Puncture Technique for Retrograde Approach in the Lower Extremity Intervention

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Disclosure

Speaker name: Chang-Hwan Yoon

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

I do not have any potential conflict of interest
Transpedal approach

- The most common retrograde puncture technique
- Possibility at the supine position
- Higher success rate of crossing the lesion
- Easy for hemostasis
- Less bleeding complication
- Time saving in difficult cases for antegrade or transcollateral wiring
Transpedal approach

• Materials and Devices
  • Pretreatment: 200ug nitroglycerine
  • Anesthesia: 2% Lidocaine
  • 21G needle
  • 0.014 or 0.018 guidewire
  • Supporting catheter (CXI) or dedicated sheath (4Fr, Cook)
Transpedal approach

• Materials and Devices
Transpedal approach

- Guidance of puncture
  - Fluoroscopic guidance
    - Contrast injection with/without a pressurized cuff for contrast stasis
    - Heavy calcification
  - Ultrasonographic guidance
    - Less radiation exposure
    - No contrast use
Transpedal approach

• Guide of puncture
Transpedal approach

- Puncture sites
  - Dorsalis pedis artery
  - Distal posterior tibial artery
  - Peroneal artery
  - Metatarsal artery
A case of Dorsalis pedis artery puncture
A case of Dorsalis pedis artery puncture

- Critical foot ischemia
- Heavily calcified tibial arteries
- Distal ATA and PTA occlusion
A case of Dorsalis pedis artery puncture

- Intraluminal antegrade wiring failed.
- Subintimal wiring was not crossable at the distal calcified lesion.
A case of Dorsalis pedis artery puncture

- DPA puncture
- Retrograde wiring
A case of Dorsalis pedis artery puncture

- Astato 20 CTO wire (Asahi)
- Successful crossing the calcified lesion
A case of posterior tibial artery puncture
A case of posterior tibial artery puncture

- Critical limb ischemia
- Hx of femoro-PTA bypass surgery using vein graft
- Graft stenosis and PTA & ATA occlusion
A case of posterior tibial artery puncture

- After the graft intervention
- DSA: PTA & ATA occlusion
A case of posterior tibial artery puncture

- Anterograde wiring to distal PTA
- Failed to reenter the distal true lumen
A case of posterior tibial artery puncture

- Distal PTA puncture
- Successful crossing the lesion using CART technique
A case of posterior tibial artery puncture

- Long balloon inflation
A case of posterior tibial artery puncture
- Final results
Peroneal artery puncture

- Deep seated
- Longer puncture needle
- Through membrana interossea
- *En face* and tangential projection
A case of metatarsal artery puncture

Dorsalis pedis and plantar artery occlusion, with patency of the plantar arch and very thin first metatarsal artery

Palena LM, J Endovasc Ther 2012;19;805
A case of metatarsal artery puncture

Retrograde access in the first metatarsal artery retrograde wire navigation in first metatarsal artery, the plantar arch and the lateral plantar artery. Rendez-vous in the posterior tibial artery.

Palena LM, J Endovasc Ther 2012;19;806
A case of far distal posterior tibial artery puncture
Transtibial approach

• Proximal anterior tibial artery or distal popliteal artery at supine position
• 21G Long needle
  • Spinal puncture needle
• A good puncture site for retrograde approach of SFA intervention
Hemostasis of the puncture site

- Endoluminal long-term balloon inflation
- External pressurized cuff application
- Manual compression
Conclusions

Transpedal or transtibial puncture technique

saves time

increases success rate

and is an essential technique in lower extremity intervention.
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