How I Do It: Stenting Iliac Venous Stenosis

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Interventional Management of Venous Occlusive Disease

Options for Percutaneous Intervention: *Chronic Venous Occlusions / Stenoses*

- Venography with Intravascular Ultrasound
- Venous angioplasty and stenting
Immediate, 3, 6, 12 months and annually...

**Stents**
- Stainless steel stents (IVC, CIV) – Wallstent, Visipro
- Self-expanding nitinol (EIV, CFV) - Protege
- Diameters: 14-22mm, IVUS-based sizing

**Anticoagulation**
- Intraoperative ACT at >250 sec
- Post-op anti-platelet therapy
  - ASA 325mg, Plavix 75mg
- Post-op anti-coagulation
  - Lovenox/Coumadin (DVT, hypercoaguable states)
Results in the Literature

- Unexpected major role for venous stenting in deep reflux disease
- Symptom Relief
- Swelling Relief
- Freedom from Ulcer Recurrence

- 528 Limbs, all with deep system reflux
- 69% with associated superficial or perforator vein reflux
- Only treatment was stenting of IVUS-determined iliac lesions

Unanswered Questions & Future Directions

- Stenting across the Inguinal Ligament
- Evolution of Optimal Stent Design

- Stent fractures and restenosis is not the same in the CFV as it is in the CFA
- Stenting across the inguinal ligament is less of a concern than leaving untreated stenotic disease
Stenting across Inguinal Ligament

Venous stenting across the inguinal ligament

Sinus-Venous (Optimed) Zilver Vena (Cook)

Venous Stent Design

- 12-18mm Diameter
- 60-150mm length
- 10Fr
- Laser-cut Nitinol

Vici Venous (Veniti) Wallstent (Boston Scientific)

Venous Stent Design

- 14-24mm Diameter
- 60-120mm length
- 10Fr
- Braided stainless steel

Ideal Venous Stent Properties

- High crush resistance
- Uniform crush resistance
- Low Profile
- Conformability
- Wide range of diameters
- Large diameters

54-month Secondary Patency

- Non-thrombotic pts = 100%
- Thrombotic pts = 84%

Venous Stent Design

Loss of radial force at ends
Conclusions

**Venous angioplasty and stenting:**
- Is a safe and effective treatment modality
- Is associated with excellent primary and secondary patency rates
- Can reduce the life-long symptoms of DVT and venous occlusive disease

Technique and Lessons Learned

- Use of intravascular ultrasound
  - Essential for stent sizing and positioning
  - Post-stent assessment for residual stenosis or wall apposition
- Aggressive anticoagulation
  - Glycosaminoglycan (Arixtra) for 4-6 weeks in Thrombotic MT patients postop (before transition to Coumadin)
  - Full antiplatelet therapy in Non-thrombotic MT patients
- Correct all underlying venous lesions
  - Extend stent into IVC
  - Extend with nitinol stents into CFV if needed
  - Aggressive lysis to improve inflow (from femoral vein / PFV)

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Thank You