PErcutaneous balloon Puncture for retrograde Pedal Access in Occluded Tibial arteries

Dr. Ankur Patel
Senior Consultant Interventional Radiologist
Singapore General Hospital, Singapore
Disclosures

I have the following potential relevant 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
Tibial CTO crossing

• Majority of tibial occlusions crossed antegradely
• Reasons for failing antegrade crossing
  – Calcified
  – Prior false passages
  – Failure to re-enter distal patent segment
  – Lack of distal target
• Bail-out options
  – Retrograde access (patent/occluded) up to 25% of cases
  – Pedal-plantar crossing
  – Transcollateral crossing
Bail-Out challenges

• Retrograde may not be possible
  – No opacified target vessel on angiography
  – Atretic segment not seen on US or fluoroscopy

• Pedal-plantar challenges
  – Often requires a patent plantar arch
  – Risk of plantar arch dissection (make things worse)
  – Lack of pushability and catheter support
Repurposing REBORN

- Utilizing the same concept developed at our institution
- 2 cases of percutaneous balloon puncture for retrograde pedal access in tibial CTOs
CASE 1
CASE 1: Oct 2021

- 66 Male
- DM, Hypt, CKD 3-4
- R6 RIGHT heel wound:
  - WiFi 5: 2,2,1
Case 1: Pedal angiography – medial plantar PP crossing

1.8F Carnalian microcatheter
Case 1: Balloon puncture
Case 1: Completion Angiogram
CASE 2
CASE 2: Nov 2022

- 60 Female
- DM, Hypt
- R5 - Poorly healing 2nd toe amputation wound
  - WiFi 4: 1,2,1

- Despite biphasic flow to DP
  - Poor wound healing
CASE 2: Balloon puncture and crossing
CASE 2

Completion Angiogram
Pedal-Balloon Puncture Technique I

• Trans pedal-plantar crossing → DP to Common plantar

• At least 2mm diameter balloon used as target

• Create as much of runaway from puncture site to anticipated retrograde passage
Pedal-Balloon Puncture Technique II

- Fluoro-guided balloon puncture (Ultrasound not so easy to see)
  - either puncture balloon (enter balloon), \textit{or}
  - Enter the vessel space created by the balloon
  - Can be helpful to advance balloon and wire as a unit

- Use conventional retrograde technique thereafter – 0.018” plus support catheter
  – sheathless
Thank you!
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