What can we do for Heavy Calcified lesions?

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Disclosure

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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
Limitations of Endovascular treatment in Ca+++
Limitations of Endovascular treatment in Ca+++:

1. Difficulty of lesion passage
2. Suboptimal PTX effect??
3. Small luminal gain
Calcified plaque precludes device passages
PIERC technique

- Percutaneous direct needle puncture of calcified plaque

  - Creates cracks in the calcified plaque
    - For passage of the device
    - For complete dilatation of the lesion.

Ichihashi S, Sato T. et al.
J Vasc interv Radiol 2014; 25: 784-8
Severely calcified plaque

Even after passage of GW, any balloon or microcatheter cannot cross.

PIERCÉ is done.

Cracks

Microcatheter or balloon can cross.

PIERCETechnique
Limitations of Endovascular treatment in Ca+++
Limitations of Endovascular treatment in Ca+++ 

1. Difficulty of lesion passage
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PACSS 3/4: Risk factor of ISR after DES implantation

- 220 pts with 230 limbs
- Age: 73 ± 8.3
- Female: 20.5%
- Dialysis: 27.8%
- CLI: 26.5%
- Median follow up: 19 M
- pre ABI 0.57
- Lesion Length: 16.4cm
- Occlusion: 45%
- ISR: 29%

PIERCÉ technique as a vessel prep

High ATA puncture
PIERCE technique as a vessel prep

Residual stenosis  PIERCE  Post
Sometime situation gets worse despite the repeated conventional angioplasty
Deep venous arterialization (DVA)

Simplified Endovascular Deep Venous Arterialization for Non-option CLI Patients by Percutaneous Direct Needle Puncture of Tibial Artery and Vein Under Ultrasound Guidance (AV Spear Technique)

Shigeo Ichihashi¹ · Yuichi Shimohara¹ · Francesco Bolstad² · Shinichi Iwakoshi¹ · Kimihiko Kichikawa¹
AV Spear technique
Percutaneous DVA
AV spear technique

13°
10°
100 cm
16" cm
108 cm
94 cm
90°
0°
0%
1.4 min
5.6 mGy/min
5.76 mGy

12 kV 10 mA 2.5 ms
12 kV 32 mA 12.6 ms
Duplex survey
One month after amputation
Conclusion

- Ca+++ is the biggest ENEMY
  - PIERCE technique
    - Device passage
    - Vessel modification
  - AV spear technique
    - Limb salvage for non-option CLI
    - Cheap!!!
    - No need for fancy device, covered stent
Thank you for your attention
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