Full revascularisation of diabetic foot affected by CLI with double retrograde approach, using CO2 as a contrast medium

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CVRF: Hypertension, Type 2 DM;
Previous PCI + DES of RCA (Unstable Angina)
2015: Left SFA-Popliteal-ATA Axis PTA.

November 2017: evidence of a left foot plantar ulcer (TUC - IIIA) of 1° (concomitant osteomyelitis) and 3° MTPJ.

Associated CKD stage 4 (creatinine 4.15 mg/dl → GFR 21 ml/min/1.73 m² → High risk of CIN

CO₂-Angiography
(1) Short occlusion of SFA
(2) Diffuse disease of SFA and Popliteal
(3,4) Occlusion of ATA and PTA, collateralized (peroneal artery)
Ineffective anterograde crossing, as suggested by injection through BER and evidence of false lumen.
Retrograde access #1

(1, 2) Direct puncture of the popliteal artery through lateral view of the knee

(3, 4) Retrograde advance of a 0.018 wire crossing the occlusion
DCB in SFA and result

DCB In.Pact Admiral (Medtronic) 5.0 – 120 mm
Sterling balloon (BSCI) 5.0 – 220 mm
Final Result with non flow-limiting dissection of the proximal tract

Triphasic Flow at DUS
PTA of Anterior Tibial Artery

1. Crossing of occluded ATA and advance of 0.014 wire via pedal-plantar loop
2. Dilatation of ATA and pedal-plantar loop

Coyote balloon (BSCI) 2.5 – 220 mm
PTA of Posterior Tibial Artery

1. Retrograde advance of the wire (with the support of a 2.5 – 220 mm balloon) through Posterior Tibial A. to reach the popliteal artery, showing an anomalous high origin of the PTA.

3. Anterograde advance of a wire in the Posterior Tibial A. with the support of a BER Cath

4. Dilation of proximal Posterior Tibial A. using a 3.0 – 150 mm balloon
Complete revascularization of the BTK arteries
Conclusions

• Complete Revascularization of SFA and BTK arteries was pivotal to restore blood supply to the foot → orthopaedic surgery

• Two retrograde approaches were needed to cross occlusion of SFA and Posterior Tibial Artery.

• Lateral view of the knee made easy to obtain a retrograde popliteal access.

• The whole procedure was performed using CO$_2$ as contrast medium and iodine contrast was limited to 5 ml, without any post-procedure worsening of renal function.
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