Access is Everything: From Routine to Advanced in Peripheral Intervention

Nick G. Cavros, MD, FACC
Choices for Access

Where There’s an Artery, There’s a Potential Access Site
Considerations in Choosing Access Site

- Target area(s)
- Procedural needs
  - Sheath size
  - Devices expected to be used
- Clinical presentation
  - CLI vs claudication
- Body habitus
- Previous interventions/surgeries
Pre-procedural Work Up

- Routine
  - BMP
    - Renal function
- Imaging
  - Ultrasound
  - CTA
Femoral Access

• Predominant mode of access
  • Familiar
  • Most equipment made to work through femoral access

• Retrograde
• Anterograde
Using Fluoroscopy

- Excellent visualization of landmarks
- Can often visualize Calcium
Catheters to engage contralateral iliac artery

- RIM
- OMNIFLUSH
- MOTARJEME
- LIMA
Retrograde Femoral Access

- Engage contralateral iliac artery
- Advance wire as far as possible
- Switch for a crossover sheath
Iliac arteries
Iliac arteries
Anterograde Femoral Access

• Advantages
  • Easy manipulation of devices
  • Below the knee intervention
  • Avoids tortuous iliac artery anatomy
• Use micropuncture with fluoroscopic/ultrasound guidance
• Shallow angle to avoid sheath kink

Sheath entry may be higher than you would predict
Antegrade Femoral Access: Disadvantages

- Obese patients
- hemostasis
Upper Extremity Arterial Access

- Advantages
  - Aorto-iliac or ostial common iliac artery occlusion
  - Bilateral common femoral artery occlusion
  - Iliac bypass graft
  - Renal/Mesenteric Intervention
  - Patients on anticoagulation (Radial)
Upper Extremity Arterial Access

- Disadvantages
  - distance
    - Unable to deliver equipment past common femoral/mid SFA
  - Limited Sheath Size
  - Ulnar artery occlusion (Radial)
  - LIMA graft occlusion
  - Hemostasis
Popliteal access

- **Advantage**
  - Distal cap easier to cross
    - Long SFA occlusion
    - Ostial SFA occlusion

- **Disadvantages**
  - Prone position
  - Suboptimal for disease extending into popliteal artery
  - Proximity of popliteal vein

![Popliteal Access Diagram]
Pedal Access

- Essential part of a limb salvage program
- Alternative access to treat challenging CTO’s
  - BTK
  - SFA
Access

• Location
  • Dorsalis Pedis
  • Posterior Tibial
  • Peroneal

• Methods of Access
  • Angiographic
  • Ultrasound guided
Angiographic

- Inject dye from contralateral approach
  - Cannulate vessel under direct fluoro guidance
- Advantages
  - Comfort level
  - No need for ultrasound

- Disadvantage
  - Radiation/Contrast
  - Inability to visualize the vessel in 3D plane
  - Patient movement
Pedal Access Using Fluoro
Ultrasound

- Advantages
  - No radiation exposure
  - Higher level of detail for access (plane of artery, artery vs vein etc)

- Disadvantage
  - Experience with ultrasound access
Tips for a successful pedal access

• Pretreat to prevent spasm
  • Papaverine/Nitro
  • Verapamil/cardene

• Short micro-puncture needle to improve control

• Pedal access kits available

• Flatten the needle as you insert micro-puncture wire

• Wire must move freely

• Confirm with fluoroscopy or ultrasound
Pedal Access

Short micro-puncture needle
Maintaining arterial access

- “Bare-Back” with .018” end-hole catheter
- 4F – 5F sheath
- Additional vasodilators
- Anticoagulation

Inner dilator of 4F micro-puncture sheath
Conclusion

- Multiple arterial access sites are available
- Choice is based on patient anatomy and procedural needs
- Become familiar and comfortable with all types of access
- And….Be gentle
Thank You!
Access is Everything: From Routine to Advanced in Peripheral Intervention

Nick G. Cavros, MD, FACC