Managing Calcification: SFA-Pop

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Disclosure

Speaker name:

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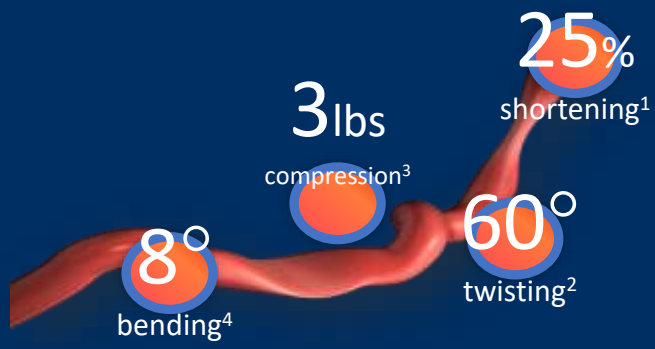
I have the following potential conflicts of interest to report:

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

- ☒ I do not have any potential conflict of interest

SFA and Popliteal Artery

- All arteries have radial distension with pulsatile blood flow
- SFA and popliteal artery – torsion, bending, pinching, axial shortening, and lengthening
- Numerous challenges already…without calcification!

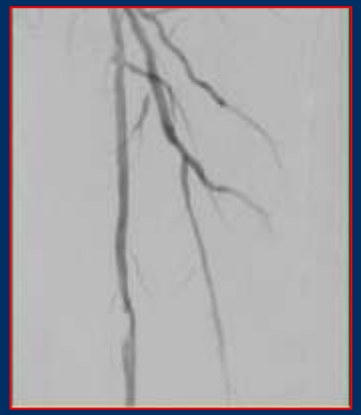


Klein A. Catheter Cardiovasc Interv 2009; 74:787-98

Cheng C. J Vasc Interv Radiol 2010; 21:195-202

Managing Calcification in the SFA/Pop

- Understand calcium *will* prevent effective DCB use
- Calcium will lead to a high rate of recoil and dissection
- What are methods to be successful in this vascular bed?
  - Recognize and classify the lesion
  - Understand best options in your patient
  - Identify *your* techniques and options that have been successful



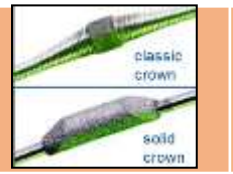
Atherectomy

- VIVA REALITY Trial (presented at VIVA 2020)
- Krishna Rocha-Singh- PI
  - Directional Atherectomy and DCB
  - Lesion length 179.36+/-81.4 mm
  - Calcium Severity - PACSS Score Grade 4- 67.6%
  - 76.7% 12-month primary patency
  - 92.6% 12-month freedom from CD-TLR
  - Distal embolization 12.8%

Atherectomy

- Effective at debulking
- Very effective at focal lesions
- Caution with disadvantaged run-off and need distal embolic protection

Atherectomy Devices

	Jetstream™ Atherectomy System (Boston Scientific)	Peripheral Rotablator™ Rotational Atherectomy System (Boston Scientific)	Diamondback 360™, Stealth 360™ Atherectomy System (Cardiovascular Systems, Inc)	SilverHawk™, TurboHawk™ Plaque Excision System (Covidien)	Turbo-Elite™ Laser Atherectomy Catheter (Spectranetics)
					
Front-Cutting	✓	✓			N/A
Differential Cutting	✓	✓	✓		N/A
Active Aspiration	✓				
Concentric Lumens	✓	✓		✓	
Lesion Morphology:					
Calcium	✓	✓	✓	✓	✓
Soft/Fibrotic Plaque	✓			✓	✓
Thrombus	✓				✓

Sources: Endovascular Today Buyer's Guide 2014. JETSTREAM System Brochure, Boston Scientific Website, 2014. Peripheral Rotablator product website, Boston Scientific, 2014. Diamondback 360 product website, CSI, 2014. Covidien website, Directional Atherectomy products, 2014. Turbo-Elite Laser Atherectomy Catheter Instructions for Use, May 2014.

Intravascular Lithotripsy (IVL)

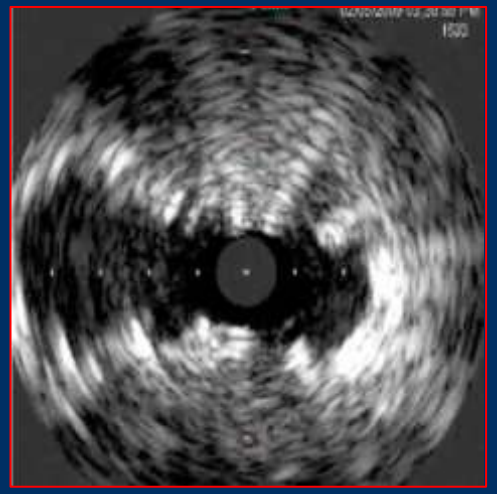
- Shockwave Medical
- Benefits- low inflation pressure of balloon
- Fractures both superficial and deep calcium
- Sonic pressure waves generated allow for this to be a safe procedure

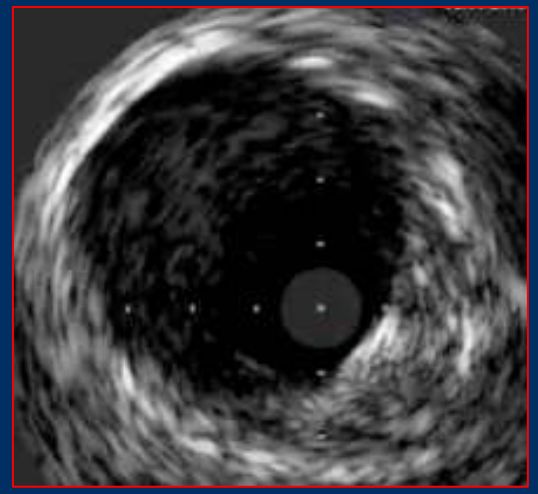
IVL

- DISRUPT PAD III Gray and Tepe PI (Presented at VIVA 2020)
  - Largest randomized trial of calcified vessels
  - 306 patients randomized to PTA vs IVL
  - 129 mm average calcified length
  - 79% reduction in dissection vs PTA
  - 75% reduction in provisional stenting vs PTA
  - Appears to be a solid choice for vessel prep for DCB

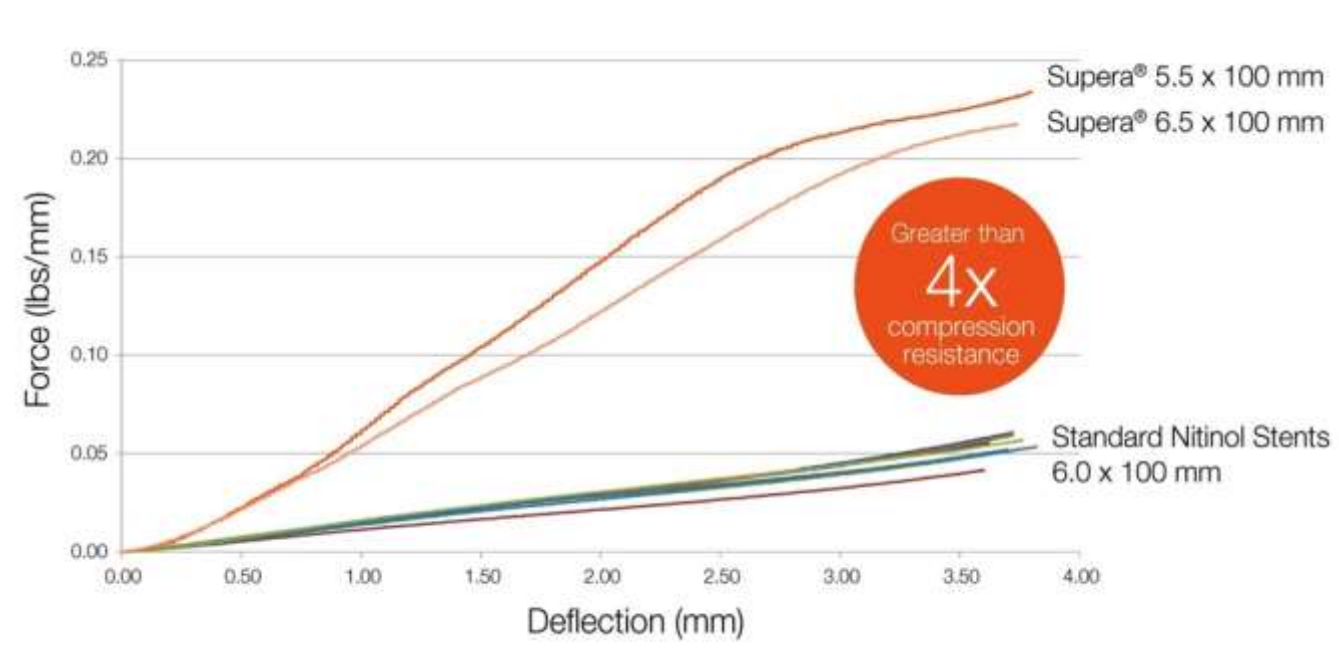
Scaffolding in SFA and Popliteal Artery

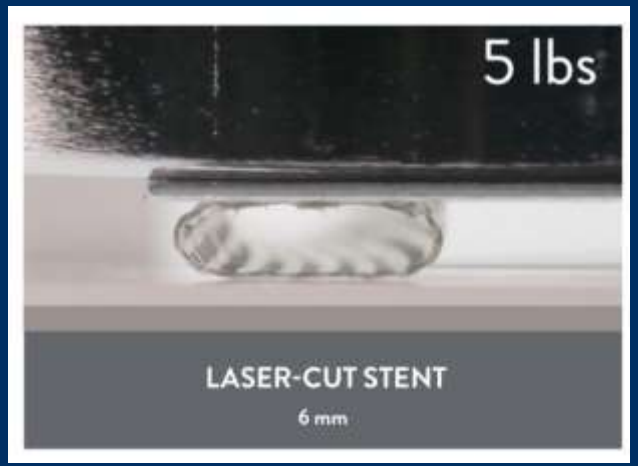
- Standard Nitinol stents are prone to compression
- Woven nitinol stents (Supera) more resistant to compression





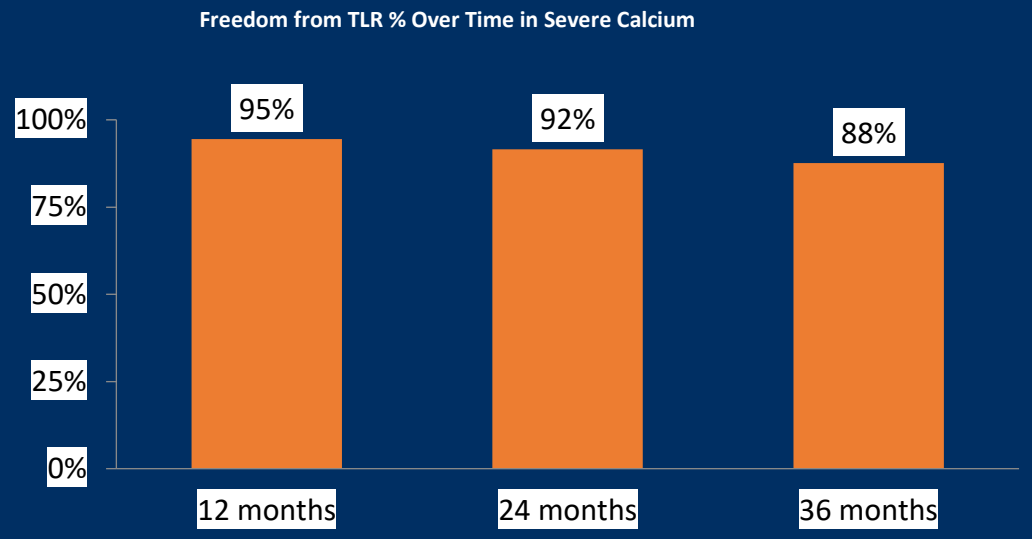
Supera stent and compression



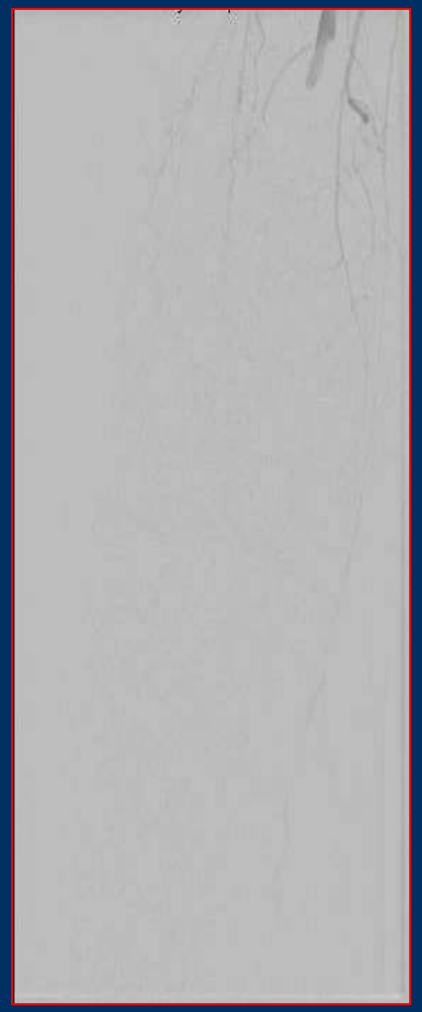


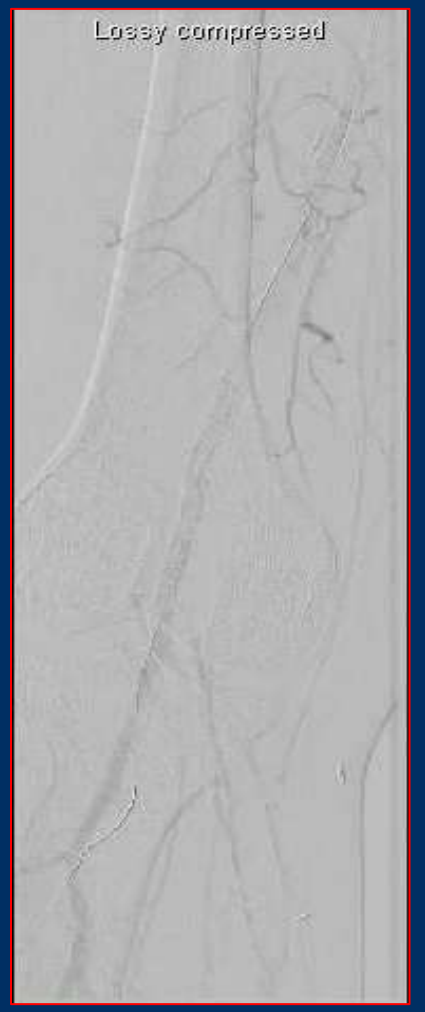
Supera in Severe Calcium

SUPERB Data - Severe Calcification	
% of Lesions with Severe Calcification (SUPERB Trial)	45% (n=118)
Patency (VIVA 12 months)	89%



Supera in Calcified Lesions





Conclusions

- SFA/Pop
- Numerous options available
- Lessons learned:
  - Vessel prep is key to stent and DCB success
  - IVL is very promising modality that appear to have the safety factor
  - Scaffolding-Supera stents over standard laser cut nitinol stents
  - Atherectomy is always an option