Radial Access for Carotid intervention: Why, When and How?

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Disclosures

Speaker’s Bureau:
• Abbott Vascular
• CSI
• Spectranetics

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CAS

- Carotid artery stenting (CAS) with embolic protection has been shown to be equivalent to CEA
- Transfemoral approach remains the conventional access site for CAS
- Alternative access sites include
  - Trans Radial
  - Trans Brachial
  - Direct CCA puncture/open access
Case

- 74/F
- DM, HTN, CAD
- Recent NSTEMI with PCI to the LAD. RCA CTO
- NICM: EF 30%
- Severe cervical arthritis
- COPD, Pulmonary HTN
- TIA with Right arm weakness, confusion
- Carotid duplex showed severe Lt ICA stenosis. 437/152
Diagnostic angiogram
• Using the transfemoral approach in certain Complex arch anatomy remains one of the main reasons for
  • Technical failure
  • Increased incidence of ipsilateral peri procedure stroke
  • Increased incidence of contralateral stroke
Complex aortic arch anatomy
Trans radial Carotid stenting

• This has been described as early as the 1990’s as a successful and safe approach for patient with complex arch anatomy ¹

• Patel et al described using the contralateral radial for CAS with high technical success and very low complication rates ²

• Use in complex arch anatomy can potentially minimizes catheter manipulation in the aortic arch that can decrease the incidence of stroke

² Patel et al CCI 2010;75:268-275
Trans radial vs trans femoral in Coronary intervention

- Decreased incidence of vascular access site complications
- Lower incidence of major bleeding
- Mortality benefit *
- Early ambulation
- Early discharge/Decreased length of stay
A randomised comparison of transradial and transfemoral approach for carotid artery stenting: RADCAR (RADial access for CARotid artery stenting) study.


- Multicenter prospective randomized trial
- 260 consecutive patients at high risk for CEA
- No difference in MACCE (0.9% vs 0.8%)
- No difference in procedure time or fluoroscopy time
- Crossover rate higher was higher in the trans radial arm (10% vs 1.5%)
- Radiation dose was higher in the trans radial arm
- Hospitalization days were lower in trans radial arm

*European Heart Journal: Cardiovascular Imaging* 2014 Jul;10(3):381-91. doi: 10.4244/EIJV10I3A64
Trans radial carotid stenting

- Radial artery access
- Trans radial carotid angiography
- Sheath/Guide delivery to the CCA
Radial artery access

- Sedation
- IA vasodilator:
  - Verapamil
  - NTG
- Radial angiography
Carotid angiography

- **LEFT:**
  - Reverse curve catheters: Simmons 2, 3
  - JR for Bovine arch

- **RIGHT:**
  - Simmons 2,3
  - JR, IM, RIM
Sheath/Guide Delivery

• Telescoping/Coaxial Technique
• Anchoring Technique
• Catheter Looping and Retrograde Engagement (CLARET) technique
Telescoping/Coaxial Technique
Anchoring Technique
Catheter Looping and Retrograde Engagement (CLARET) technique

Kadev. Interv Cardiol. 2014;6(5):463-475
Case: Radial access

- Vasodilators: Verapamil, NTG
- Navigate tortuosity with a Glide advantage wire
- Advancement of a 90cm Shuttle sheath to the innominate
Telescoping/Coaxial technique for sheath delivery into the LCCA
Distal embolic protection
Post CAS with a 8/6 x 30 mm Carotid stent
Conclusion

- Trans radial carotid stenting in an attractive alternative approach especially in patients with
  - Extensive peripheral vascular disease
  - Complex aortic arch anatomy
- Safety, success and feasibility has been demonstrated
- With experienced operators the MACCE rates are low and comparable to the transfemoral approach
- Limitations do remain:
  - Sheath and guide sizes will dictate what equipment can be used
  - Cannot use proximal embolic protection *
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