Use of Bioreabsorbable Vascular Scaffold In Diffuse, Calcified Proximal-mid LAD Stenosis With Side Branch Involvement

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Potential Advantages Of Bioresorbable Vascular Scaffold (BVS)

- Reduced or abolished late stent thrombosis
- Improved lesion imaging with computed tomography or magnetic resonance
- Facilitation of repeat treatments (CABG or PCI) to the same site
- Restoration of vasomotion
- Freedom from side-branch obstruction by struts
- Freedom from strut fracture-induced restenosis.
BCS In Diffuse, Calcified Lesion With SB Involvement

• **Diffuse lesion:** Correct sizing may be difficult

• **Calcified lesion:** More extensive lesion preparation is important to modify resistant plaque:
  - Rotablation & high pressure balloon dilatation, otherwise BVS delivery can be difficult and deployment suboptimal
  - Do not implant BVS with $>$ 40% residual stenosis after predilatation
  - An unexpanded scaffold should not be reintroduced into the artery once it has been pulled back into the guiding catheter or removed from the body.

• **Side branch:** scaffolding across any SB $\geq$2.0 mm not recommended.
  - When it is a must, SB should only be dilated when clinically indicated (kissing balloon dilatation not allowed)
Clinical Data

TM, female, 81 yrs old

Stable angina

ECG : ST/T changes in V1-V3

MSCT: Ca Score 1178 (LAD 658)

Angiogram:

- LM : normal;
- LAD : diffuse, calcified, 70-80% stenosis in the proximal-midsegment
- LCX : luminal irregularity
- RCA : proximal 70% stenosis (fixed in the same session with a DES)
Angiogram

- Diffuse, calcified, 70-80% stenosis of the proximal & mid-LAD
- 3 side (D) branches
- QCA difficult (Dmax = ?):
  - Diffuse disease – where is the reference diameter (RD) ?
    - RDp: (very close) to LAD ostium with lots of overlapping
    - RDd: where is the “normal” segment?
Case 4: BVS For Diffuse, Calcified Lesion With SB

- Diffuse, calcified, 70-80% stenosis of the proximal & mid-LAD
- 3 side (D) branches
- QCA difficult (Dmax = ?):

  Diffuse disease – where is the reference diameter (RD)?

  - RDp: (very close) to LAD ostium with lots of overlapping
  - RDd: where is the “normal” segment?
Baseline IVUS

Maximum distance that IVUS can reach

Califications ....
Lesion Preparation Is Very Important!!

Rotablation (1.5 & 1.75 mm burrs), followed by high pressure balloon dilatation. Appropriately sized balloons were dilated at least until waist disappeared.
Lesion Preparation Is Very Important!!

Good lesion preparation, almost no residual narrowing
Calcifications, with cracks after balloon dilatation
Calcifications, with cracks after balloon dilatation
Calcifications, with cracks after balloon dilatation
Calcifications, with cracks after balloon dilatation
IVUS Was Used To Select The BVS

BVS 2.5/28 mm
GW in SB for protection & to facilitate introduction of BVS (buddy wire)

BVS 3.0/18 mm
Overlapping with the 1st BVS

Post-dilatation of 1st BVS
SB wire already removed & SB ostium was avoided
Post-dilatation Not To Exceed The Maximum Allowable Diameter

Post-dilatation of the overlapped zone
Be careful not to damage the distal BVS

Excellent angiographic result
Side branch was not pinched
Excellent Angiographic Result
Excellent Angiographic Result
Overlapping BVSs well deployed. Note: acoustic shadowing of Ca behind BVS.
Overlapping BVSs well deployed. Note: acoustic shadowing of Ca behind BVS
Summary:
Use Of BVS In Diffuse, Calcified Proximal-mid LAD Stenosis With Side Branch Involvement

- With good technique and lesion preparation, BVS can be implanted with excellent result