Techniques for Crossing Total Aorto-Iliac Occlusions to Improve Crossing Success and Decrease Complications

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Disclosures

- Amgen
- Astra-Zeneca
- Bard
- Boston Scientific
- CSI
- Mercator
- Spectranetics
- Tri- Reme
Background

- Treatment of aorto-iliac CTOs have evolved from open grafting to hybrid and endovascular only approaches

- Open procedures result in longer stays and major complications. The operative morbidity and mortality of this major abdominal operation in high-risk patients is not insignificant

- With advances in imaging and devices, endovascular procedures should be considered first; decreased length of stay, less major complications with comparable patency

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Percutaneous versus Surgical

• Aortofemoral bypass
  • Primary patency at 5 years of 81-85% 1
  • Perioperative mortality 5-8%
  • Reserved for severe, diffuse disease cases

CTO Algorithm

• Chronic Total Occlusion
• Patient Selection
• Access
• Wire
• Crossing Tool
• Re-entry device
Patient Selection Considerations

• Length of lesion

• Calcification / plaque burden

• Vessel diameter
  • IVUS for additional dimensions

• Inflow / outflow access
Proper Imaging of the vessels
Aorto-Iliac CTOs

• CTO Location / Complexity / Access

• Least complex CTO
  • External iliac CTO

• Moderate complexity CTO
  • Aorta CTO above bifurcation
  • CIA CTO below ostium

• Most Complex
  • Bilateral Aorta / CIA CTO
  • Long Aorta Infrarenal CTO
  • Flush occlusion of the ostial CIA
TYPES OF CTO CAPS

Figure 1. The four types of CTO caps found in the C-TOP study.
Interventions: Wires & Support Catheters

• Necessary for access
  • Access, crossing, delivery of devices
  • No wire, no treatment

• Selection is key
  • Length, diameter, torque, support (core), coating, tip shape, taper, durability

• Swap wires when needed

• Rely on multiple views
Interventions: Re-Entry Devices

- Entry devices
  - Consider multiple access points

- Re-entry devices
  - Pioneer catheter
  - Outback LTD
Treating Aortic-Iliac CTOs

1. Adjust access to optimize crossing
   a. Vessel size
   b. CTO length
   c. Tortuous / Calcification

2. Wire & Cath Selection
   a. Support or soft angled
   b. Straight or angled

3. Crossing the Occlusion
   a. Cross cap
   b. Wire should be optimized to access the cap.
   c. Advance catheter & remain luminal to avoid need for re-entry
   d. Cross distal cap
   e. Advance cath freely beyond CTO
   f. Aspirate & manually test contrast
   g. Pre-dilate with balloon
   h. Determine stent type (if stenting)
Endovascular Approach / Stenting
Summary

• With proper pre-procedure strategy, crossing and revascularization can be successful, and dissections can be minimized by wire and catheter selection with less of a need for re-entry

• Loss of primary patency in endovascular approaches is most often due to stent thrombosis or in-stent re-stenosis that is most often easily treated with a repeat endovascular approach

• Endovascular treatment of aorto-iliac occlusive disease has high technical success rates