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Retrograde pedal access can be safely and effectively obtained using a wire with an articulating tip

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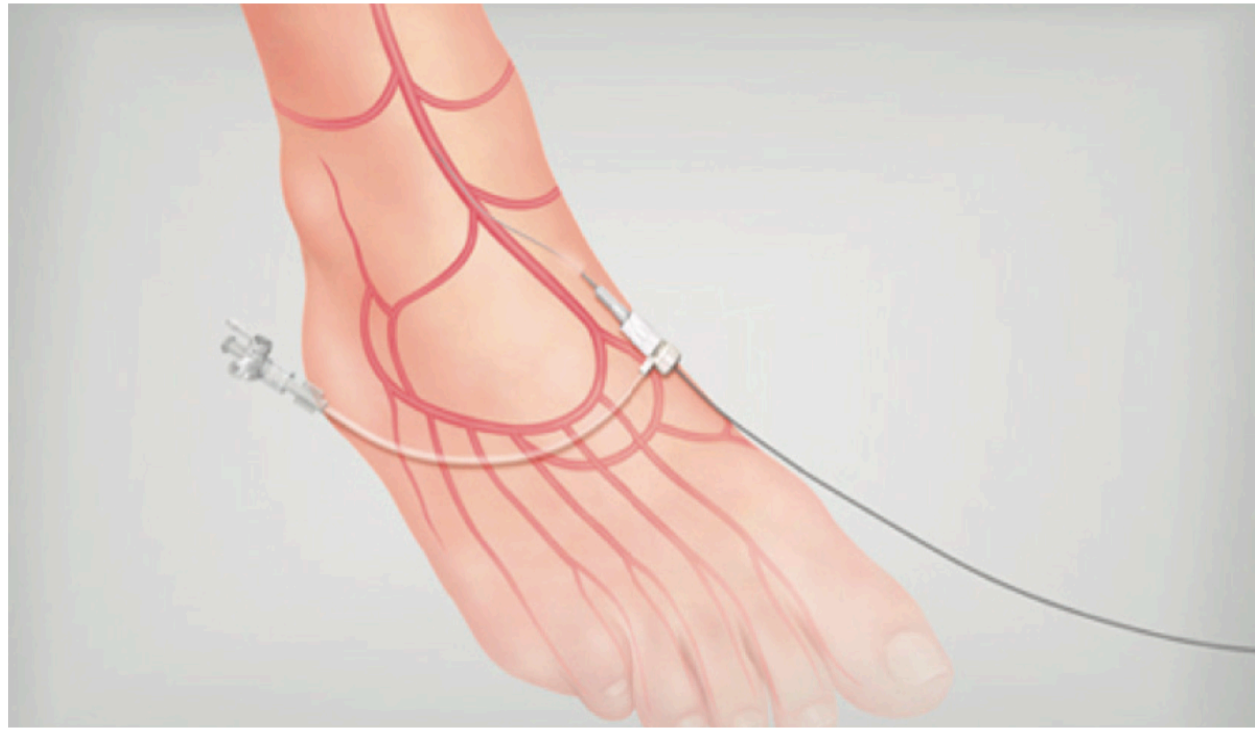

Image courtesy of Cook Medical

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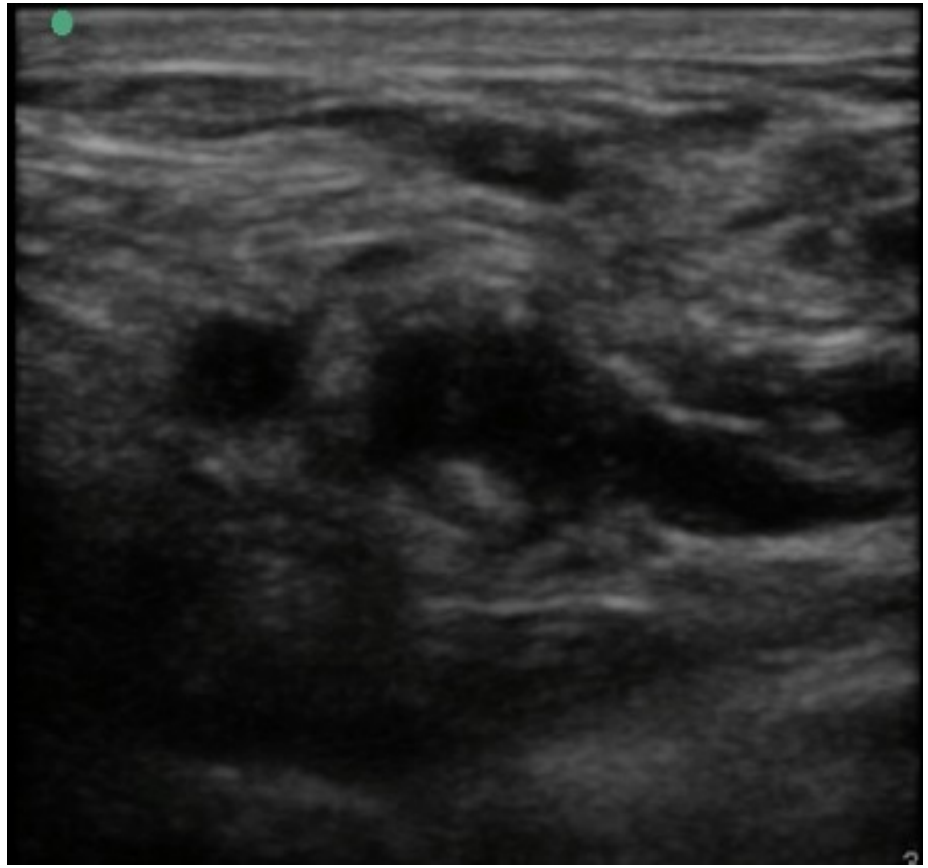
Retrograde Pedal Access

1. Retrograde pedal access is a well-established approach in treatment of peripheral arterial occlusive disease and resulting ischemic symptomatology.

2. The approach can be challenging, since these small and often diseased arteries (1 mm – 3 mm typical size) can be difficult to access and cannulate.

3. Pedal access may require multiple access attempts. While data is limited, it is likely that access site complications (acute or late vessel occlusion) increase when access requires multiple attempts at multiple locations in the vessel.



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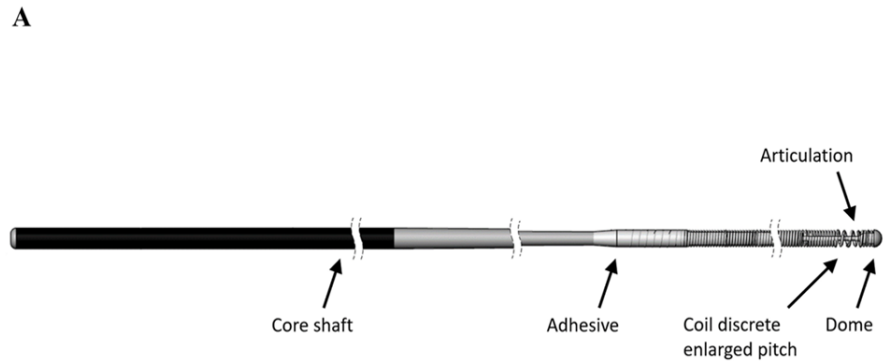
Study set-up and device

1.TalWire is a novel, small-core-diameter, articulating-tip access guidewire (Argon, Plano TX).

2.TalWire is 0.018“ or 0.021“. The 0.018“ wire was used in this study. Available wire lengths – 40 cm, 60 cm.



Schematic view of the guidewire

Guidewire emerging from the needle and contacting the vessel wall

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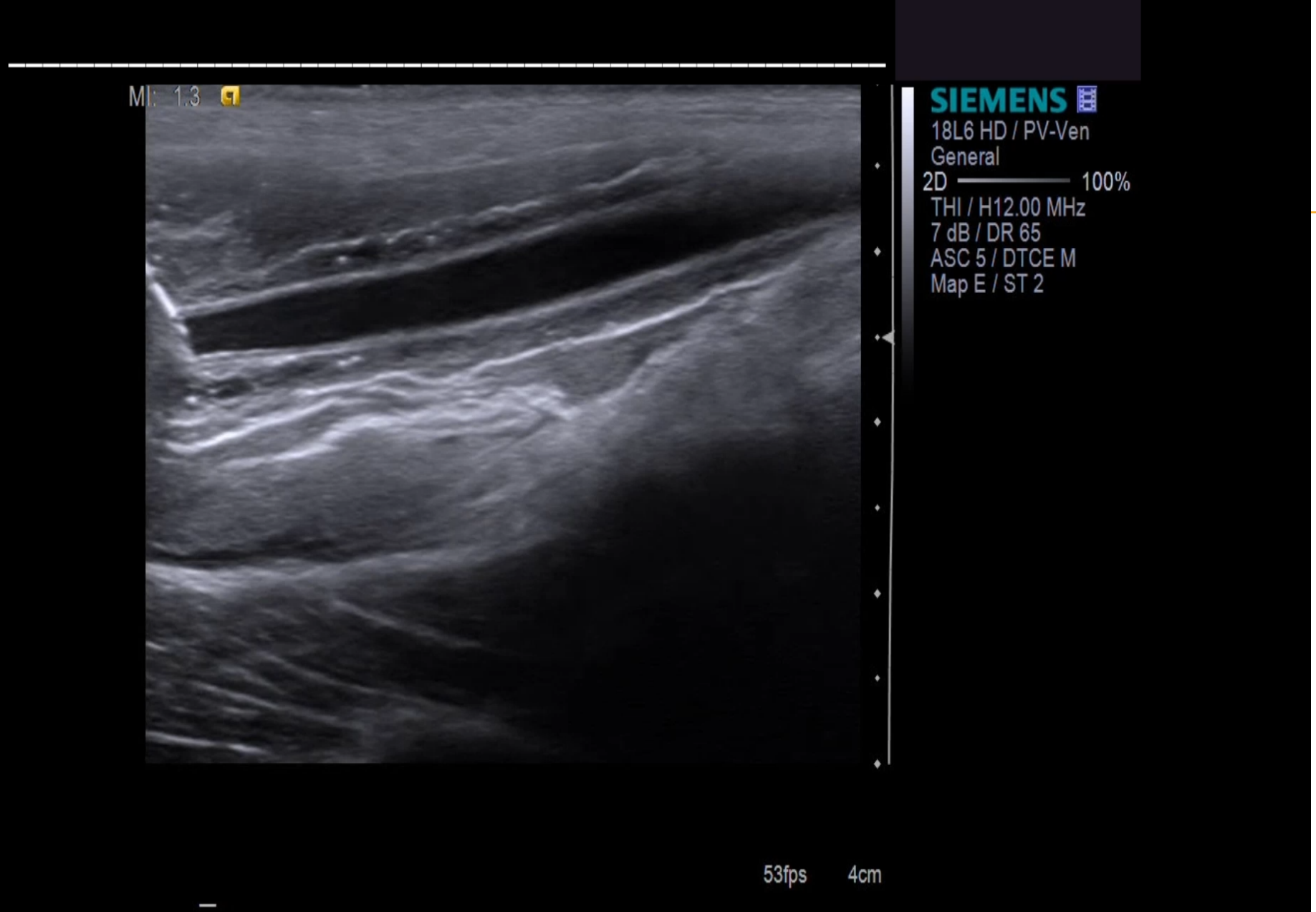
Visual representation of retrograde radial artery access (similar to pedal access)



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Extravascular ultrasound visualization of retrograde radial artery access (similar to pedal access)

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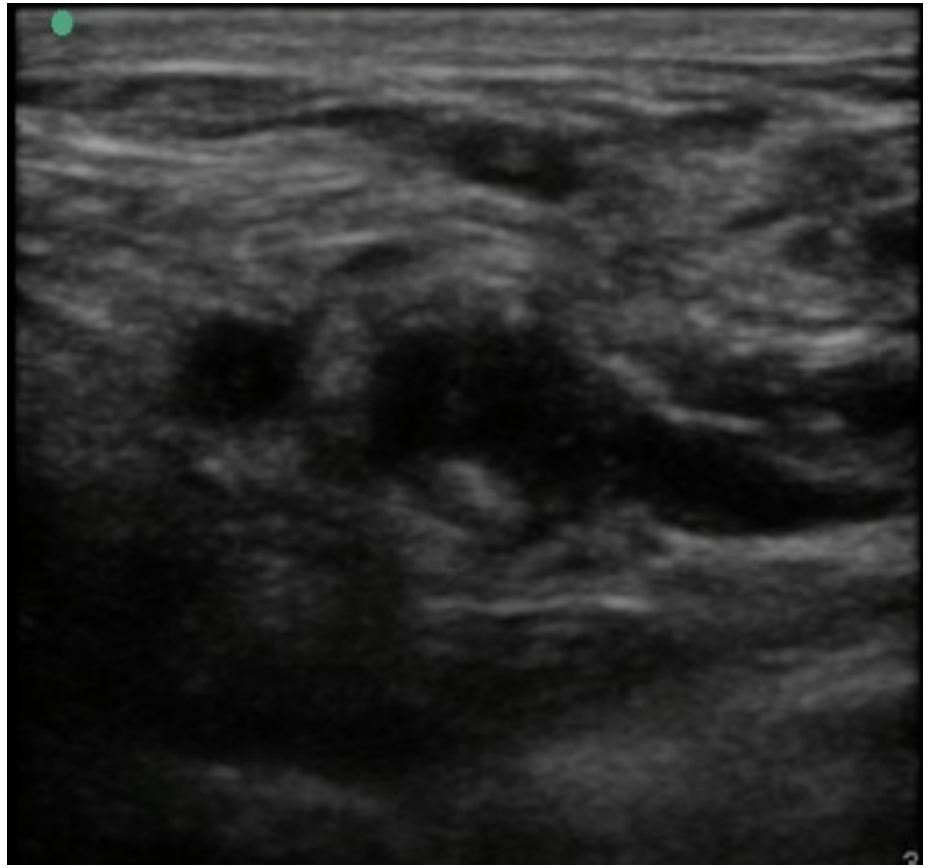
Study Location / Operators

1.Single-center retrospective study with TalWire

2.Two operators (one Interventional Cardiology, one Interventional Radiology)



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- **Pharmacologic Therapy:** This was per usual standard in our practice which includes
  - High dose heparin intra-procedure (60 - 100 U / Kg)
  - Nitroglycerin intra-procedure (100 mcg – 2500 mcg)
  - Post procedural treatment with antiplatelet theapy (aspirin or plavix), xarelto (2.5 mg bid), and nitroglycerin paste or nitroglycerin patch for 2 weeks

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- **Patients**: All comers with peripheral arterial disease in whom tibial access was attempted between August 2024 and February 2025 using the TalWire. Only patients in whom 30 day follow-up ultrasound data were available were included. Patients in whom occluded vessel access was performed (occluded vessel access technique / modified Schmidt access) were not included.

- **Imaging guidance**: Real time ultrasound guidance was used in all cases. Post-procedural ultrasound was performed after hemostasis was achieved with manual compression, to evaluate the accessed vessel patency and rule out complications. Patients had imaging of the access site at 30 days +/- 7 days, which is standard protocol in our practice

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- **Outcomes**:
  - First attempt guidewire insertion success – meaning passage of the wire into the true lumen of the vessel with a single needle puncture
  - All attempt guidewire insertion success – meaning passage of the wire into the true lumen of the vessel with any number of needle punctures
  - post-procedural patency and 30-day patency of the accessed vessel on ultrasound;
  - incidence of access site complications (hematoma, pseudoaneurysm, acute vessel closure)

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- **Results**: Records of 91 attempted access procedures were reviewed (right anterior tibial– 41, left anterior tibial– 41, right posterior tibial – 6, left posterior tibial – 2, left dorsalis pedis – 1)
- **Safety**: no access-site complications, such as occlusion, extravasation, or pseudoaneurysm.
- **Effectiveness**:
  - first-attempt guidewire insertion success rate – 97% (88/91)
  - all-attempt guidewire insertion success rate – 100%
  - post-procedural patency of the accessed vessel on ultrasound – 100%
  - 30-day patency of the accessed vessel on ultrasound – 99% (90/91)

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- **Results:** The isolated incidence of 30 day vessel occlusion was clinically silent (asymptomatic). Diameter of the ATA < 1.5 mm, with extreme spasm on device insertion. However, patient had Rutherford 4 disease and declined to allow angiogram to be performed unless it was performed from a pedal approach. Other than this single incidence, all other accessed vessels remained patent at 30 days.

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Diagnostic angiogram

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Intervention -

balloon angioplasty

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Follow-up angiogram

Follow-up angiogram reveals improved flow through the treated anterior tibial artery with <10% residual stenosis

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CONCLUSIONS

- Tibial-pedal access was successfully obtained in all case using the articulating-tip guidewire.
- The first-attempt success rate is exceptionally high.
- No peri-procedural complications noted.
- Post-procedural patency of the accessed vessel is durable.
- **The articulating-tip guidewire is effective and safe for its intended use.**

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THANK YOU FOR YOUR KIND ATTENTION