Dedicated Venous Stent Is Needed

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Disclosure
• Stock in Veniti, Inc.
• US Patent: IVUS Dx of CVD
• Stent usage in iliac-femoral veins is currently off label.

The Wallstent in iliac vein stenosis
• Excellent patency & clinical outcome; yet room for improvement:
• Can get compressed at arterial crossover points and postthrombotic stenoses. This may be a factor in reinterventions that are required in ≈20-25%.
• Significant technical difficulties with bilateral stenting: stent compression in double barrel technique in IVC, difficulty in fenestration, fenestral stenosis etc.
• IVC stent extension rarely leads to acute contralateral iliac jailing, yet chronic sub acute jailing remains a concern if the stent is endothelialized. May result in increased contralateral stenting, DVT etc.

The iliac-caval junction is a choke point. It is generally impossible to accurately place any stent precisely at this point.

Distal migration of Wallstent

Choke point compression near the upper end resulted in coning and thrombosis

18 mm Wallstent compressed to 10 mm by PTS lesion underneath the artery
‘Fishmouthing’ of Nitinol stent “precisely” placed at the IVC junction. Corrected with Z stent.

Routine IVC stent extension is therefore recommended. But concerns regarding contralateral jailing persist.

All bilateral techniques have problems: obstruction at the junction of end to side apposition technique.

Compression of one of the barrels of ‘double barrel’.

Fenestration preferred technique in delayed bilateral stenting: may be difficult or even impossible in some cases.

Z/Wallstent Hybrid Stack: 20 mm Z within 18 mm Wallstent.
Bilateral Z/Wallstent Hybrid Stack; inter-digitation prevents over distension of the IVC. Bilateral technique very easy.

**Conclusion**
- Z stent modification of Wallstent stack has significant technical advantages making bilateral stenting easy.
- It may reduce possible contralateral sub acute jailing.
- It is less susceptible to compression by stenotic lesions and may reduce reintervention rate by maintaining unobstructed flow.
- However it is a home made device. A dedicated venous stent embodying these advantages is needed.

There is no acute jailing as there is opposite iliac flow through and around IVC extension. But if the extension gets covered by tissue over time, there may be partial jailing??

TIPS needle fenestration needed if Glidewire does not pass; fenestration may be difficult or occasionally impossible.

Fenestral stenosis corrected with Z stent. Contralateral fenestration may be required to correct opposite jailing by stent within stent.

END
Results

Test Group
- Complications
  - 22 reinterventions (77% involving only Wallstent tail, 23% involving entire combo stack)
  - 4 stent thromboses (3 involving only Wallstent tail, 1 involving entire combo stack)
  - 7 DVTs not involving stents (6 ipsilateral, 1 contralateral)

Control Group
- Complications
  - 59 Reinterventions (40 ipsilateral only, 3 bilateral, 5 contralateral only)
  - 9 stent thromboses
  - 7 DVTs (5 contralateral, 2 ipsilateral)

Comparison of Test and Control Groups (Mann-Whitney Test)
- DVT/Stent thromboses: p = 0.04
- Reintervention: p < 0.0001