Management of Coincidental Disease when Treating the Carotid Bifurcation

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Disclosure

I do not have any potential conflict of interest.
Combined lesions of the carotid bifurcation and the ipsilateral CCA is a relatively rare, representing 5% of patients with carotid disease requiring treatment.

Three different management strategies:

- extraanatomic bypass for inflow + CEA
- proximal CCA Stent + CEA
- proximal CCA Stent + CAS
Patterns of disease for coincidental carotid artery lesions

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The arch-based inflow lesion

- Approximately 1% to 2% of patients
- Duplex: diminished velocities in CCA
- Final Dg: CTA, MRA, Angio

Management strategies:

- Surgical: CEA with inflow bypass
- Hybrid: CEA with combined transcervical access for CAS
- Stenting of both lesions in the same procedure from a transfemoral approach.
- Stenting of both lesions in the same procedure from a cervical approach.
Open Surgical Approach

**In-line reconstruction**: ascending aorta to CCA bypass.

- transthoracic approach associated with major perioperative morbidity and mortality (up to 19%).
- limited to no other option patients (two or three of the major arch branches are occluded)

**Extraanatomic inflow procedures**: subclavian to carotid and carotid to carotid bypass.

- via a cervical approach
- stroke and death rate as low as 3.8%
- requires that the arch branch used for inflow be free of significant disease.
The hybrid approach: proximal CCA Stent with CEA

- the proximal end of the stent protrude into the arch 1 to 2 mm (contains arch plaque that extends into the CCA)
- Considered for the bovine arch or an elongated or tortuous arch, where the trans-femoral sheath tends to be unstable

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Spill-over lesion of the aortic arch in the CCA

- acceptable arch anatomy
- have a solid indication for a carotid bifurcation stent
8/20mm Assurant Cobalt® Balloon Expandable Stent System (Medtronic)
Cristallo Ideale (6-9/30mm) (Medtronic)
Final Result
Stenting of both lesions in the same procedure from a cervical approach using Flow reversal (TCAR)

- carotid cut-down using the local sedation
- TCAR flow-reversal technique for neuroprotection
- retrograde stenting of the proximal ostial CCA lesion
- subsequent stenting of the distal carotid bifurcation lesion

Enroute system (Silk Road Medical, Sunnyvale, CA, USA)
Focal stenosis of the CCA separate from the carotid bifurcation Lesion

Easily identified on duplex

Management depends on:

• the length of segment of less diseased artery between the two lesions and

• the location of the proximal artery from a standpoint of surgical accessibility
  – If the CCA is accessible proximal to the lesion: open surgery
  – If not: an endovascular approach.
Management requires some of the same planning and technical steps.

- If CCA is accessible proximal to the lesion but above the clavicle with a vascular clamp, **open repair** is best.
- If CCA is not accessible, an **endovascular approach** is best, using either one long stent or a bifurcation stent placed across the external carotid artery origin and then a second stent placed proximally.
Thank you!

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