Azienda Ospedaliero Universitaria Careggi

Servizio Sanitario della Toscana

Heavy Calcific BTK Lesion: How to Cross with Wire and Balloon

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UNIVERSITÀ DEGLI STUDI FIRENZE

Disclosures

- Consultant / Speaker / Proctor / Advisory Board
  - Bayer
  - Bolton
  - Boston Scientific
  - Cook
  - Medtronic
  - Penumbra
  - Shockwave Medical
  - Philips
  - Volcano Philips
  - W.L. Gore & Associates

Calcified Lesions

- Heavely calcified lesions increase the complexity of all endovascular procedures
- Calcified lesions add some resistance to the guidewire progression making predilatation necessary
- In case of sub-intimal recanalization, re-entry can be difficult or impossible
- Recoil is more common and care should be especially taken to avoid damaging collaterals
- CTO more challenging than single or multiple stenosis
- CTO presents hard proximal and distal fibrous cap that can be harder due to the higher concentration of calcium
- New devices are available for CTO crossing

Background

- 0.014 most popular platform
- Alternative 0.018
- Support micro-catheter or low-profile balloon always required
- Balloon allows also progressive dilatation of the diseased segment reducing friction
- In very complex lesions 0.035 guidewire can also be used
- Retrograde access (trans-pedal, trans-metatarsal)

Techniques

- Sliding
- Drilling
- Penetrating
- Sub-intimal
- Parallel wires
- Rendez-vous (Safari)
- Pedal-plantar loop

Drilling

Penetrating

Parallel wires

Guidewire Selection

- Sliding

Command ES (Abbott) - Gladius 0.014” (Asahi)

- Penetrating

Pilot 200 (Abbott)

- Dissecting

Astato 20 (Asahi) – Half stiff 0.035 (Terumo)

Guidewire Selection

- **Sliding**

Command ES (Abbott) - Gladius 0.014” (Asahi)

- Penetrating

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- Dissecting

Astato 20 (Asahi) – Half stiff 0.035 (Terumo)

Command ES
0.014
(Abbott)

Armada 14
Ø 2/2.5 mm
(Abbott)

Guidewire Selection

- Sliding

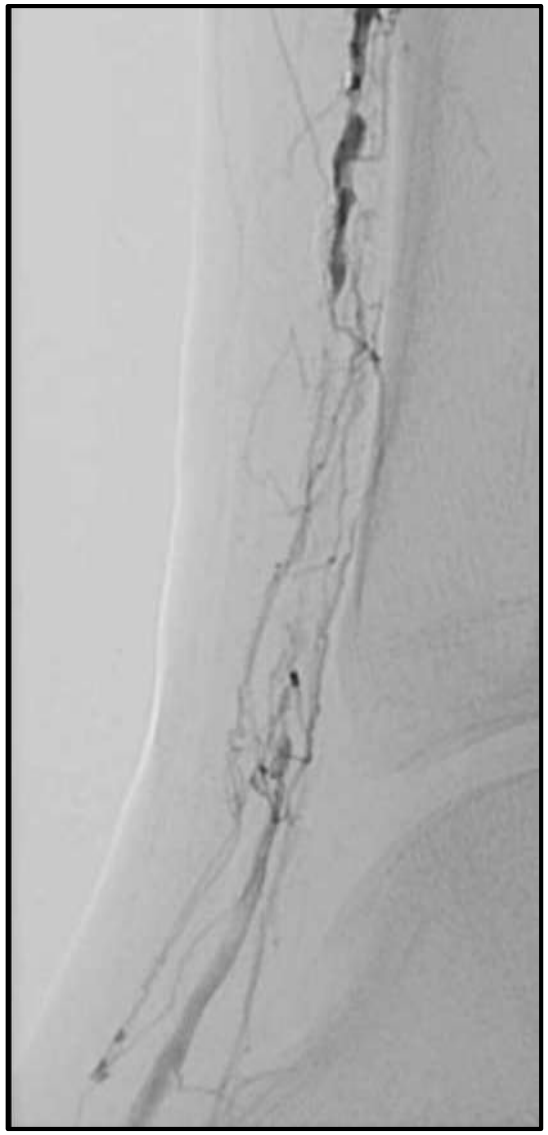
Command ES (Abbott) - Gladius 0.014” (Asahi)

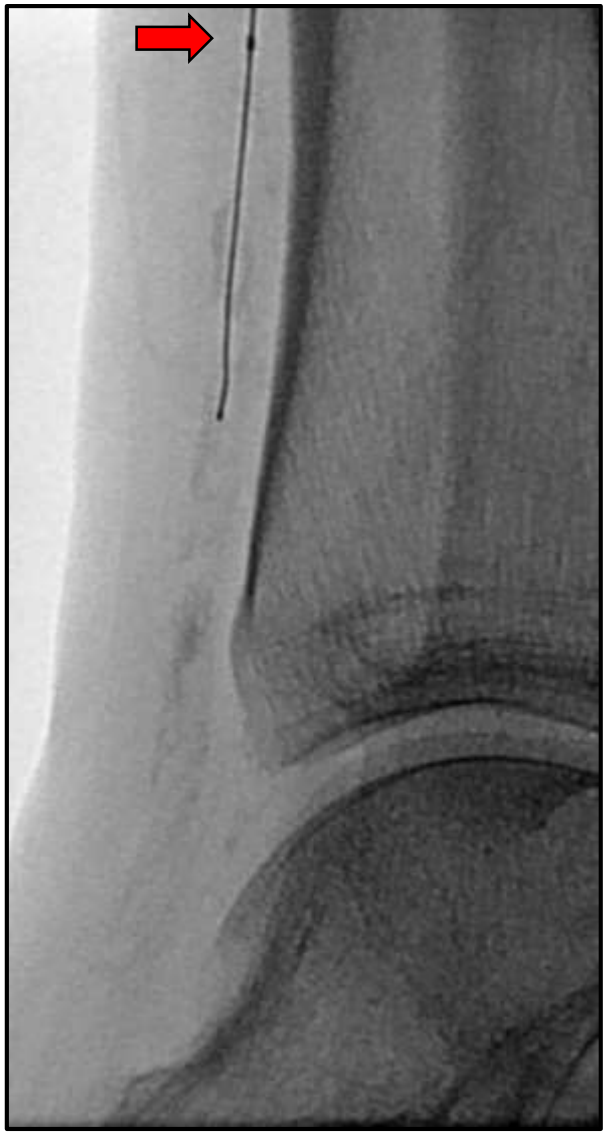
- **Penetrating**

Pilot 200 (Abbott)

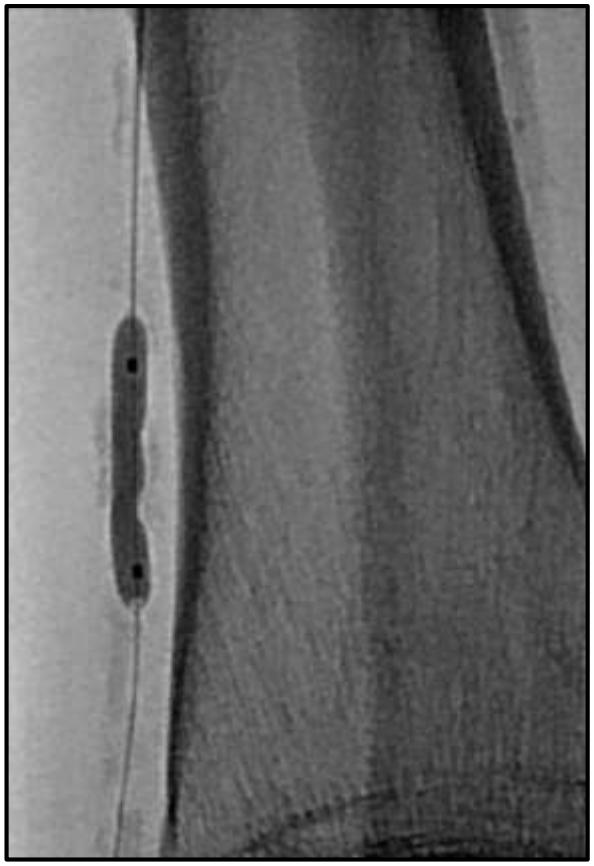
- Dissecting

Astato 20 (Asahi) – Half stiff 0.035 (Terumo)

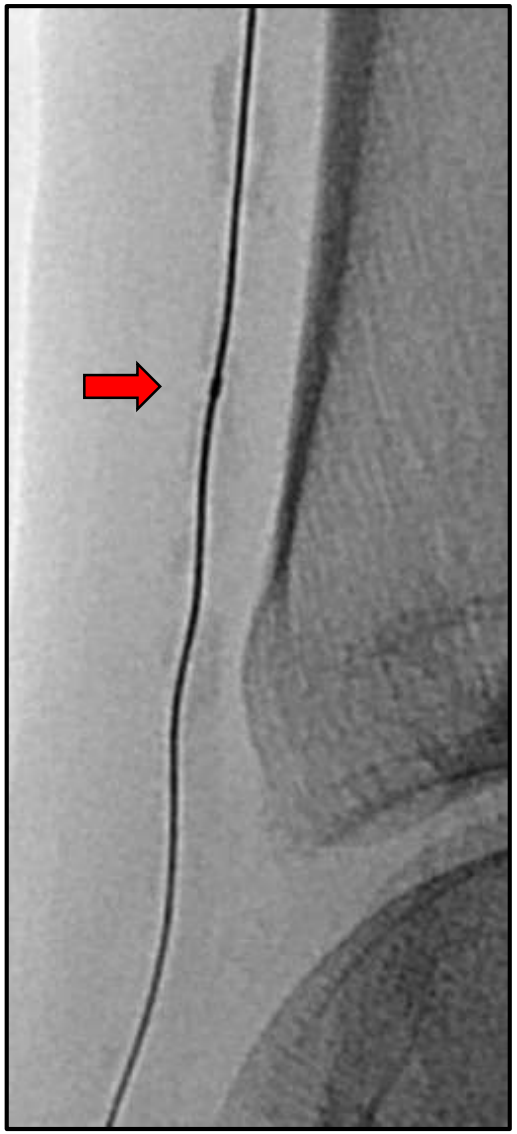




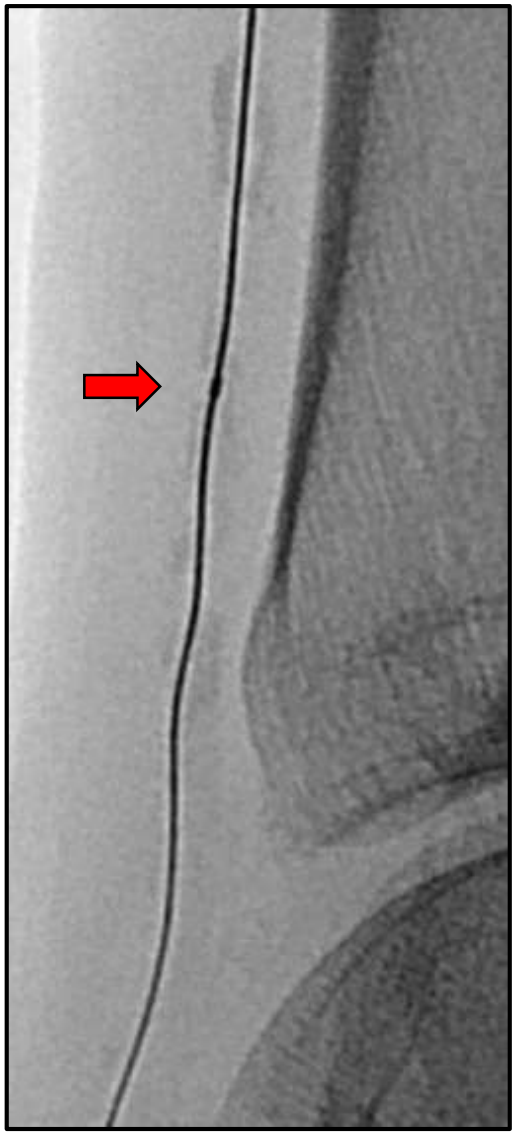
Pilot 200 – 0.014
(Abbott)



Armada XT
1.5 x 20 mm
(Abbott)



Pilot 200
+
Armada XT
1.5 mm
(Abbott)



Armada 0.014
2.5 x 120 mm
(Abbott)

Guidewire Selection

- Sliding

Command ES (Abbott) - Gladius 0.014” (Asahi)

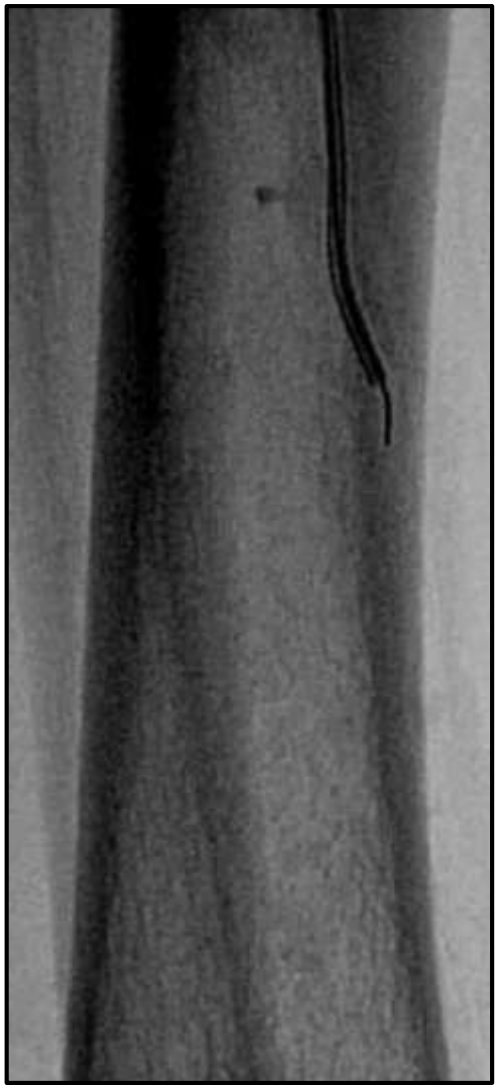
- Penetrating

Pilot 200 (Abbott)

- **Dissecting**

Astato 20 (Asahi) – Half stiff 0.035 (Terumo)

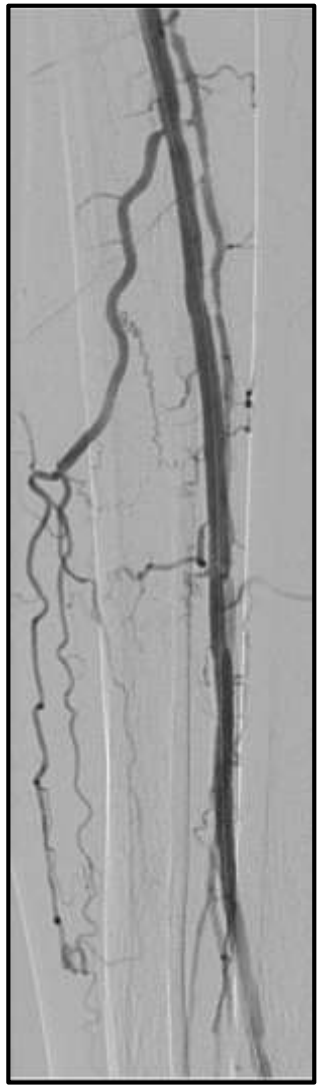




4 Fr BERN catheter
(Cordis)
0.035 half-stiff M-glidewire
(Terumo)

Choice ES
0.014
(BSC)

Coyote 0.014
3 x 120 mm
(BSC)



PLAQUE SCORING

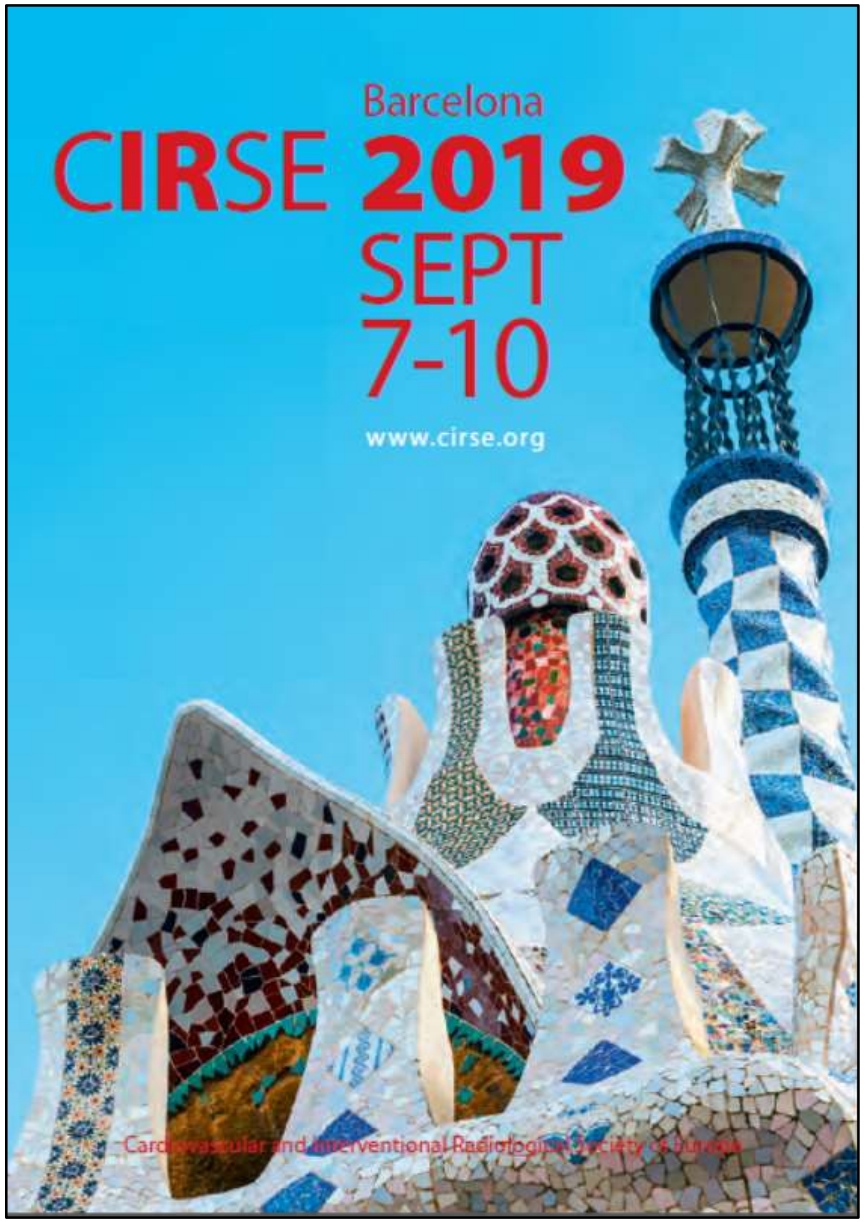
- ↓ Dissection severity and rate
- ↑ Luminal gain and ↓ recoil
- ↑ Balloon stability
- Potential ↑ drug uptake

- ➢ Chocolate (Medtronic)
- ➢ Angiosculp (Philips)
- ➢ Ultrascore (BD Bard)

1. Fonseca A et al. J Invasive Cardiol. 2008
2. Costa JR et al. Am J Cardiol 2007
3. Peeters P et al. Cardiovascular Revascularization Medicine 2010

Conclusions

- Understanding wire characteristics is crucial to choosing the ideal wire or wires for a particular case
- Selection of an appropriate guidewire can improve crossing success, particularly in total occlusions, improve device delivery, limit cost, and limit the risk of vascular injury
- Become familiar with «some» guidewires
- Be ready to use more «aggressive» techniques
- Always support the guidewire with a micro-support catheter or a low-profile OTW balloon catheter
- In heavely calcified lesions a very small (Ø 1 – 1.5 mm) low-profile short (<2 cm) balloon catheter is preferable for support and dilatation
- Progressive dilatation of a CTO segment reduces frictions and facilitate guidewire navigation
- «Special» balloon catheter (scoring, cutting) in case of severe calcifications



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