



Managing Restenosis after CAS or CEA

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Disclosure

- I have the following potential conflicts of interest to report:
- x Consulting: PQ Bypass, Intact Vascular, Philips, Medtronic, Boston Scientific, Endologix, Shockwave, VIVA Physicians Board Member



Timing of Restenosis

- Early < 24 months
 - Likely intimal hyperplasia
 - Low embolic risk
- Late >24 months
 - Likely recurrent atheroma
 - High embolic risk



Location of Restenosis

- Surgery
 - How was primary procedure done
 - Eversion - Likely proximal
 - Patch - Likely distal
 - Maybe clamp injury
- Stent
 - Was a kink left
 - Was stent adequately expanded
 - Was proximal disease untreated
 - Were >1 stent used

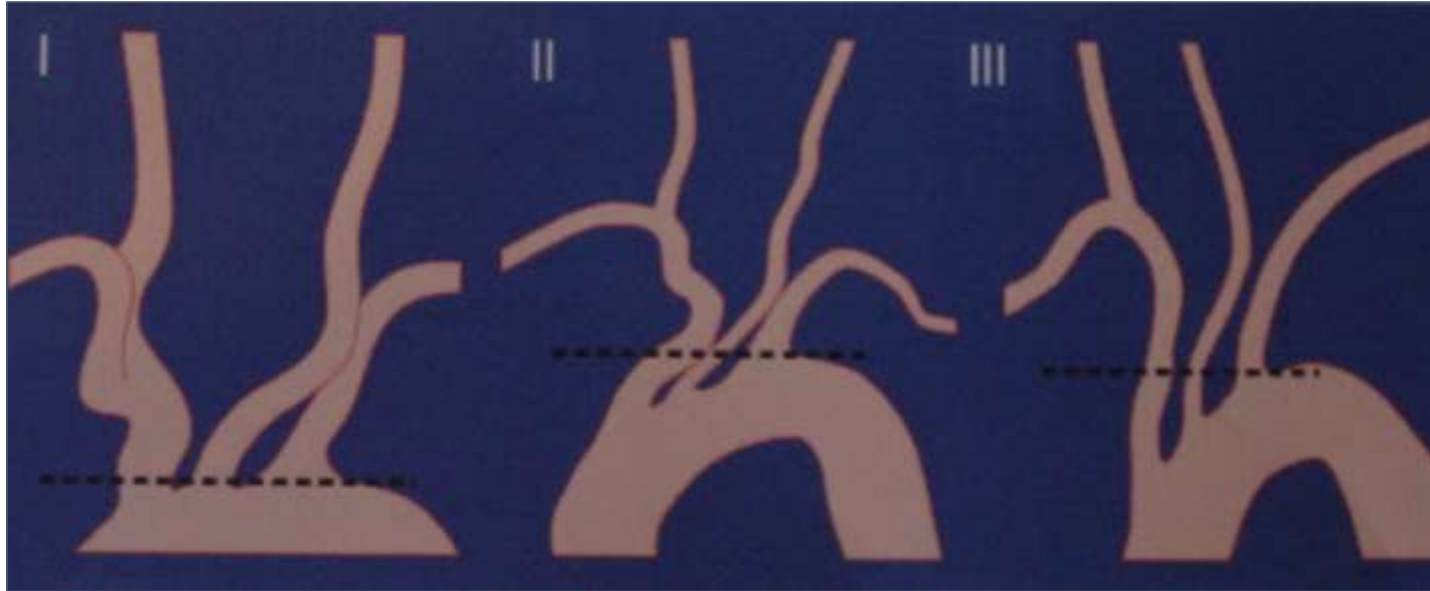


Information Needed

- Lesion length and make up
 - Tortuosity
 - Thrombus
- Arch anatomy
 - Type I, II, III
 - Bovine anatomy
- Calcification amount and location
- How to dissect free. Where to clamp?
- How to gain access, Where to place filter?



Arch Considerations



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Options

- Redo CEA
- Redo CCA to ICA bypass with PTFE vs Vein
- Redo PTA with cutting balloon
- Redo CAS
- Redo Covered stenting



Case Restenosis after CEA



- Attempted carotid angiogram at OSH
- Arch done
 - Could not get into CCA
 - L vertebral stented by radiologist

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- Plan for CTA to evaluate anatomy
- Evaluate for Stroke and hemorrhage

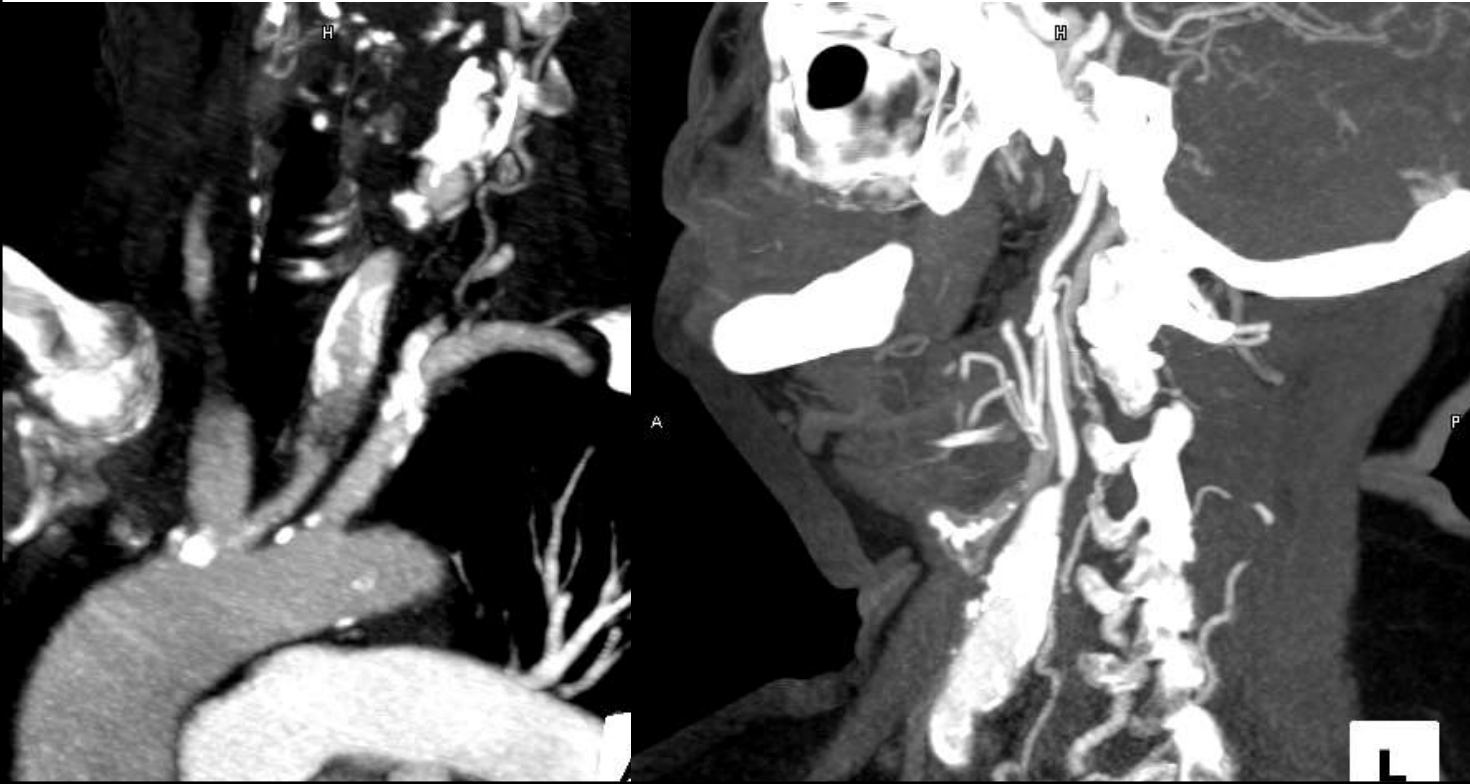
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CTA



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MIP Images



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Bovine Arch Ca++ CCA

Proximal CCA lesion



Distal ICA Lesion



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Preop Thoughts

- Cross CCA
- Sheath into CCA
- Filter
- Stent ICA
- Stent CCA
- Remove filter
- Sheath in arch
- Filter in ICA
- Stent CCA
- Stent ICA
- Remove filter



- Sheath into arch
- Stent CCA
- Stop and return later another day

- Take Pictures
- Stop
- Reconsider options

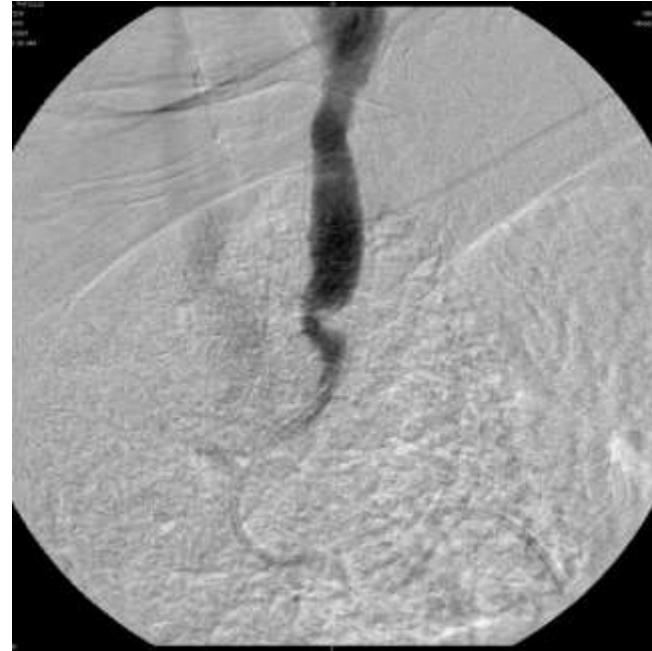




- Type I/II arch
- Bovine arch
- Calcified artery
- Reverse curve catheter
 - Vitek

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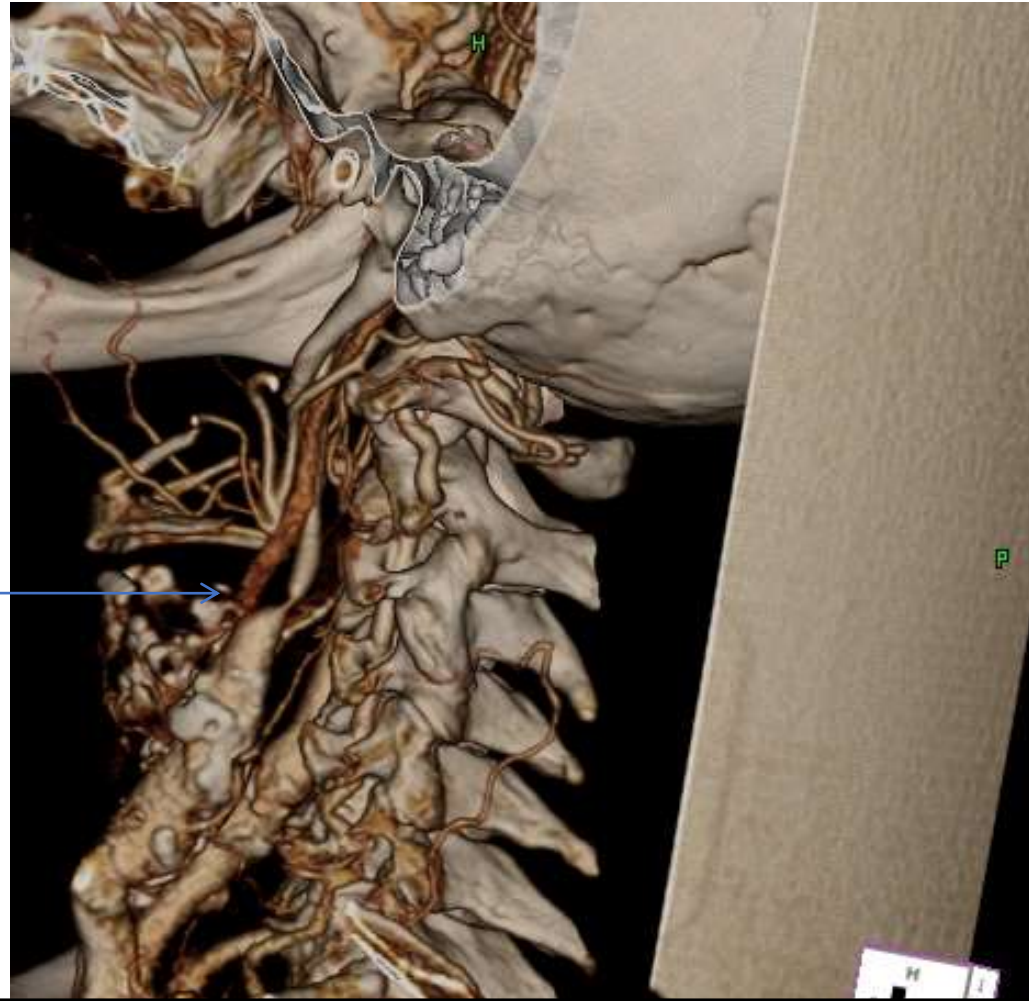
Defining Proximal CCA Lesion



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Issues

- Crossing lesion
- Not enough room to place sheath and keep stable
- No ECA



Procedure Details

- Vitek
 - Stiff glide across CCA
 - Catheter will not cross CCA lesion
 - Failed attempt to exchange for angled glide cath
- 6 F sheath Cook Shuttle select into arch
- Simmons 2 formed
- Recross with stiff glide past CCA lesion
- Can't cross lesion with Simmons



What to do?

- Stop?
 - Consider redo-redo-redo open surgery
 - Combined open/endo
 - Proceed?
- Endo options?
 - Cross ICA lesion unprotected?
 - Is it any different than what we've done?



Details

- Stiff glide into distal ICA across both lesions
- Trombone 6 F sheath around arch into origin of CCA using 6F Vitek
- 5F and 6F Vitek still won't cross
- 0.35" Quick cross catheter to exchange
- Pushed across CCA with difficulty



- Quick cross into distal ICA
- Exchange to amplatz
- 6 F sheath advanced over the dilator into distal CCA



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- Emboshield deployed
- PTA 4x2mm Maverick balloon

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- Stented with tapered 7-10mm Protégé Rx stent
- Post dilate with 5x2 Sterling Balloon
- What to do with Proximal CCA lesion

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- Emboshield recaptured
- Grandslam wire placed as buddy wire to distal ICA
- 7x24 Genesis on Aviator BE stent introduced on stiff Grand Slam wire
- 0.14" Abbott bare wire left in place
 - Remember 0.19" tip transition
- Stent positioned and sheath pulled back into proximal CCA

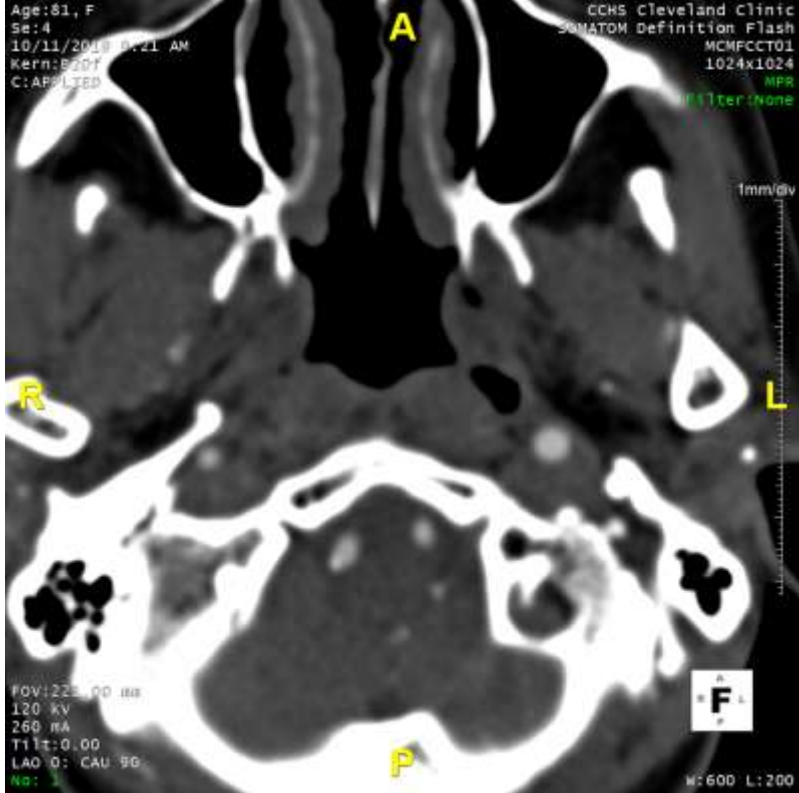
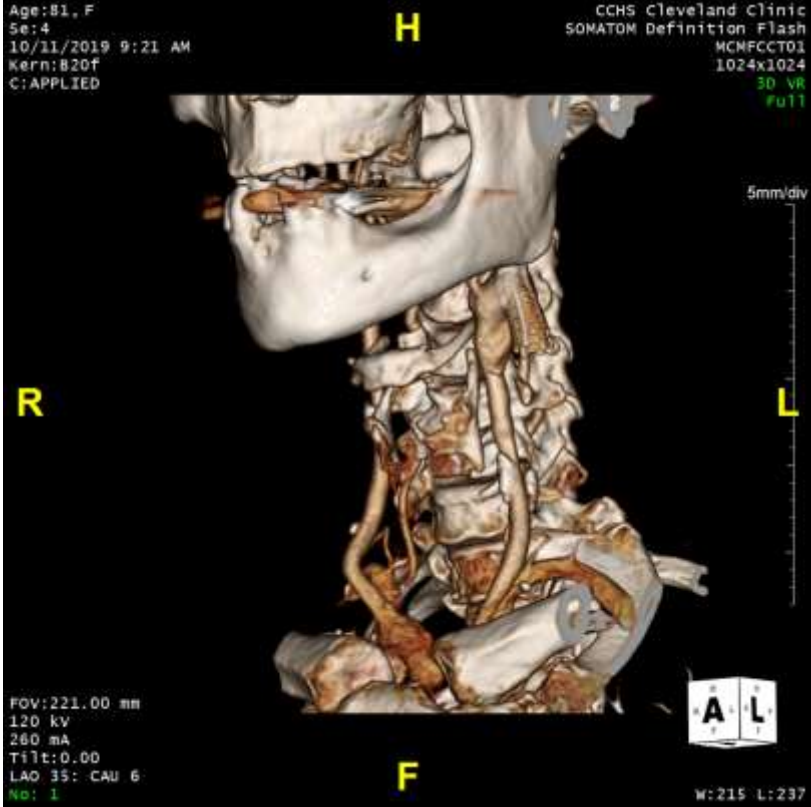


- Abbott bare wire removed
 - Concern over retrieving 0.14 wire with step
 - Stent Deployed
 - Completion imaging
- 0.35" catheter won't go across CCA stent



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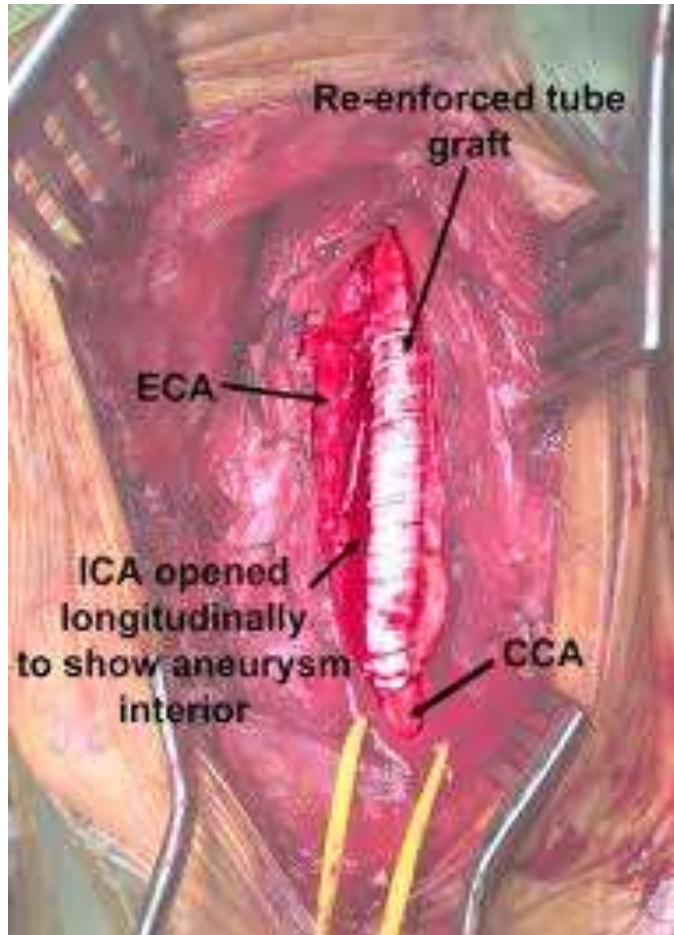
Case Restenosis after CEA and CAS



Retrojugular ICA dissection



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Conclusions

- No best approach
- All can work
- Have the entire toolbox



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