Highly complex femoropopliteal lesions
What do I learn from my daily practice?

Clinical case review

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Disclosure

Speaker name: .....BRUNET JEROME.................................................................

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Shareholder in a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest
Introduction

« a frustated cardiologist »

Once upon a time in 2012 .....
Mr M, 69 years

May 2012:
  Right disabling claudication
  Walking distance < 50 m
  ABI 0.45 rest/ 0.2 exercise

Previous history of
CABG for CAD
2007: bilateral iliac stenting (❶)
2009: common femoral to profunda graft (❷)
2009: CFA occlusion (❸)
Popliteal occlusion ....
... below profunda re-injection with 3-vessel run-off
Failure to cross by antegrade

Failure to connect by retrograde

Re-entry device
Hard procedure - Retrograd access and re-entry device - 2hours - 250cc iode

Poor result on SFA with undeployed stent
Technical failure – SFA recanalization
Technical failure – SFA recanalization

**CROSSING**
- Inability to advance the wire
- Failure to re-enter the distal lumen
  5-15%

**OPENING**
- Inability to open the sub-intimal space
  1-5%

Retrograd access
Re-entry device

Open surgery

Scott et al. *JVS 2008; 48:878-4*
506 infra-inguinal procedures
Technical failure 13% (67/506)
  - Crossing (12/67)
  - Reentry (49/67)
  - Opening (12/67)
Clinical case

- Male 71 yrs
- Hypertension
- Stable CAD
- Claudication Rutherford III
- Walking distance < 50 m
- ABI 0.55
What’s an « highly complex lesion »?

• (Length)
  1. Calcification
  2. Involving femoral bifurcation: preservation of the profunda
  3. Extension to popliteal segment
     – Mechanical strain
     – Accuracy of re-entry site: above-the knee disease
       convert in below-the knee disease
Up and Over access
7Fr DESTINATION sheath (Terumo)
Sub-intimal crossing
0.35 ADVANTAGE (Terumo)
TRAILBLAZER microcatheter (Covidien)
Pioneer re-entry device (VOLCANO*)
Double lumen 6Fr 0.014 catheter
IVUS guidance
Needle length 3 - 7 mm
Target site for re-entry by angio assessment

IVUS at the same level
Where is true lumen?

True lumen at 5 or at 10 1 o’clock?
If you want to be sure, look for the media (black line ●)
Media is well-defined (●)
True lumen is always inside the media
True lumen is at 10 o’clock, behind calcification
Media is well-defined (●)
True lumen is always inside the media
True lumen is at 10 o’clock, behind calcification
• IVUS is helpful
• Pioneer reentry catheter can be saving
SFA occlusion
Failure to cross by antegrade
Vessel rupture
Antegrade wire is outside the vessel
Failure to connect by retrograde

Antegrade wire is outside the vessel
Failure to connect by retrograde

Antegrade wire is outside the vessel
Re-entry device ...
... via retrograd access

Antegrade is not an option:
No target vessel visible in IVUS
Re-entry device...
...via retrograd access

Antegrad is not an option:
No target vessel visible in IVUS
Target site for re-entry by angio assessment

Doppler: no chromaflow
Echo: No media visible
No contrast visible (inject by antegrad)
Target site for re-entry by angio assessment

Doppler: no chromaflow
Echo: No media visible
No contrast visible (inject by antegrade)

NO TARGET VESSEL!
Re-analysis of the beginning of the IVUS run
Initial scheduled target site for re-entry

Effective re-entry site
Anterograde wire (extra-anatomical in the vein?)

Retrograde « pioneer delivered » 0.14 wire (endoluminal)
Heavily calcified occlusion

Result after high pressure 5mm high pressure balloon pré-dilatation

Next step?

Stenting is indicated ...

... but risk of uncorrect deploiment!
Highly complex femoro-popliteal lesions

Medical treatment

Balloon

Nitinol stent

Nitinol-interwoven stent

Low COF
High compression resistance (radial force)
Conformability
Princeps indication for SUPERA stent: popliteal and calcified
SUPERB trial

Garcia et al. Circ Cardiovasc Interv 2015

Baseline reference vessel: 4.96±0.92
Length 150mm - Total occlusion 25.0% (66/264)
Stent implantation: majority of 5mm (69.3%)
Freedom from TLR % Over Time in Severe Calcium

SUPERB Data - Severe Calcification

% of Lesions with Severe Calcification (SUPERB Trial): 45% (n=118)
Patency (VIVA 12 months): 89%
Optimal deployment of the Supera stent is critically dependent on accurate assessment of vessel diameter and vessel preparation”

Garcia
Circ Cardiovasc Interv 2015
Optimal Deployment Leads to Low Re-intervention Rate at 3 Years

SUPERB Freedom From TLR at 1, 2, and 3 Years
Freedom from TLR (K-M) by Percent Compression / Elongation at 12, 24, and 36 months

Clinical data on file at Abbott Vascular.
Final Result
SFA/PFA « V » stenting

« V » stenting
6/15mm ostium SFA
5/15mm ostium PFA
Epilogue 1

« a cardiologist behind the media »
Final result after SUPERA stent
Epilogue 2

« a frustrated cardiologist »
Hard procedure (Retrograd access then reentry device, 2 hours and 250cc iodine)
Despite stenting and very high pressure post-dilatation up to 30ATM, poor result on SFA ....
... leading to recurrent claudication 4 months later (sept 2012)
Proximal overlapping to cover the undeployed previous nitinol stent

Positif impact of high radial force
Same strategy

Supera Stent - in- undeployed previous nitinol stent

(SUPERA* 6/40mm)

3 years follow-up
Asymptomatic - No MACE
10km daily (5.5 km/h)
Conclusion

1st challenge: crossing and re-entry

- Re-entry device and/or Retrograde access
- Accuracy of re-entry site
  - Preserve landing-zone for open surgery
  - Never convert above to below-the-knee disease
- Guarantee of success: IVUS re-entry device *PIONEER*

2nd challenge: opening the artery

- Scaffolding is mandatory
- Original property of *SUPERA* nitinol-interwoven platform