Ultrasound & Peripheral Arterial Interventions

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Disclosures:

Consultant:

- Abbott Vascular
- Cardiovascular Systems Inc
- Bard Peripheral Vascular

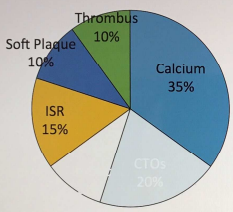
CTO CROSSING

ACCESS OPTIONS

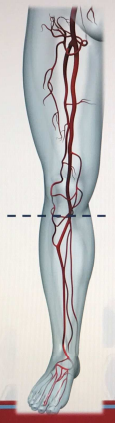
CTO CROSSING

Lesion Characteristics Differ by Location

Above the Knee[1]

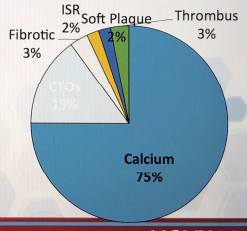


- Multiple plaque types (mixed morphology)
- Large plaque burden[2]
- Medium to large vessels (4-9 mm)



Below the Knee[1]

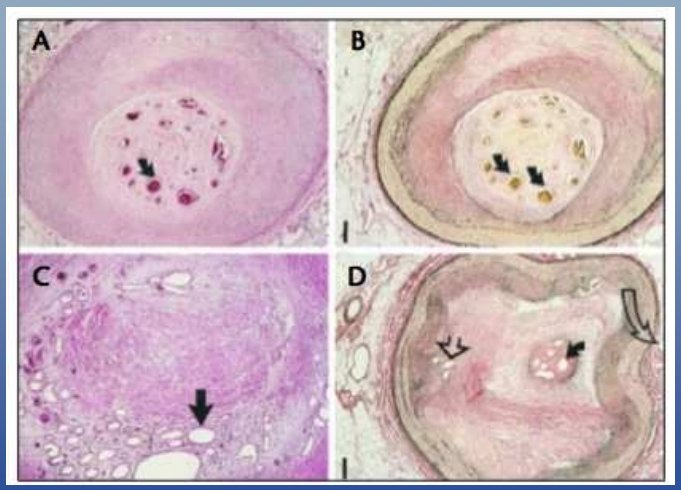
- Lesions more commonly calcified
- Dense calcium comprises a greater percentage of plaque (27% in tibial vs 12% in popliteal plaque)[2]
- Small vessels (2-3.5 mm)
- Tortuous anatomy



1. VIVA 2011 survey – 100 physicians surveyed.
2. Bishop et al. Ann Vasc Surg. 2008;22:799-805.

NCVH 2015

CTOs



Dr. S. Venkatesan. When does an ATO become a CTO following a STEMI? May 2015

CTOs

CTOs result in:

- Prolonged procedure time
- Increased radiation exposure
- Higher contrast volume
- Higher chance for dissection, AVF, and perforation
- Higher likelihood for stent placement

- 20% or greater failure rate to cross a CTO depending on the experience of the operator

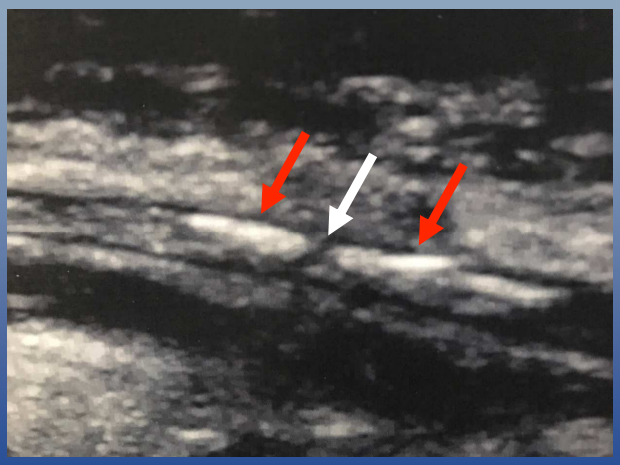
Usman Javed MD, John R. Laird MD. Specialty Crossing Devices: Understanding the Learning Curve Technical Pearls and New Devices for Crossing Peripheral CTOs. Endovascular Today, May 2012.

Heuser R. New tools for treatment of chronic total occlusions of the peripheral arteries. AMP Show Daily. 2016; August 11:8,10. Chronic Total Occlusions (CTO). Peripheral Intervention, Vol 24, Issue 12, Dec 2016.

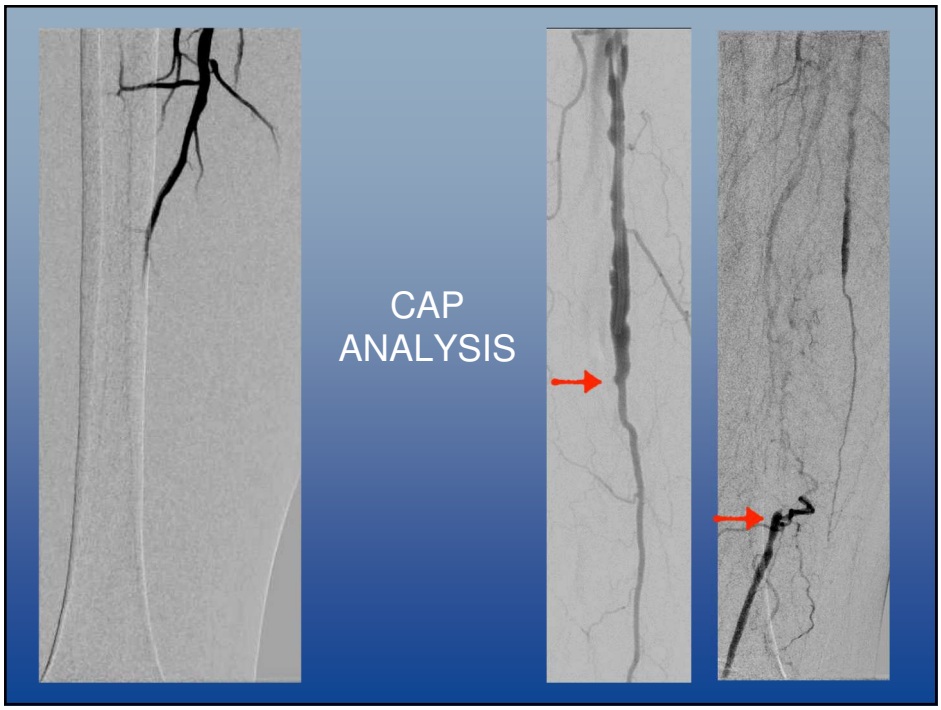
WHITE STOP SIGN

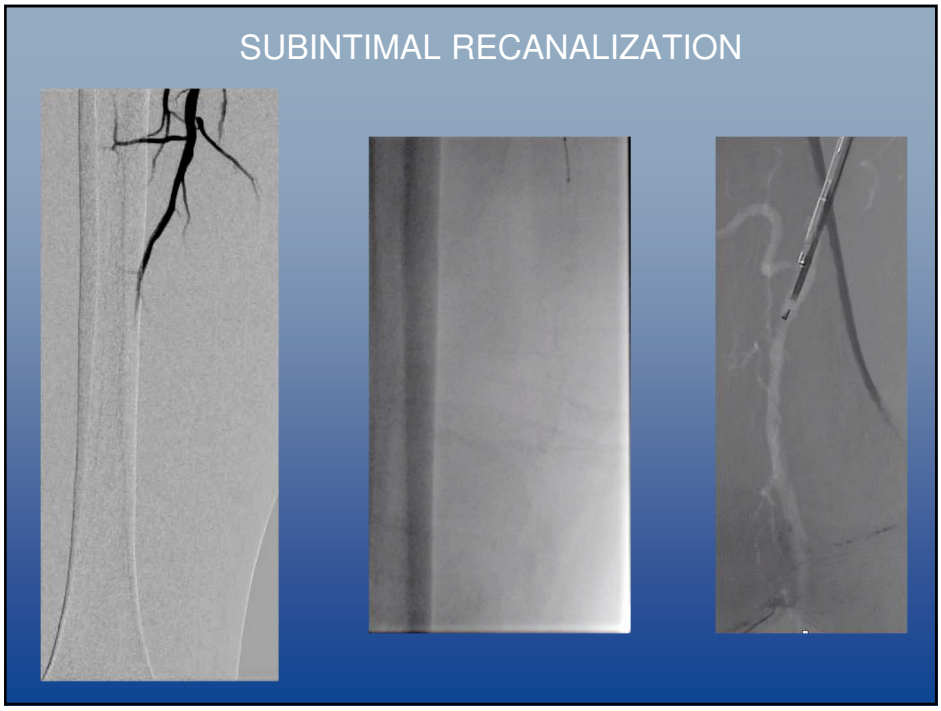
Mustapha, J., Saab, F., My Favorite Wires in Tibial and Plantar Circulation: A Case-Based Presentation. Cath Lab Digest, 2018. 26(2).

JENALI GAPS - Negatively Remodeled Arterial Wall



Mustapha, J. Patterns of Vessel Calcification in BTK arteries and Implications for Vessel Preparation and Atherectomy. in LINC. 2018.


CAP
ANALYSIS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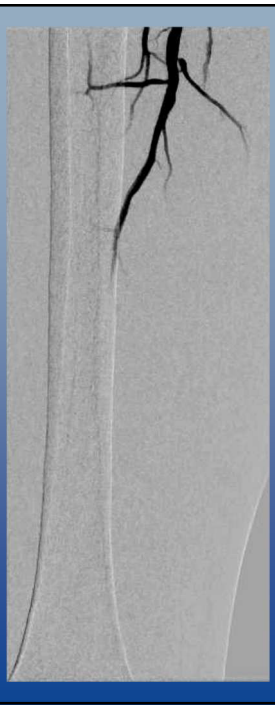
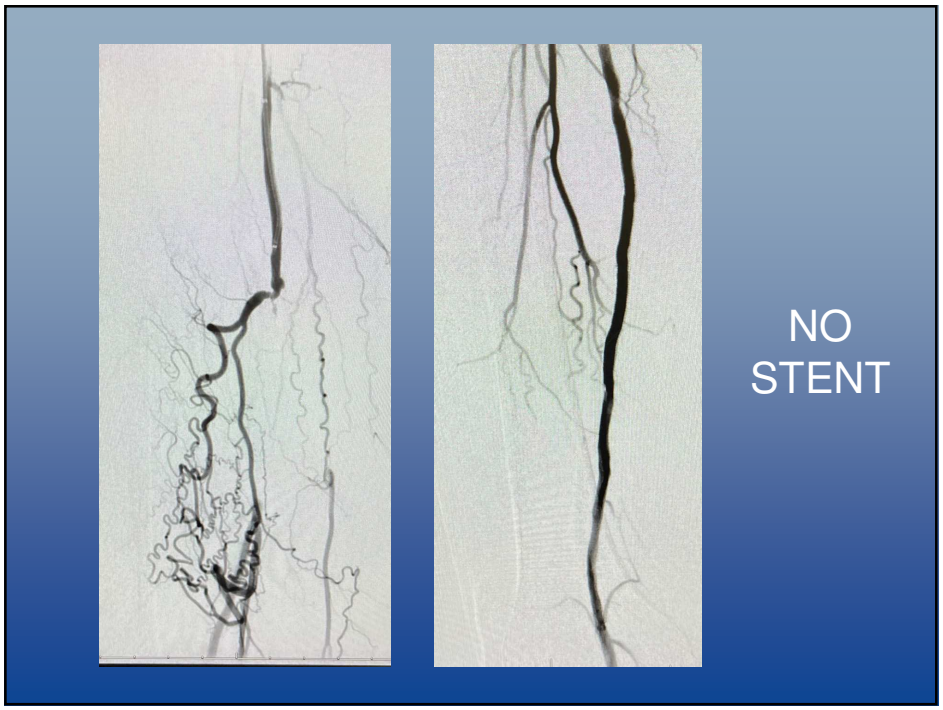
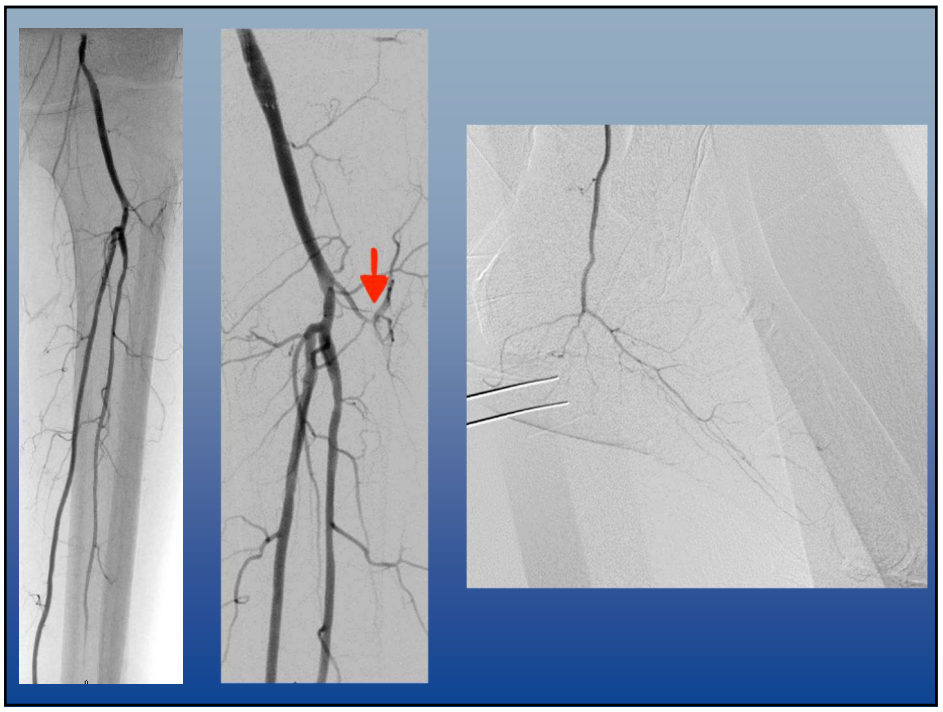
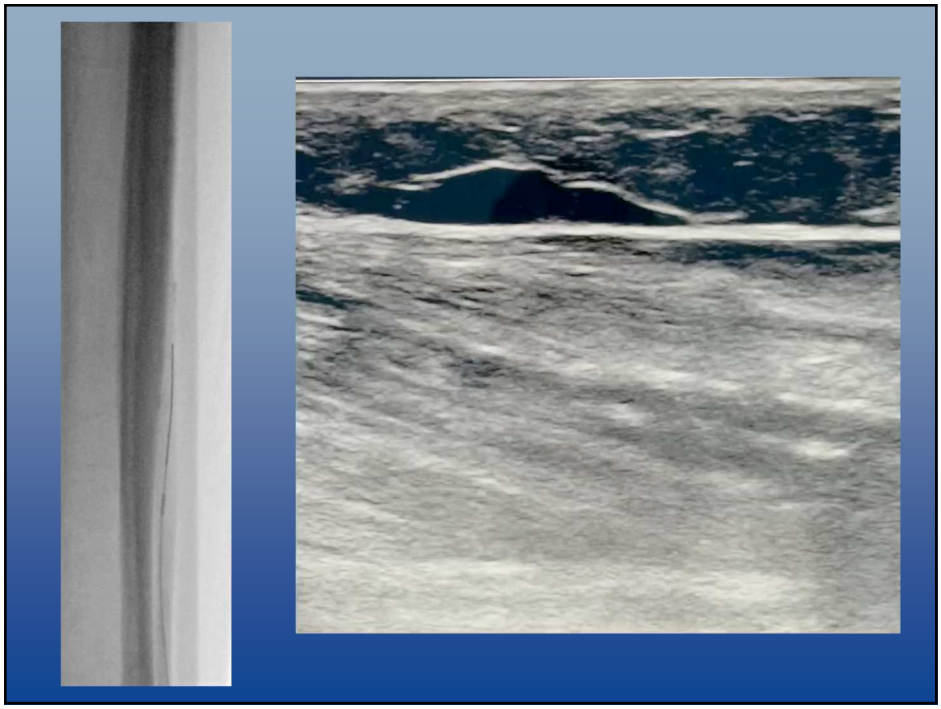


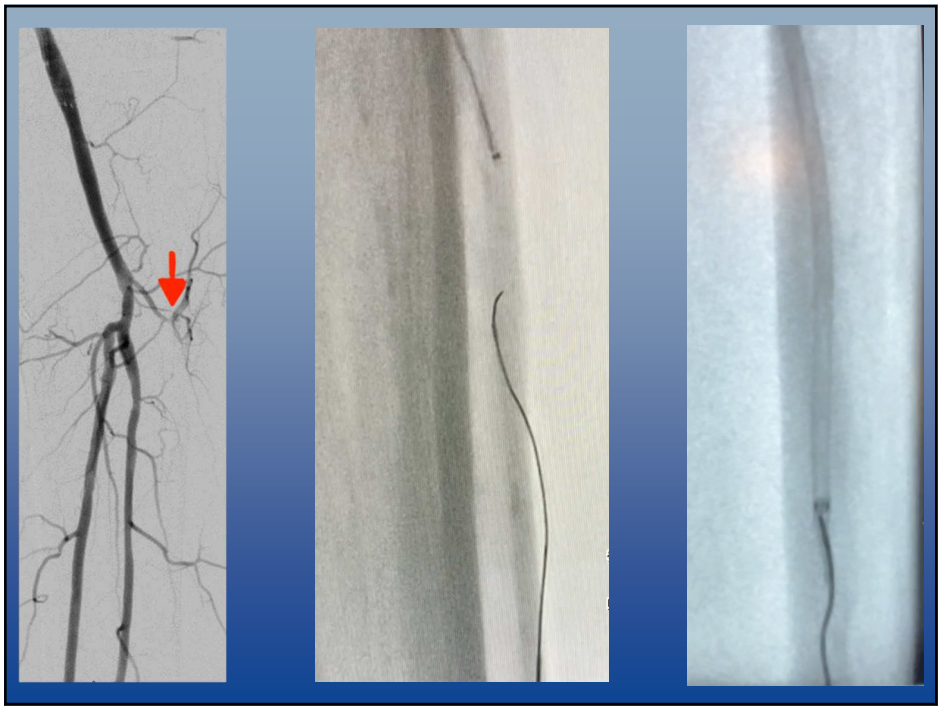
STENT

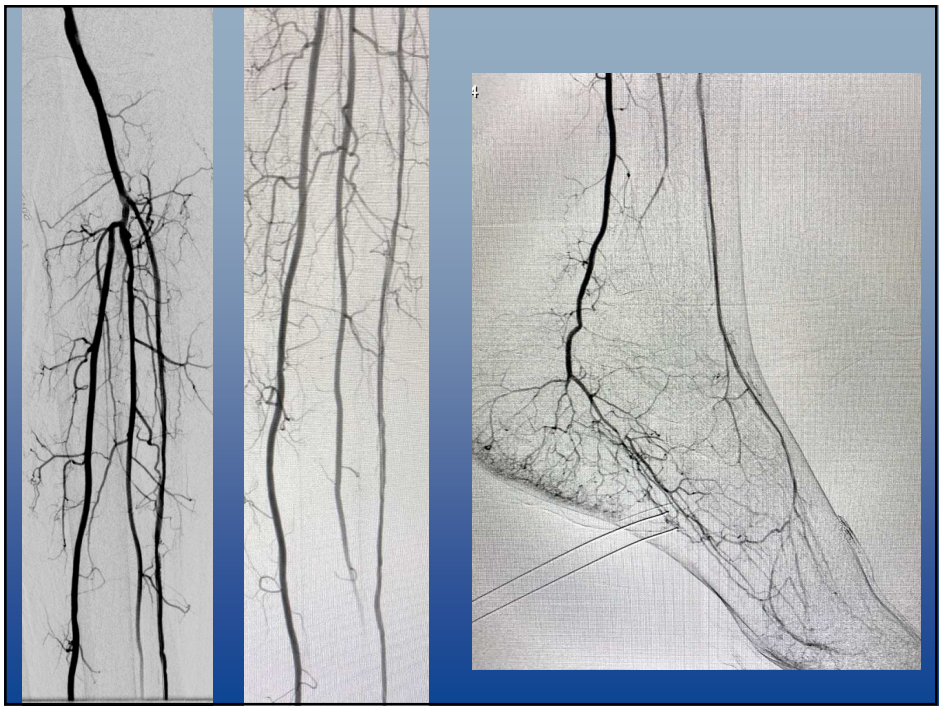
INTRALUMINAL RECANALIZATION

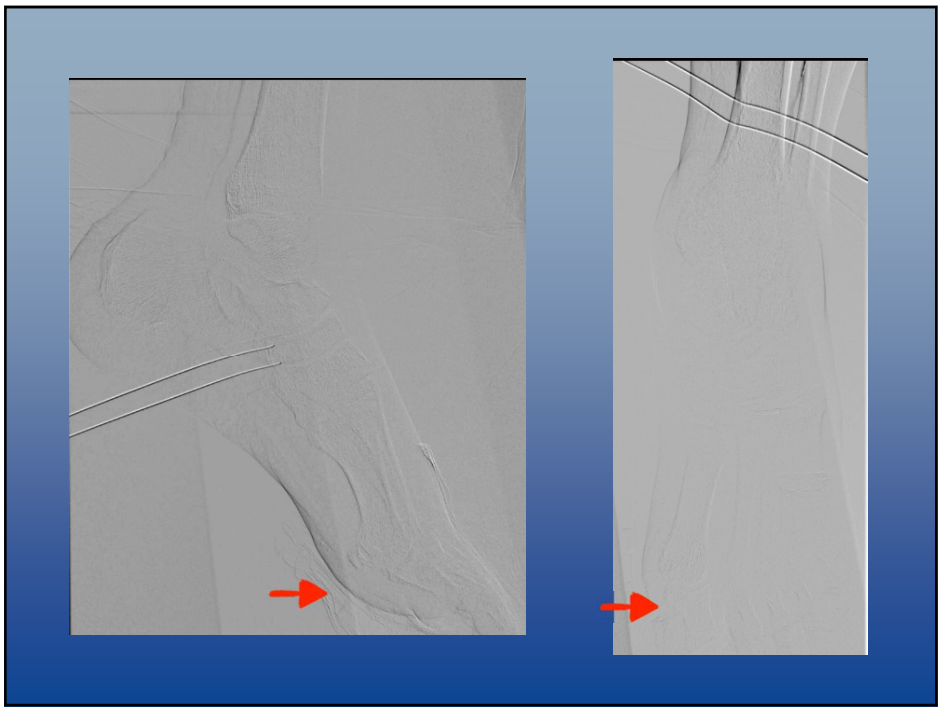

NO
STENT

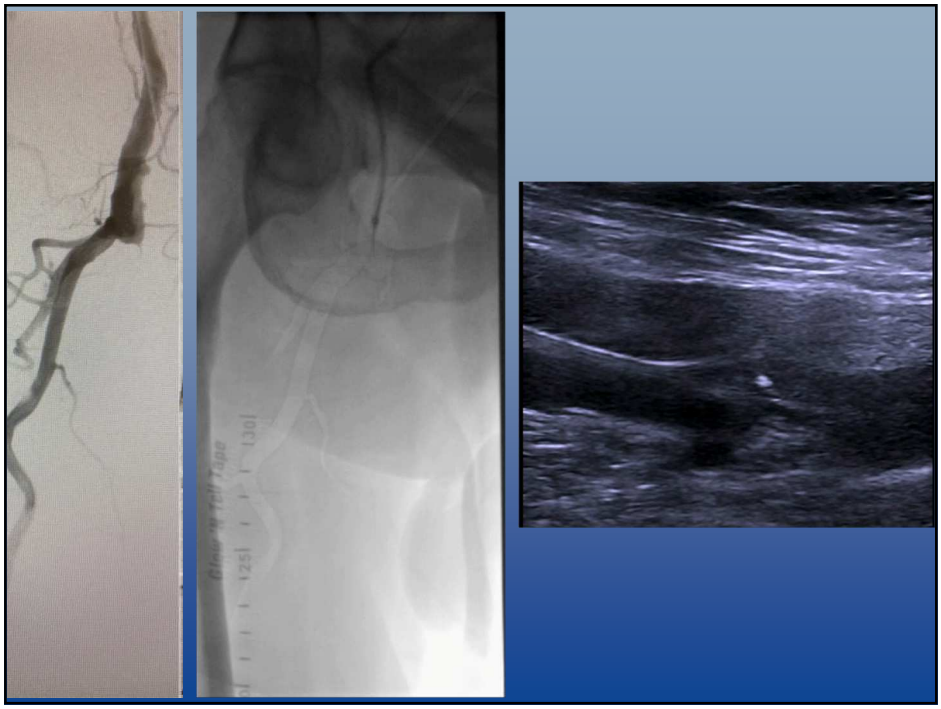


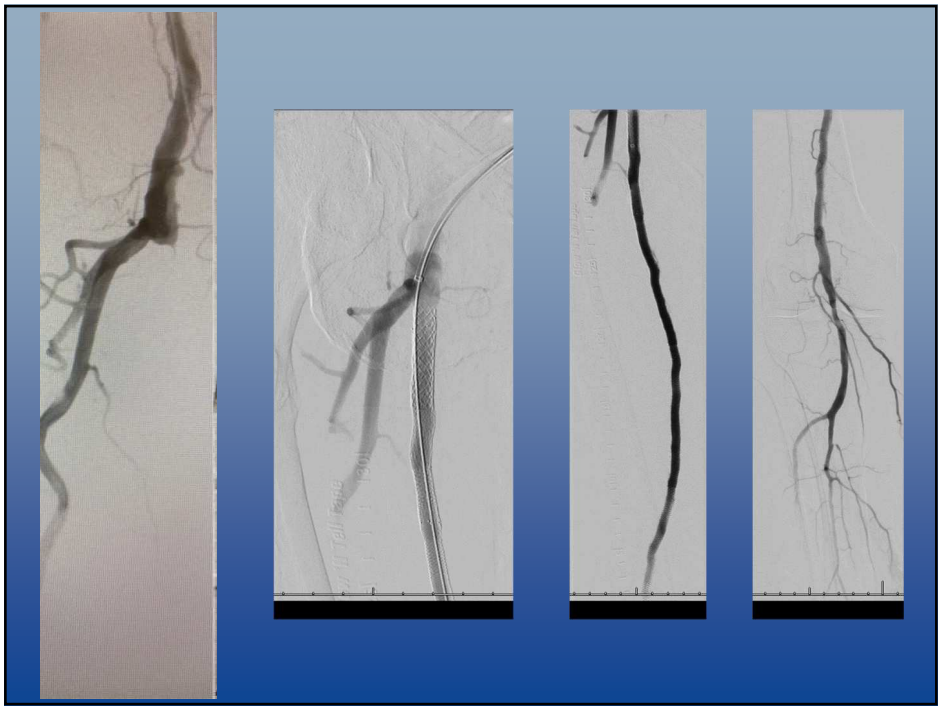


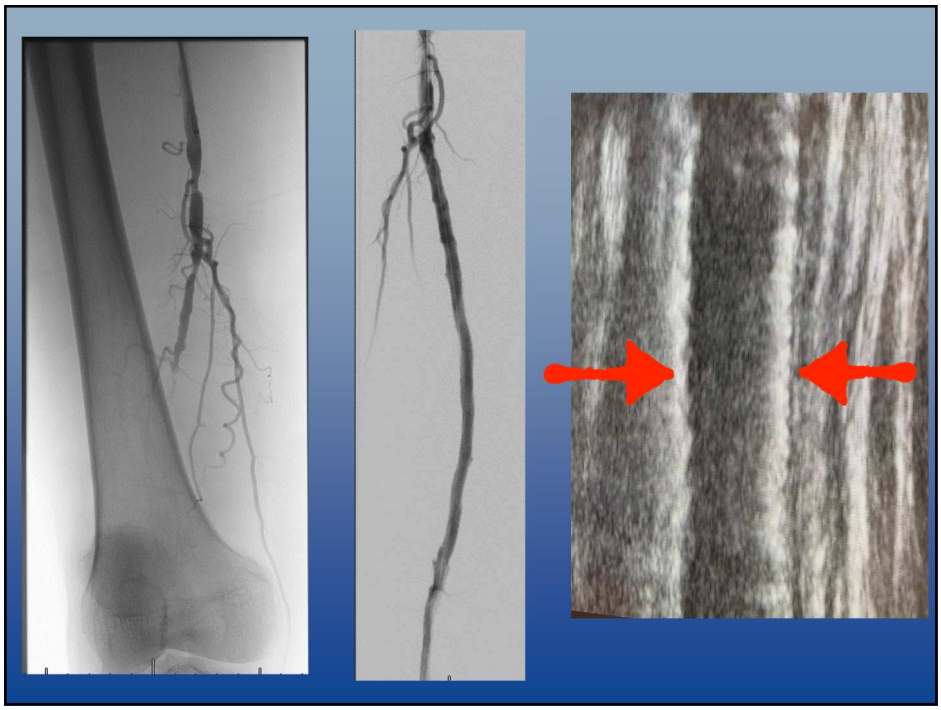


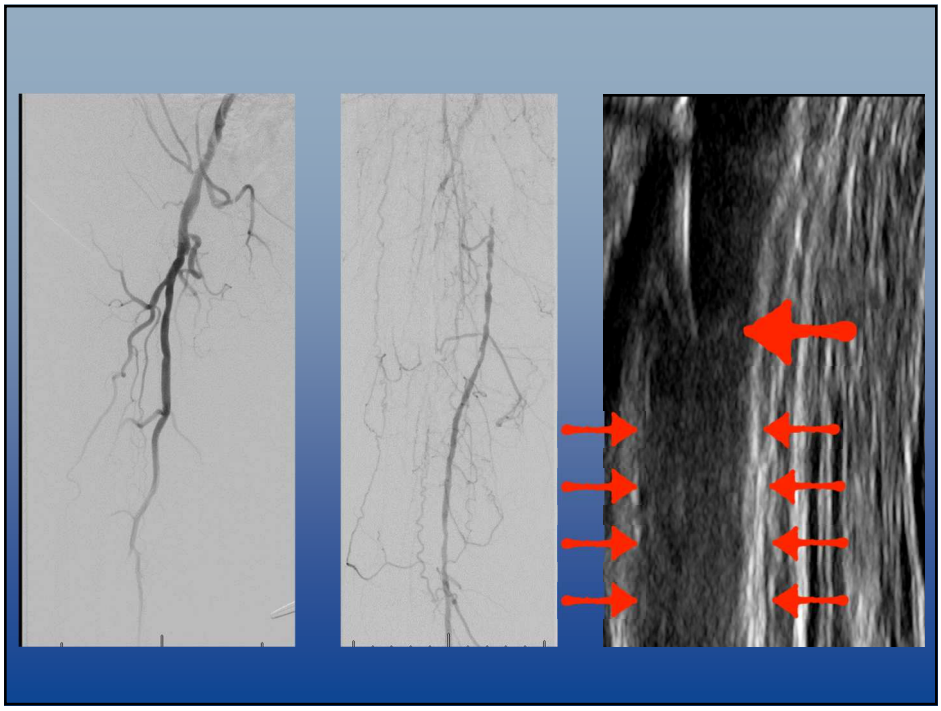


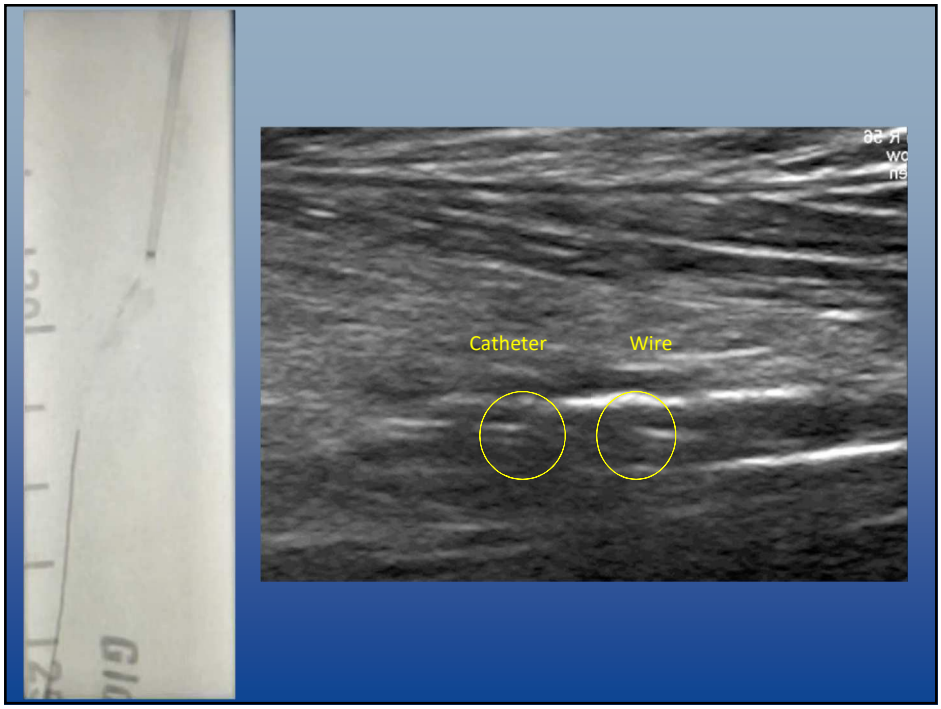


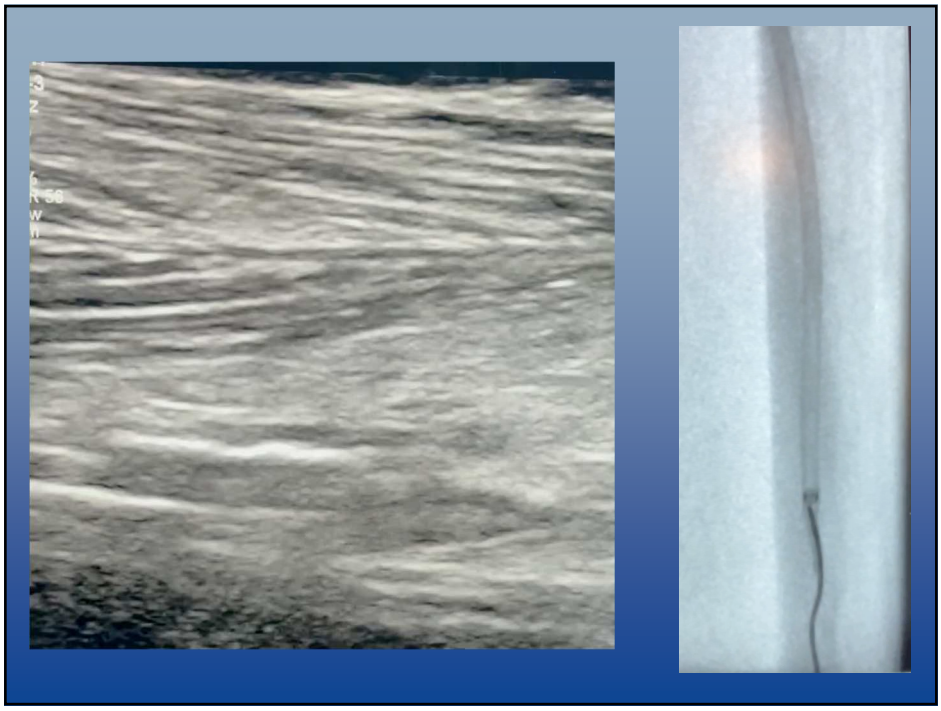


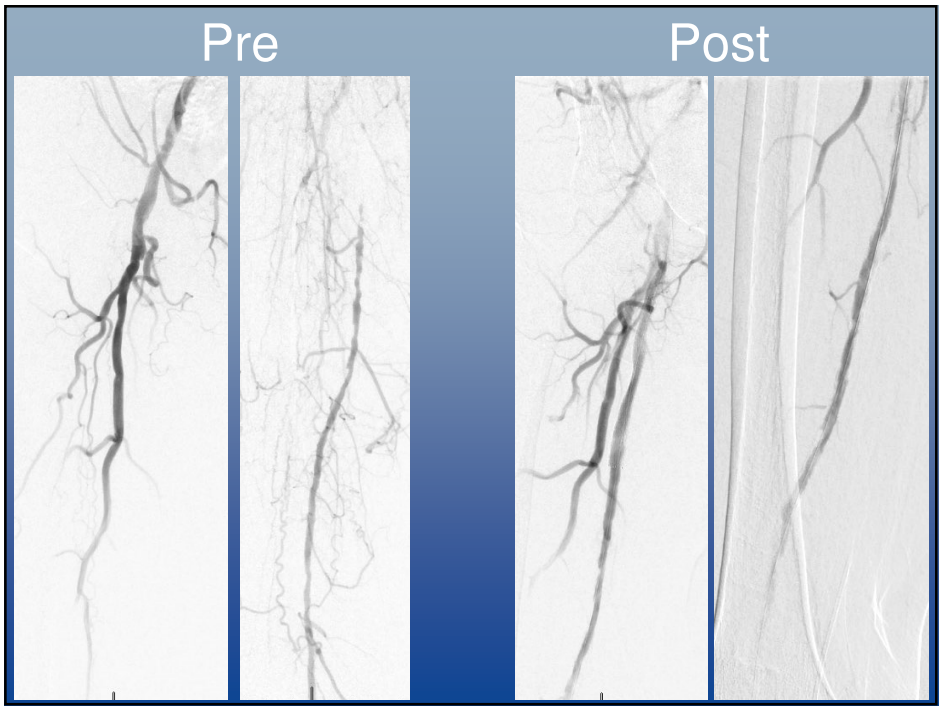






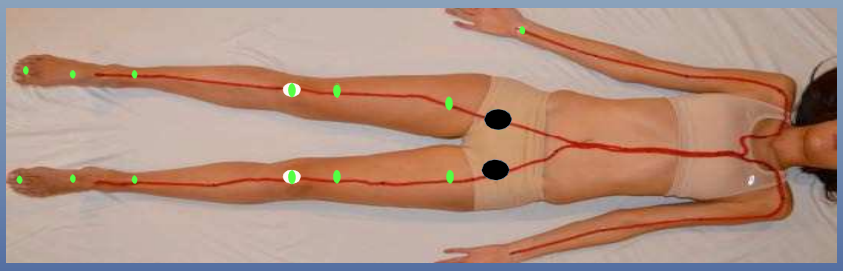

Catheter
Wire





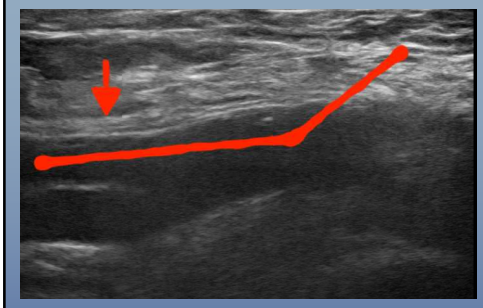
ACCESS

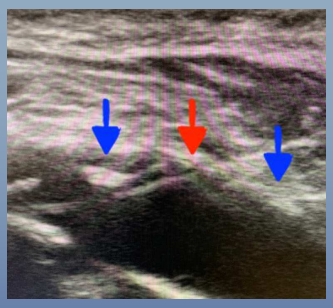
Access Options

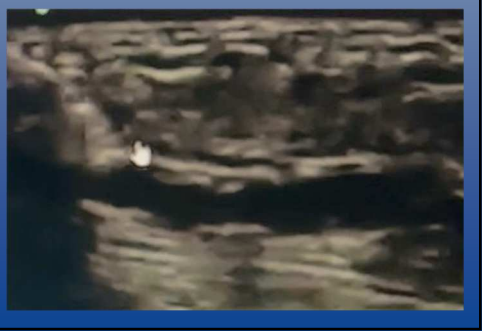


* Larry Diaz-Sandoval

ANTEGRADE ACCESS







Pedal Access

Pedal Access

Ant Tibial

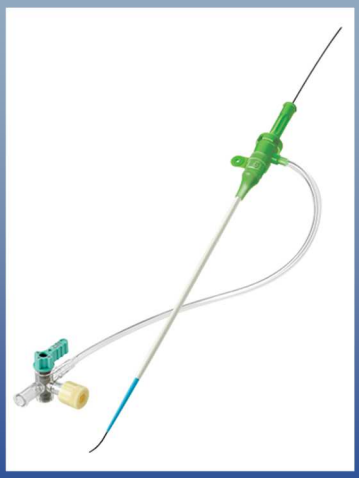
Peroneal

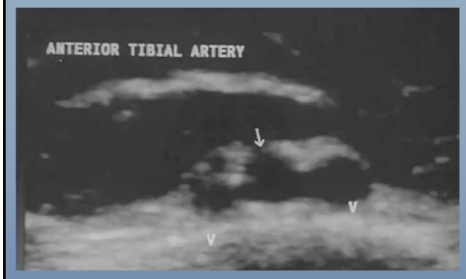
Post Tibial

Jihad A Mustapha, Larry J Diaz-Sandoval, Fadi Saab. Tibial-pedal arterial access & retrograde interventions for advanced peripheral arterial disease & critical limb ischemia. Spe


Calf
muscles
Gastrocnemius
Soleus
Achilles tendon

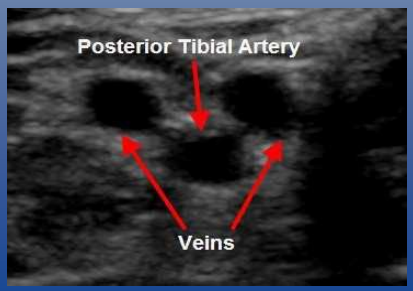

Approach® Hydro ST
Microwire Guide
Advance Micro® 14
Ultra-Low Profile PTA
Balloon Catheter
Approach® CTO
Microwire Guide
Micropuncture®
Pedal Introducer
Access Set
CXI®
Support Catheter




ANTERIOR TIBIAL ARTERY


PEROA


POSTERIOR TIBIAL ARTERY


Posterior Tibial Artery
Veins

Why Pedal Access?

- CTOs (chronic total obstruction)
- Morbid Obesity
- Hostile Groin
- Severely Diseased CFA
- Unable to lay flat
- Acute angulation aortic bifurcation; congenital or S/P aorto-bifemoral graft

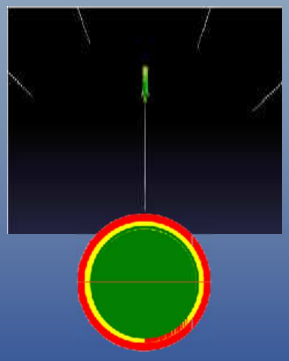
TAMI Technique

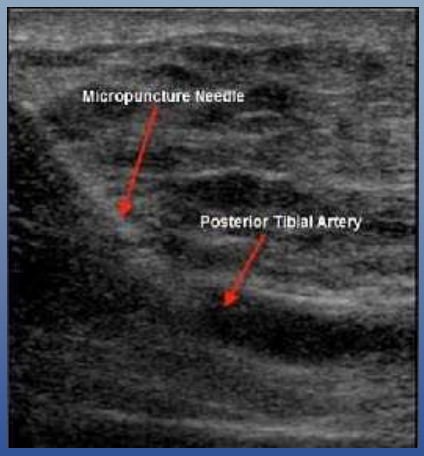
- Tibiopedal arterial minimally invasive retrograde revascularization
- Ability to treat arterial disease from below without access from above.

Pedal Access Advantages

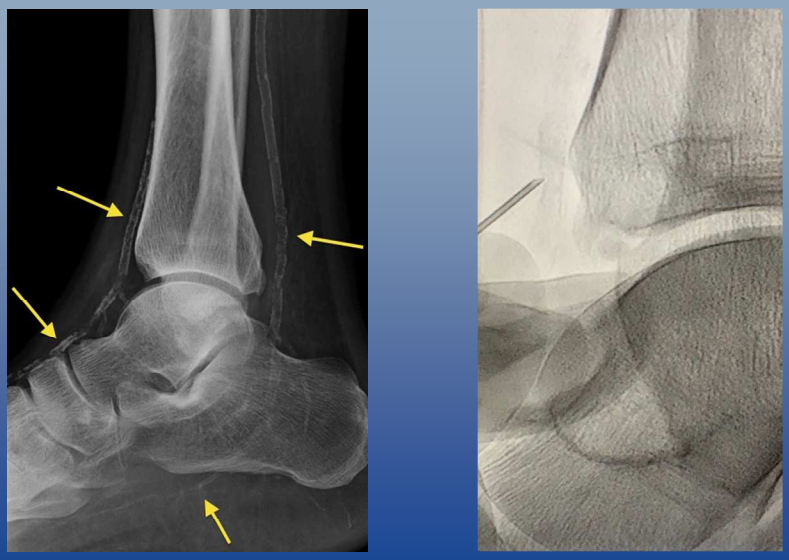
- Quick and easier hemostasis leading to less complications compared to antegrade CFA or SFA access.
- Quicker time to ambulation.
- Quicker discharge.
- Sometimes less procedure total time and fluoroscopy time, less contrast can be used while obtaining better image quality.

Ultrasound Guided Access





Fluoroscopy Guided Access

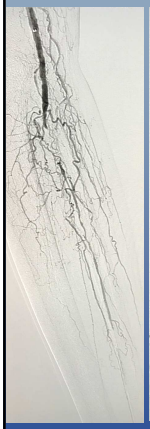


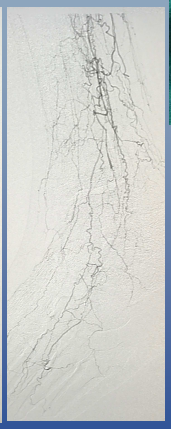
Contrast Guided Access

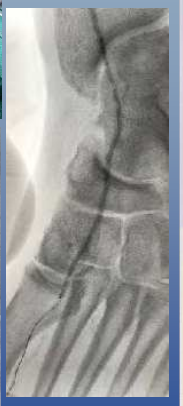
Digital Artery Access

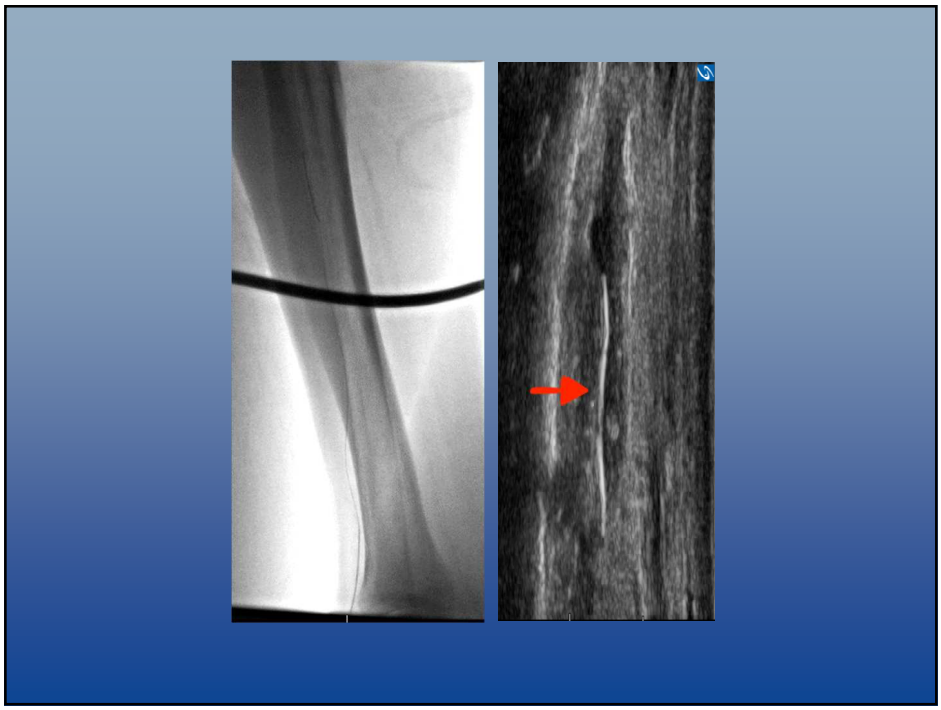
* Art Lee MD

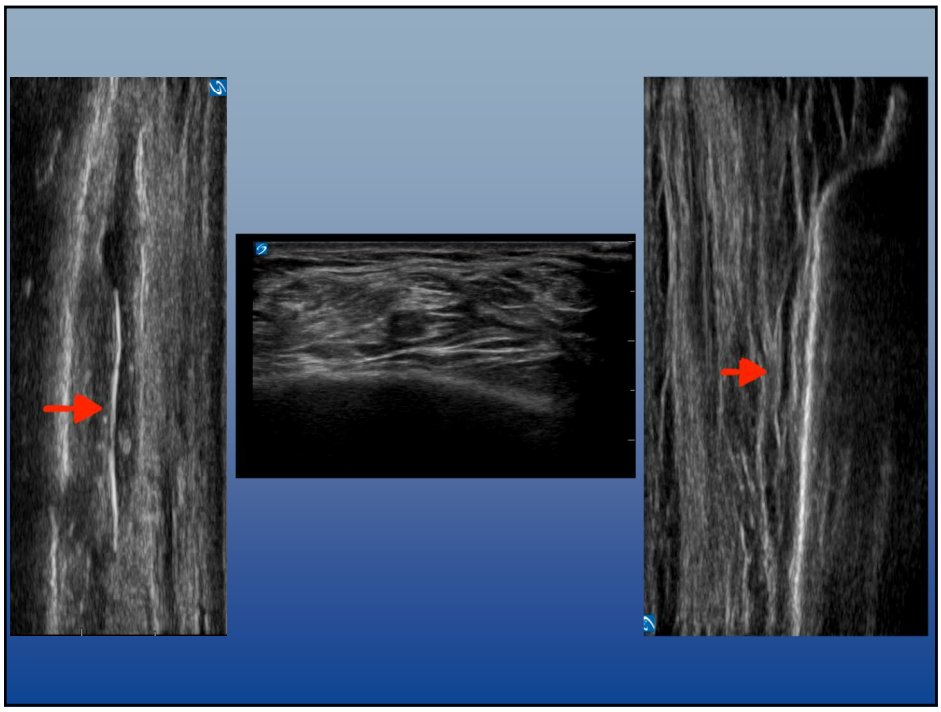
Digital Artery Access

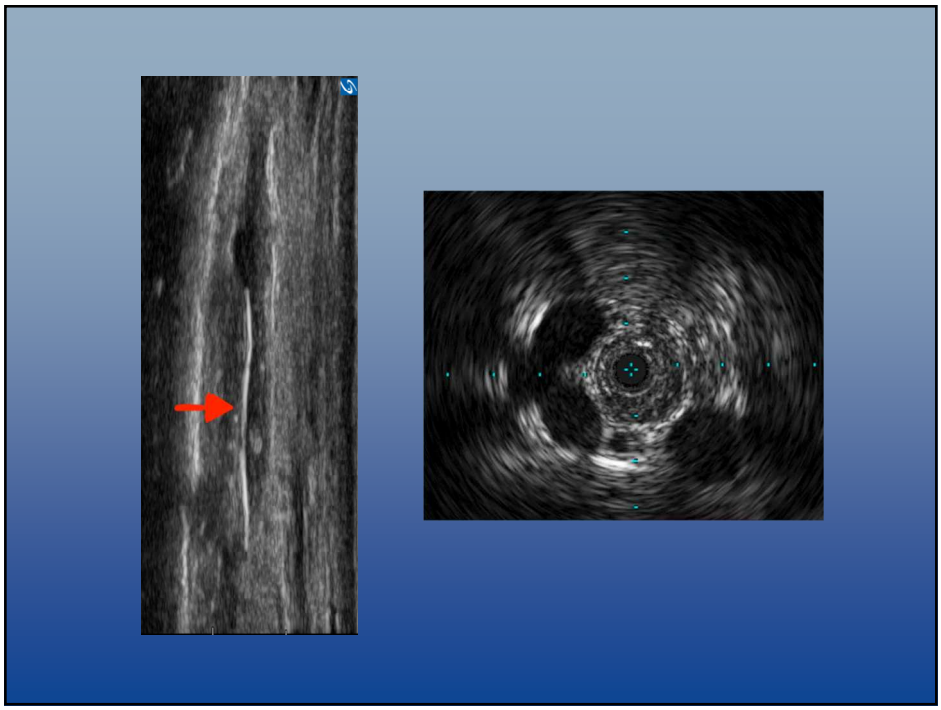


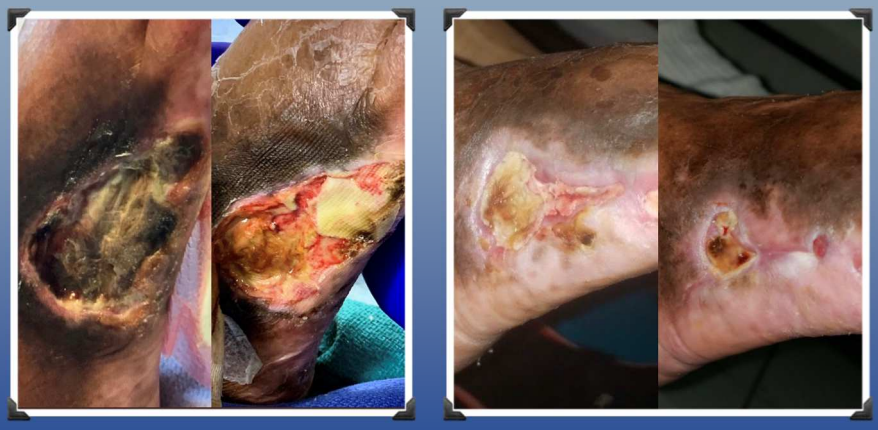












Thank You

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Twitter —> @SriniTummala