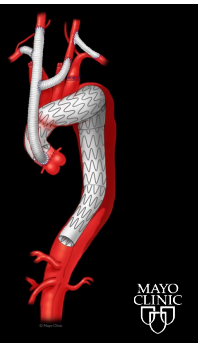
Debranching aortic arch branches: when, how to do it, technical tips and avoiding pitfalls

Bernardo C. Mendes MD
Associate Professor of Surgery
Advanced Endovascular Aortic Program
Division of Vascular and Endovascular Surgery
Mayo Clinic, Rochester MN

VEITH SYMPOSIUM 2024



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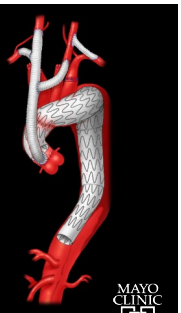
DISCLOSURES

All fees paid to Mayo Clinic

- WL Gore, Cook Medical
  - Research funding, consulting
- Cook Medical, Medtronic
  - Aortic advisory board
- Artivion
  - Consulting

WHY HYBRID ARCH REPAIR?

- Patients who would not tolerate an open repair
- Inadequate anatomy for endovascular repair
- Lack of access to technology
  - No fenestrated/branched arch grafts
  - No experience with arch PMEGs
- Lack of technical expertise for complex open repair



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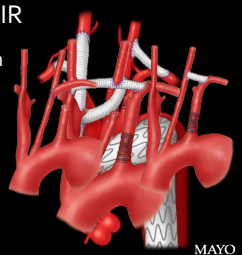
EXTENT OF HYBRID REPAIR

- Zone 1/2 TEVAR / carotid subclavian bypass/transposition
- Zone 0 TEVAR and total cervical debranching
- Total arch debranching



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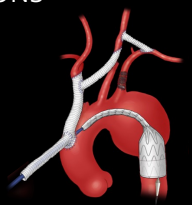
PREOPERATIVE CONSIDERATIONS

- Careful anatomy review
  - Carotid bulb occlusive disease
  - Vertebral artery origin variations
  - Significant ascending aortic calcifications
- Cerebral monitoring technique
- Appropriate access
  - Typically large devices needed
  - Possible antegrade deployment via debranching graft



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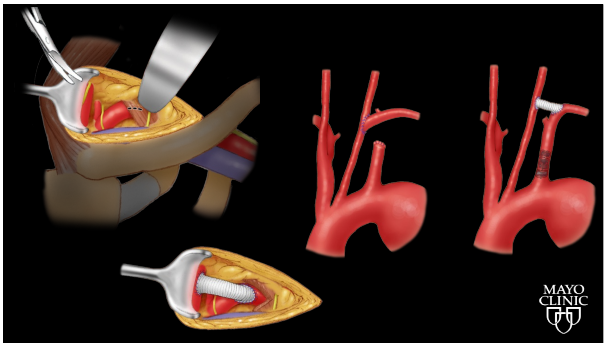

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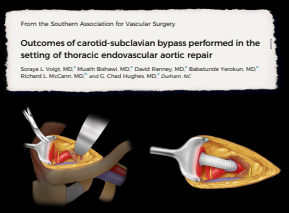
MORBIDITY OF CAROTID-LSA BYPASS

- 112 patients treated at single center
- Early complications in 29%
  - Phrenic nerve palsy in 25%
  - Recurrent laryngeal nerve in 5%
  - Axillary nerve in 2%
  - Neck hematoma requiring exploration in 1%
- Primary patency 97% at 5-years (3 occlusions)

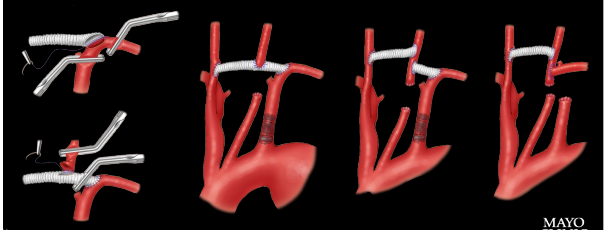

From the Southern Association for Vascular Surgery

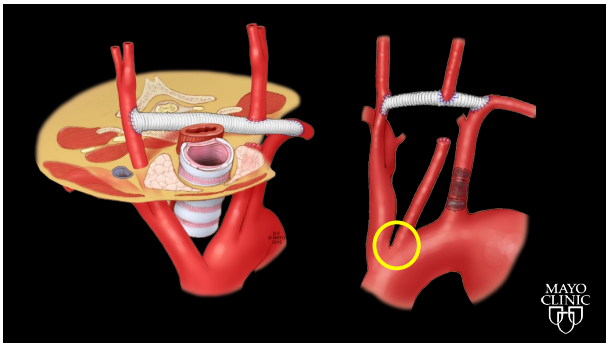
Outcomes of carotid-subclavian bypass performed in the setting of thoracic endovascular aortic repair

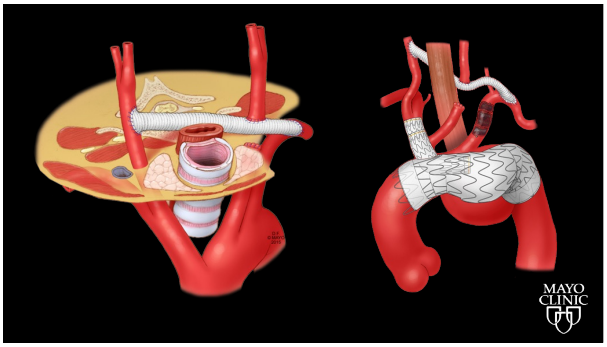
Soraya L. Voigt, MD,[a] Muaith Bishawi, MD,[a] David Ranney, MD,[a] Babatunde Yerokun, MD,[a] Richard L. McCann, MD,[a] and G. Chad Hughes, MD,[a] Durham, NC

Voigt et al. J Vasc Surg 2019

CAROTID-CAROTID-SUBCLAVIAN BYPASS

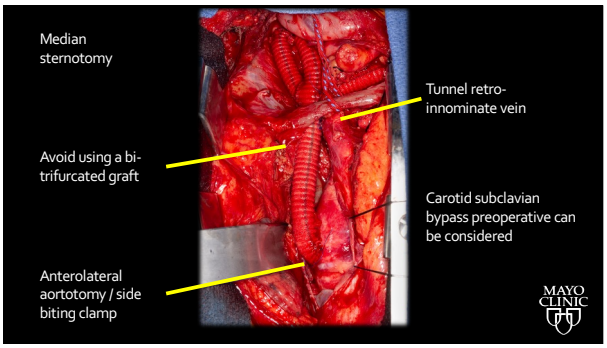






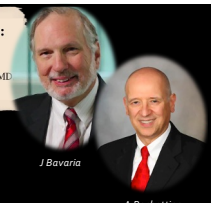
TOTAL ARCH DEBRANCHING

- Collaboration with CV surgery
- Normal or replaced segment of ascending aorta
- At least 2 cm of PLZ
- Poor distal targets for total endovascular repair can prove challenging in hybrid repair



Hybrid approaches in the treatment of aortic arch aneurysms: Postoperative and midterm outcomes

Joseph Bavaria, MD Prashanth Vallabhajosyula, MD, MS, Patrick Moeller, BS, Wilson Szeto, MD Nimesh Desai, MD, PhD, and Alberto Pochettino, MD



J Bavaria

A Pochettino

- 47 patients , mean age 71yo
- Technical success 100%
- Redo sternotomy in 14%
- In-hospital mortality 8%
- Stroke 8%
- Follow-up: 30 months
  - No endoleaks
  - 1 aortic reintervention

J Thorac Cardiovasc Surg 2013

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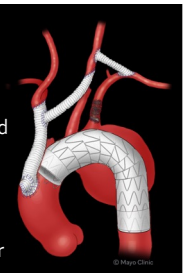
CONCLUSION



- Open aortic arch surgery remains the gold standard – but this status is being challenged
- Hybrid techniques for repair of aortic arch pathology have a role in select patients and circumstances
- As experience develops with novel endovascular arch devices, the indication for open and hybrid repair is likely to be progressively more limited

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