Scoring balloons: Tips and tricks

Symposium: It’s all about vessel prep

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Disclosure

Speaker name: Erwin Blessing

I have the following potential conflicts of interest to report:

Consulting

Employment in industry

Stockholder of a healthcare company

Owner of a healthcare company

X Other(s) Research Grants, Speakers honoraria

I do not have any potential conflict of interest
Angioplasty Balloon Inadequacies

- Inadequate lesion preparation prior to stent implantation leading to inadequate stent expansion/wall apposition
- Significant recoil in heavily calcified/fibrotic lesions
- Unpredictable results and high rate (≥30%) of uncontrolled dissections
- Balloon slippage in ISR
Scoring Balloons: Suggested Benefits

Calcified & Fibrotic Lesions
- Successful lesion dilatation at lower balloon pressures
- Less trauma/dissection leading to more predictable results

Bifurcation Lesions
- Less elastic “recoil” in ostial side-branches
- Non-slip

In-Stent Restenosis
- Non-slip (avoid “geographic miss”)
- Less tissue “recoil”

Preparing Vessel for Stenting
- Non-slip (avoid “geographic miss”)
- Achieves full stent expansion/apposition

Scoring Balloon Catheter

VascuTrak (Bard)

**VascuTrak**
PTA Dilatation Catheter

**MECHANISM OF ACTION**
- Two external wires deliver Focused Force along the length of the balloon, for dilatation at low inflation pressures.
- Low inflation pressure angioplasty reduces the potential for balloon-induced over-dilation of the vessel and offers controlled plaque modification, even in calcified lesions.
- Focused Force is applied in two parallel planes, unlike standard balloons with unconcentrated circumferential dilatation forces.

[Diagram showing the mechanism of action with insets explaining the guided wire and integrated wire]
Scoring Balloon Catheter

Flextome Cutting Balloon
(Boston Scientific)

Flexpoints:
6mm Length = 0
10mm Length = 1
15mm Length = 2
Scoring Balloon Catheter

Chocolate (TriReme Medical)
Scoring Balloon Catheter

AngioSculpt
(Biotronik/Spectranetics)

Semi-compliant nylon balloon
with an external nitinol shape memory helical scoring edge
Sizing Philosophy

- 1:1 device/vessel sizing in 2.0 - 3.5 mm diameters
- UNDERSIZE by 0.5 mm in 4.0 - 6.0 mm diameters

4.0mm balloon → RVD* 4.5mm and up
5.0mm balloon → RVD* 5.5mm and up
6.0mm balloon → RVD* 6.5mm and up

To optimize dilatation results:
- Step wise inflation
- For example, hold for approximate 20 seconds in between every 2 atm pressure increase

*RVD = Reference Vessel Diameter
Angiosculpt plus DCB
Angiosculpt plus DCB

pre    post    1 year f/u
Angiosculpt plus DCB in venous bypass graft

pre

post

11 months f/u
Angiosculpt plus DCB in prosthetic bypass graft
Atherectomy plus Angiosculpt in ISR

pre

post
PANTHER Evaluation of treatment of femoro Popliteal lesions with ANgiosculpT PTA Scoring Balloons – HEidelberg Registry

Real world registry
Angiosculpt PTA in calcified femoropopliteal lesions

Overall cohort

101 patients
124 lesions

![Graph showing patency rates](image)

- Primary Patency: 91.8%
- Secondary Patency: 81.2%
Conclusions

- Scoring balloons provide clear benefits in particular in heavily calcified and fibrotic lesions

- Slow dilatation and low pressure inflations are key to success

- Less dissections and/or recoil may translate into reduced stent rates (moving segments, young patients etc.)

- Encouraging register data for scoring balloons in calcified femoropopliteal lesions

- Results of registries have to be confirmed in a RCT, comparing scoring balloons plus DCB vs. POBA plus DCB

- Improved penetration of drug after lesion preparation?

- Role for drug eluting scoring balloons?
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