The retrograde approach for complex femoropopliteal and BTK obstructions

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Disclosure

Speaker name: Axel Fischer

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
distal retrograde access-sites

- transfemoral
- transpopliteal, P1 Segment, (first described 1988)
- transtibial
- transpedal (first described 1990 by surgical access)
Retrograde approach, when to use?

- Heavily calcified, long lesions
- Potentially unable to cross intraluminal/reenter distal
- Strong collaterals distal to the CTO
- Waste of time
Problem during PTA of Femoropopliteal Chronic Total Occlusions

Unsuccessful procedure in ~20%, due to inability to reenter distal
Another reason for a retrograde approach

In case of failure to reenter the true lumen distal of the CTO

Reentry device?
Another reason for a retrograde approach

In case of failure to reenter the true lumen distal of the CTO
In case of failure to reenter the true lumen distal of the CTO, retrograde approach helps to safe the collateral.
Material for a retrograde Approach to an SFA-Occlusion

- 21 Gauge needle (echogenic), 9 cm length
- 0.018" Guidewire (V18-CW, Command..)
- 0.018" compatible support catheter, 90 cm
- (4 Fr. sheath)

15 cm 21 G in coaxial into a 18 G 7cm needle for obese patients
Local anesthesia for the retrograde Approach
Retrograde SFA-Recanalization

Right SFA: LAO 45°

Needle + artery = one line
Distal Retrograde SFA-Puncture

- Angiographical control of the puncture / access (90°)
- 0.018, 300 cm-GW
- Support catheter or 4 Fr. Sheath in case of problems
Snaring of the GW from proximal

Judkins right (4/5 Fr.) for snaring of the guidewire

“pullthrough-wire”
“flossing-wire”
Haemostasis after retrograde access

In case of sheathless approach: hand-compression for 5 minutes
Access infrapopliteal

• Every CTO proximal to the puncture site

• Puncture via ultrasound or flouroscopy with repeated Contrast-injection

• Every vessel BTK an be punctured
Access infrapopliteal

Sheathless access, 2.9 Fr pedal sheath or 4 French sheath

Sheathless access or 2.9 Fr pedal sheath

0.025” GW
Ultrasound or Fluoroscopy-Guided Puncture?

Depth of the access-artery differs.

Proximal anterior tibial and peroneal artery might be difficult to visualize by ultrasound.
Choosing the right artery for access

- Popliteal occlusion
- Or puncture into the occluded high anterior tibial artery
- Peroneal artery only retrograde approach
Material for a retrograde infrapopliteal access

• 21 G 4 cm or 7 cm needle
• 0.018 or 0.014, 300 cm GW
• 0.018 support catheter
• 4/2,9 F-sheath (Micropuncture pedal access set)
Access below the malleolus

Especially for small, calcified, difficult to access arteries

Use different angulations during puncturing
Retrograde Approach: Literature Review

• 41 articles, 2445 retrograde interventions

• Successful access to *distal SFA: 98.7 %
  * infrapopliteal: 92.6%

• Technical success of the intervention 91.5 %

• Complication-rate 2.5-7 %
  (hematoma 53%; av-fistula 15%, acute occlusion / emboli 14%)

RHA Welling, OJ Bakker, et al. submitted, 2017
Summary

- Multitude of alternative access-sites for treatment of PAD
- Retrograde access expands possibilities of CTO-recanalization (infrainguinal, iliac)
- High safety
- Highly successful
- Interventionalists should be able to handle retrograde access, if andovascular therapy is considered
More than 1 retrograde access-sites?

- Retrograde to proximal ATA
- Antegrade and retrograde access to an occluded SFA
- Retrograde into occluded peroneal artery
- Cross-over
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