Crossing BTK lesions
- BTK Techniques revisited-

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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
☒ I do not have any potential conflict of interest
Complex BTK-lesion frequency
(Long lesion and CTO in OLIVE registry)

64%  CTO

75%  LL>15cm

CTO Steps in BTK lesions

- Wire cross
- Devise cross
- Gain the lumen
Wire cross

- **Antegrad**e
  - Intraluminal, Sub intimal
  - IVUS guide, Echo guide

- **Retrograde**
  - Distal puncture
  - Trans collateral, Trans pedal
Case: trans-collateral approach
(0.014 wire technique for PTA)
Case: **trans-collateral** approach (0.014 wire technique [Regalia, Asahi] for PTA)

- CTO with channel site ➡ intraluminal approach
- Complete occlusion ➡ intraluminal approach
Case: trans-collateral approach
(0.014 wire [Regalia, Asahi] technique for PTA)
Case: trans-collateral approach
(0.014 wire [Regalia, Asahi] technique for PTA)
Case: **trans-tibial 2way approach**

(0.035 knuckle wire technique [Terumo, Radifocus stiff wire])

- **ADL:** ambulatory
- **DM, HD**
- **Heart:** post CABG EF 35%
- **BT:** 38.1 °C
- **W3I2Fl3:** high risk
- **WBC:** 28000/mm³
- **CRP:** 37mg/dL
- **Alb:** 2.6g/dL

⇒ super high risk for major amputation
Case: **trans-tibial 2way approach**
(0.035 knuckle wire technique for ATA-CTO with severe calc)

**System**

Approach:
- Antegrade ipsilateral femoral

Guiding Sheath:
- 5Fr Destination (Terumo)

Guide Wire:
- Radifocus 0.035, J-type (Terumo), Regalia 0.014 (ASAHI)

Back-up Catheter:
- CXI ST 4.0Fr, 90cm (COOK)

➡ Intentional subintimal approach with .035 J tip Terumo wire
Case: **trans-tibial 2way approach**
(0.035 knuckle wire technique for ATA-CTO with severe calc)

**System**

**Approach:**
Antegrade ipsilateral femoral

**Guiding Sheath:**
5Fr Destination (Terumo)

**Guide Wire:**
Radifocus 0.035, J-type (Terumo),
Regalia 0.014 (ASAHI)

**Back-up Catheter:**
CXI ST 4.0Fr, 90cm (COOK)

➡ Bidirectional 2-way Tracking
Case: **trans-tibial 2way approach**
(0.035 knuckle wire technique for ATA-CTO with severe calc)

**System**

**Approach:**
- Antegrade ipsilateral femoral
- Retrograde tibial

**Guiding Sheath:**
- 5Fr Destination (Terumo)
- 4Fr 10cm sheath (Terumo)

**Guide Wire:**
- Radifocus 0.035, J-type (Terumo),
- Regalia 0.014 (ASAHI)

**Angioplasty:**
- 3.0mm*300mm (BARD)
The most reliable technique in BTK is “Step by step by knuckle wire technique”

Below-the-knee CTO
0.035 knuckle wire

Below-the-ankle CTO
0.014 knuckle wire

Final recanalization
0.014 3g Gladius wire
CTO Steps in KRCVC

- Wire cross
- Devise cross
- Gain the lumen
Case: **Guide extension catheter**
(Revascularization for plantar artery)

Successful recanalization supported by guide extension catheter
Guide Extension Catheter (Guidezilla, Boston Scientific), Jade(NEICH®) 2.0*150mm
CTO Steps in KRCVC

- Wire cross
- Devise cross
- Gain the lumen
Case: Pierce technique
(18G needle cracking for sever calcification)
Super Calc BTK

Pressure-Oriented Balloon Angioplasty (30atm!)
Super Calc BTK

Pressure-Oriented Balloon Angioplasty (30atm!)

Vessel prep: SHIDEN HP
3.0*150mm with 30atm
(Kaneka, Japan)

Post dilatation
Distal: 3.0*300mm (Cordis)
Proximal: 3.5-4.0mm*210mm (Medtronic)
Super Calc BTK

Pressure-Oriented Balloon Angioplasty (30atm!)
(A) Major Axis / Minor Axis
1.95/1.77mm
EEM Area 2.72

(B) Major Axis / Minor Axis
2.12/1.99mm
EEM Area 3.31

(C) Major Axis / Minor Axis
2.45/2.26mm
EEM Area 4.36

(D) Major Axis / Minor Axis
2.55/2.36mm
EEM Area 4.75
Key concept for recanalization of infrapopliteal CTO with severe calcification - My style -

1. Bi-directional 2 way approach
   * tibial or dorsalis retrograde > toranscollateral, transpedal

2. Knuckle wire technique
   * Less procedural time
   * Less number of wire use
   * Cost effectiveness

3. Super NC balloon for prep
   * Pressure-assisted Plain Angioplasty
   * 30atm is good enough for vessel prep

4. IVUS evaluation
   * Vessel diameter is larger than you expect by assessing angiography (+0.5mm)
   * Better inflow can be acquired
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