PTS Treatment:

A Flexible Stent Is Needed

Rick de Graaf, MD PhD
Interventional Radiologist
info@venoustherapies.com
Disclosure

Speaker name:

.................................................................

I have the following potential conflicts of interest to report:

- Consulting: Cook medical; Optimed GmbH; Bard; Volcano/Philips; TVA Medical; Vesper Medical;
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

I do not have any potential conflict of interest
Requirements?

- Diameters
- Deployment
- Flexibility
- Radial force/crush resistance
Radial Force and Crush Resistance

Bench testing may not be indicative of clinical performance. Different test methods may yield different results. Competitive testing samples represent commercially available venous stents with CE mark as of June 2014.
Stent Flexibility

![Bar chart showing 3 point bending stiffness (N) for Bard Venovo 14x160, Optimed Sinus Venous 14x80, and Cook Zilver Vena 14x100 stents.](chart_image)

- Bard Venovo 14x160
- Optimed Sinus Venous 14x80
- Cook Zilver Vena 14x100

![Images of stent samples](sample_images)
Anatomical regions of interest
Compensatory mechanisms

• Stent straightening, lifting the vein
  • Curtain effect

• Common iliac artery dropping over CIV stent

• Stent extension and vein wall penetration
  • Relative stenosis
Common iliac artery lifting - Theory
Common iliac artery lifting - Proof
Stent straightening - Theory
Stent straightening - proof
Post-Stenting Pain Syndrome

- Abdominal and Back pain
  - Post angioplasty of fibrotic tissue
  - High-radial force stents; diameter?
- Lower pelvic and groin pain
  - Straightening stent deeper part pelvis
  - Straightening stent groin region
Post-Stenting Pain Syndrome
Post-Stenting Pain Syndrome
Post-Stenting Pain Syndrome
Post-Stenting Pain Syndrome
Anatomical regions of interest
Key points

• Flexibility plays important role
  • Over time may be more significant

• No perfect stent
  • Maintaining flexibility with increasing force seems impossible

• What’s the best alternative?
  • Location-dependent stenting/stents
PTS Treatment:
A Flexible Stent Is Needed

Rick de Graaf, MD  PhD
Interventional Radiologist
info@venoustherapies.com