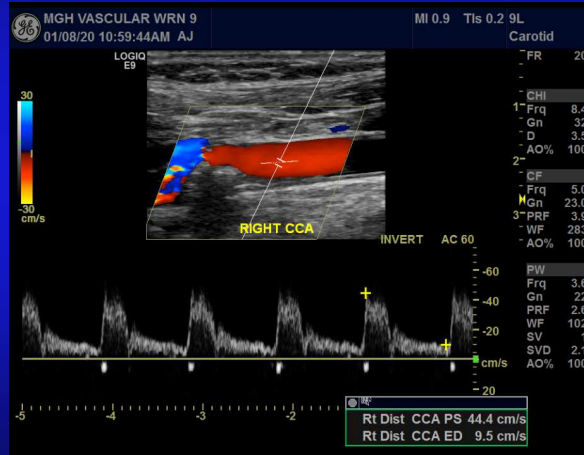
Cases in Carotid Disease

Case 1

- 55 yo R-handed DM, hypertension, smoker
- Developed 5 minute episode of L hand clumsiness and disorientation
- Exam BP 136/88 mm Hg, AP regular 88
- Symmetric, non-focal neuro-exam

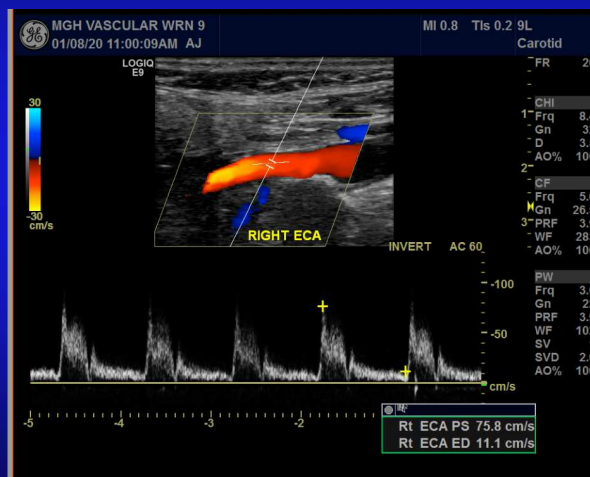
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Case 1



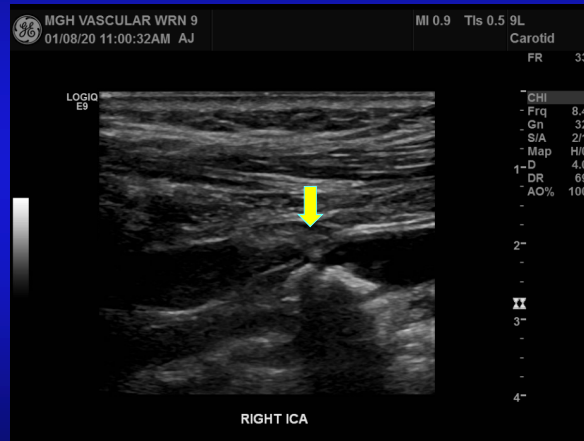
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Case 1



Cases in Carotid Disease

Case 1

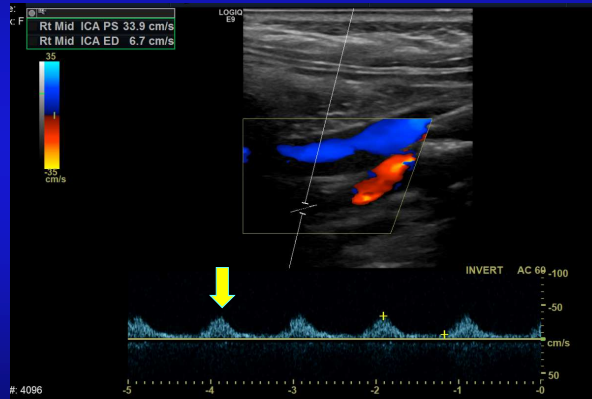


Cases in Carotid Disease

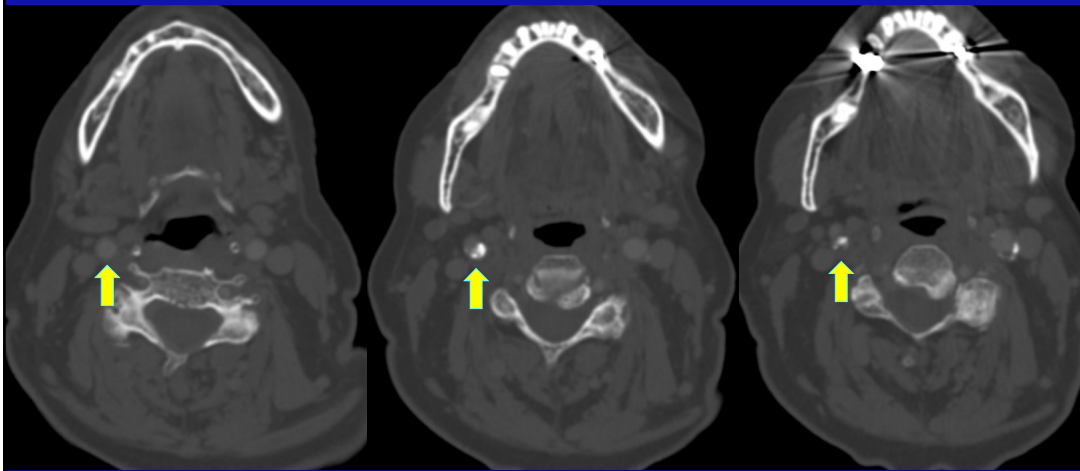
Case 1



Cases in Carotid Disease Case 1



Cases in Carotid Disease Neck CT Scan



Cases in Carotid Disease

Case 1

INDICATIONS / NOTES:
carotid stenosis

TECHNIQUE:
A duplex ultrasound evaluation of the common carotid, internal carotid, external carotid, vertebral, and proximal subclavian arteries was performed using gray scale, color duplex and spectral Doppler analysis.

RIGHT

CCA (cm/s):
Proximal Systolic 65 Proximal Diastolic 9
Mid Systolic 51 Mid Diastolic 10
Distal Systolic 36 Distal Diastolic 7

ICA (cm/s):
Proximal Systolic 646 Proximal Diastolic 236
Mid Systolic 33 Mid Diastolic 6
Distal Systolic 35 Distal Diastolic 12

ECA (cm/s):
Systolic 79 Diastolic 11

ICA/CCA Ratio:
Systolic 17.5

ICA STENOSIS: V. Severe 90-99%
PLAQUE: Heterogeneous calcified

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Case 1

- TIA, no stroke on MRI
- R carotid endarterectomy



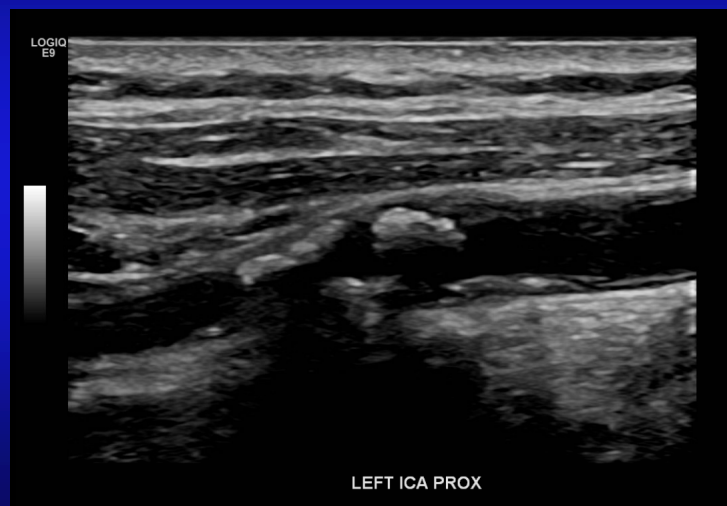
Cases in Carotid Disease

Case 2

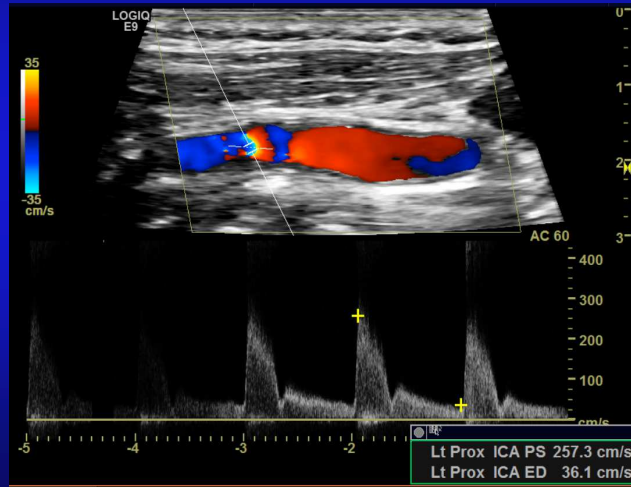
- 80 yo R-handed former smoker, CAD
- Developed several episodes of difficulty of speaking, no other sx
- Exam BP 112/60 mm Hg, AP 55
- Symmetric, non-focal neuro-exam

Cases in Carotid Disease

Case 2



Cases in Carotid Disease Case 2



Cases in Carotid Disease Case 2



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Exercise Related Leg Pain (ERLP)

```
LEFT
CCA (cm/s):
Proximal Systolic 95 Proximal Diastolic 16
Mid Systolic 78 Mid Diastolic 11
Distal Systolic 89 Distal Diastolic 18

ICA (cm/s):
Proximal Systolic 265 Proximal Diastolic 40
Mid Systolic 110 Mid Diastolic 18
Distal Systolic 63 Distal Diastolic 16

ECA (cm/s):
Systolic 268 Diastolic 12

ICA/CCA Ratio:
Systolic 2.9

ICA STENOSIS: Severe 70-89%
PLAQUE: Homogeneous
```

Cases in Carotid Disease

Case 2

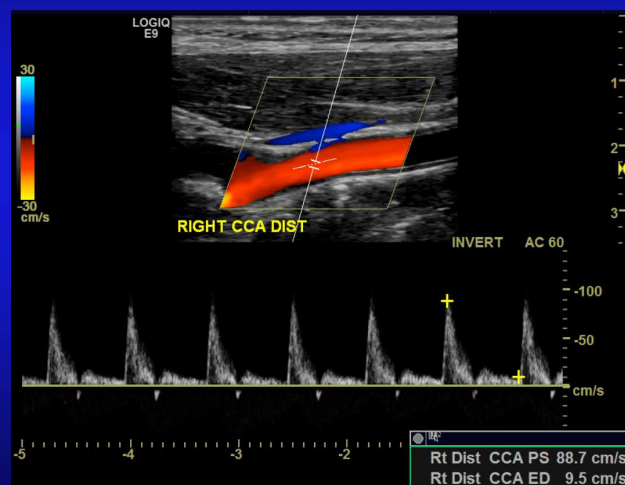
- CT scan, moderate stenosis
- MRI no acute stroke
- Sx Carotid and L CEA



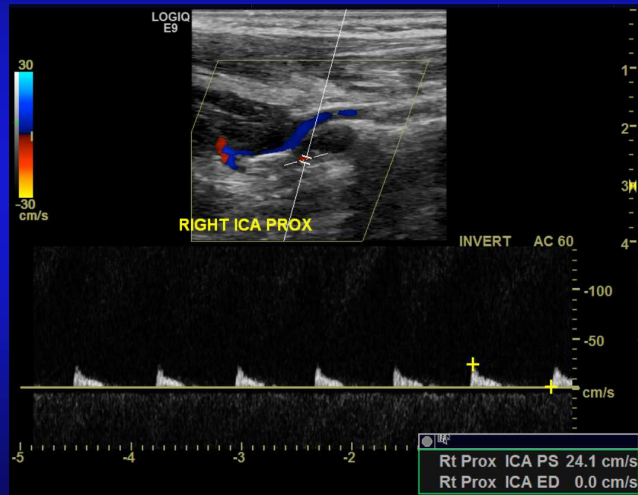
Cases in Carotid Disease Case 3

- 66 yo L-handed Hypertensive, never smoker
- L ear pulsatile tinnitus, occ dizziness
- Exam BP 110/70 mm Hg, AP 85
- L Carotid bruit with good upstrokes bilaterally
- Symmetric, non-focal neuro-exam

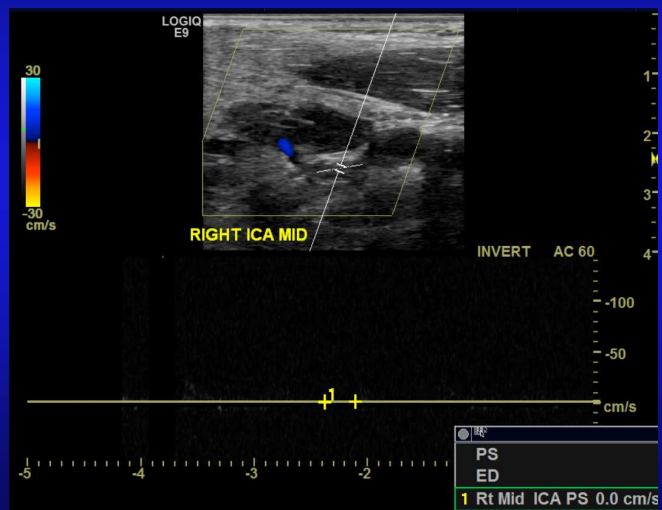
Cases in Carotid Disease Case 3



Cases in Carotid Disease Case 3



Cases in Carotid Disease Case 3



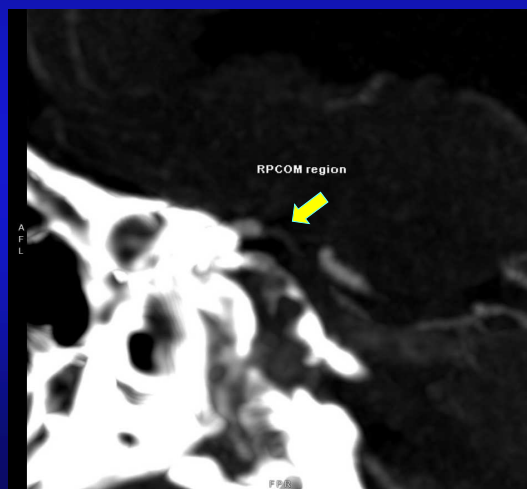
Cases in Carotid Disease Case 3



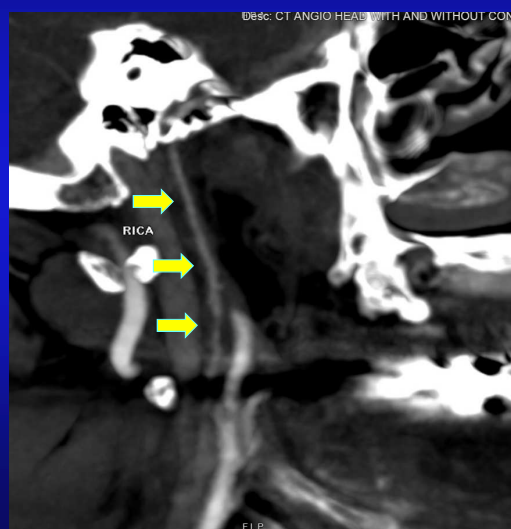
Cases in Carotid Disease Case 3



Cases in Carotid Disease Case 3



Cases in Carotid Disease Case 3



Cases in Carotid Disease

Case 3

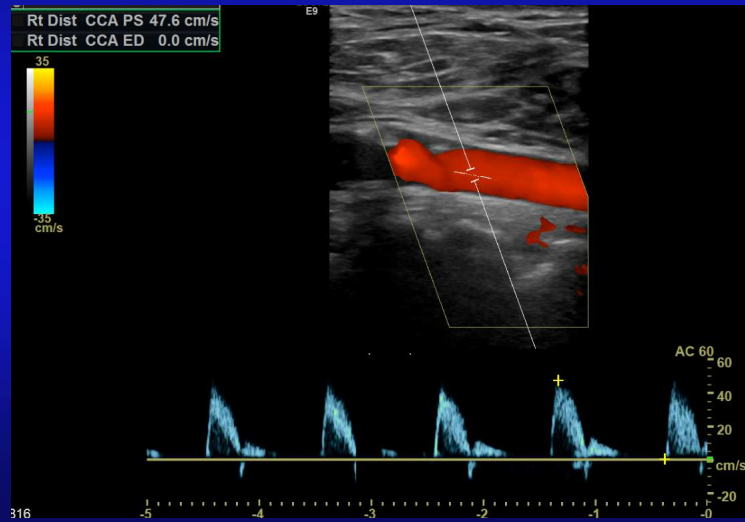
- Thought to be recanalized occluded carotid artery.
- Asx “string sign” on the CTA
- Adjusted BP regimen, treated medically

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Case 4

- 78 yo R-handed DM female, smoker hypertension, s/p MI, CHF
- Developed vertigo and light-headed
- Exam BP 166/98 mm Hg, AP 78
- Normal exam with mild CHF

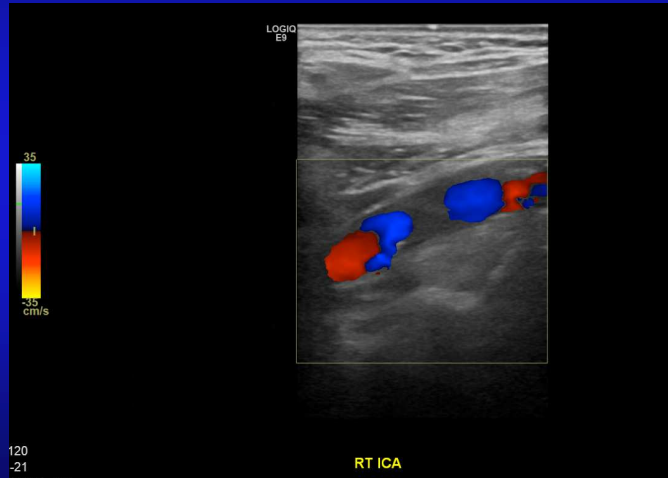
Cases in Carotid Disease Case 4



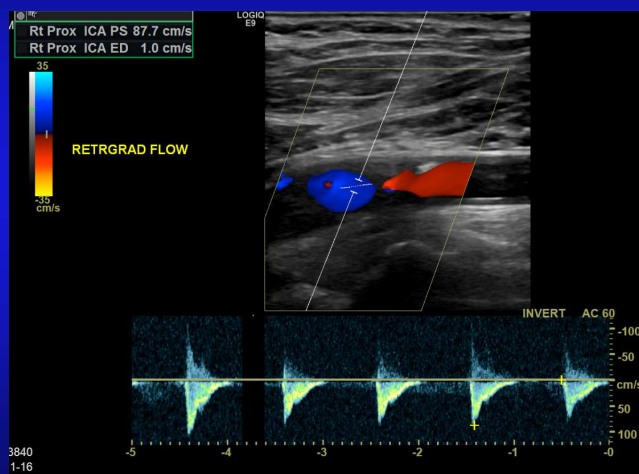
Cases in Carotid Disease Case 4



Cases in Carotid Disease Case 4



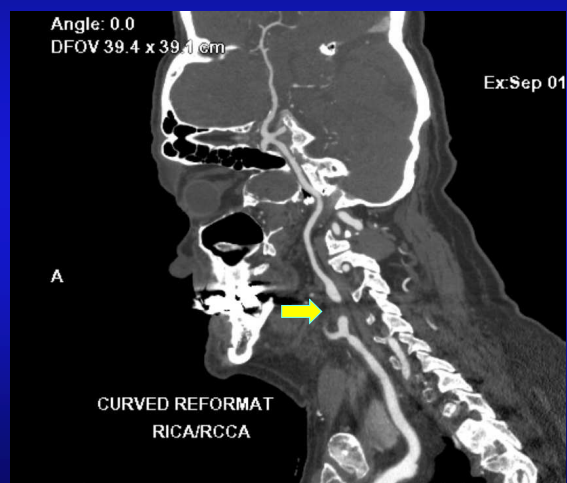
Cases in Carotid Disease Case 4



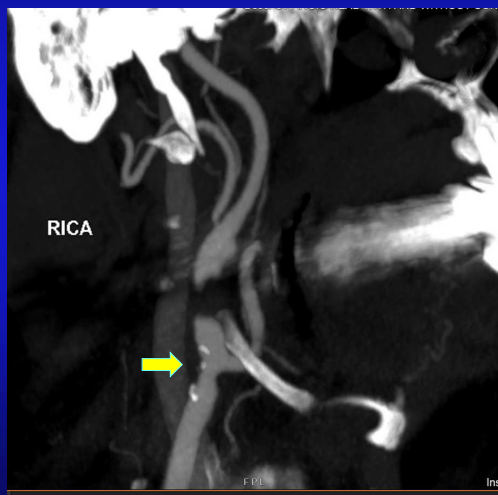
Cases in Carotid Disease Case 4



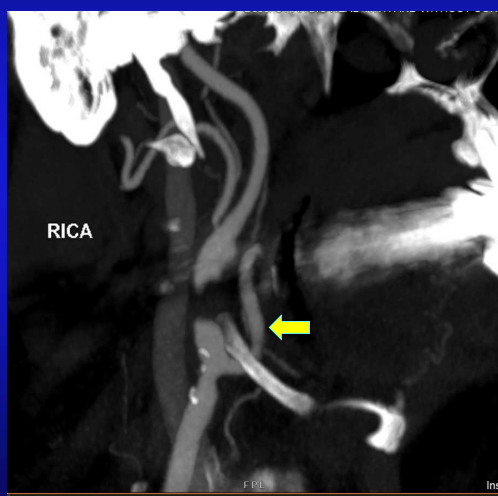
Cases in Carotid Disease Case 4



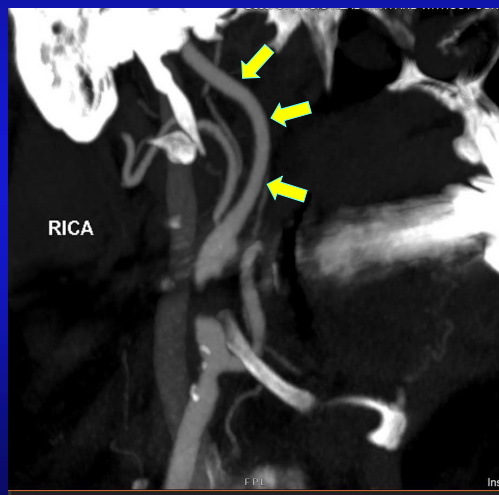
Cases in Carotid Disease Case 4



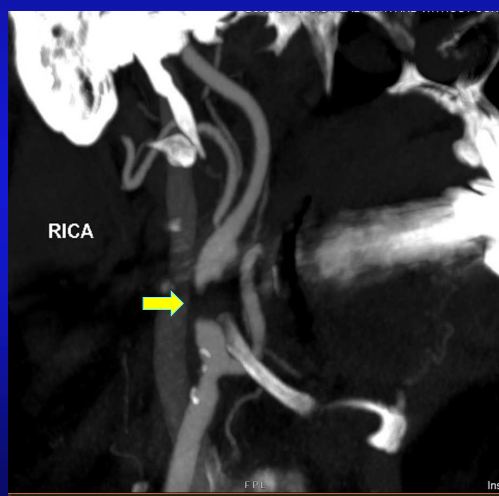
Cases in Carotid Disease Case 4



Cases in Carotid Disease Case 4

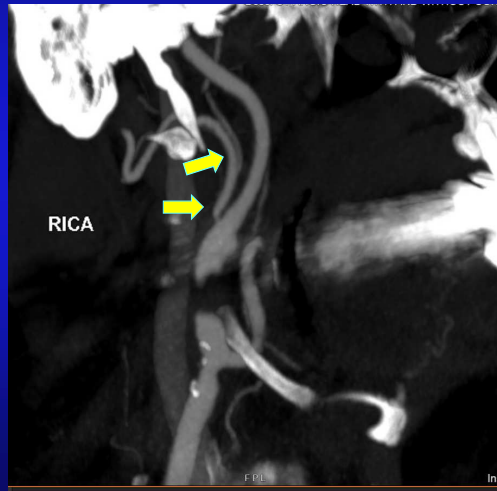


Cases in Carotid Disease Case 4



Cases in Carotid Disease

Case 4



Cases in Carotid Disease

Case 4

- The ICA is occluded proximally
- There is little chance of emboli for retrograde flow
- Zio patch identified light-headedness correlated with A Fib and patient treated with amiodarone with resolution

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Conclusion

- Demonstration of Carotid cases that the Carotid Duplex execution and interpretation were very important to the diagnosis and treatment selection of the patients.
- Understand that the axial imaging is confirmation and supplemental for proper therapeutic selection

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Thank you

