Treatment of Chronic Iliac Obstruction

- Non-operative management
  - Direct costs of medical treatment
  - Very high indirect costs of lost productivity
- Percutaneous venous intervention
  - Low morbidity and mortality
  - Good early results
  - Does not preclude later surgical intervention
  - Long-term results unknown
- Venous bypass
  - Morbidity
  - Significant failure rate

Stenting of Chronic Iliac Obstruction


- 982 chronic, nonmalignant iliac obstructions
  - Primary - 518 (53%)
  - Secondary - 464 (47%)

So Why Operate?

Disclosure

Mark H. Meissner, MD

I have no disclosures relevant to this presentation
**Surgery for Chronic Iliac Obstruction**

When is it indicated?

- Failure of endovascular treatment
  - Inability to cross
  - Failed iliac stenting
  - Previous trauma with iliac ligation
  - Iliac vein tumors
  - Congenital iliac venous aplasia

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**AVF Guidelines**

*Głowiczki P, Handbook of Venous Disorders*

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Grade of Recommendation</th>
<th>Evidence Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>For symptomatic patients with unilateral iliofemoral venous occlusions who fail attempts at endovascular reconstruction we recommend open surgical bypass using saphenous vein as a crosspubic bypass (Palma procedure)</td>
<td>1 B</td>
<td>Grade of Recommendation</td>
</tr>
<tr>
<td>For symptomatic patients with iliac vein or IVC obstruction, we suggest open surgical bypass using an externally supported PTFE prosthesis, if endovascular options fail or are not possible</td>
<td>2 B</td>
<td>Evidence Quality</td>
</tr>
</tbody>
</table>

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**Surgery for Chronic Iliac Obstruction**

The Surgical Options

- Cross femoral bypass (Palma procedure)
  - Saphenous vein
  - Prosthetic
- In line prosthetic reconstruction
- Contraindications
  - Inadequate profunda inflow
  - Poor iliocaval outflow
  - Saphenous vein diameter < 4mm

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**Case**

- 31 yr old male
- 2009 - minor R knee injury s/p MVC
  - R iliofemoral DVT treated with CDT
  - CFV thrombosis following ? groin procedure
  - CFV to EIV saphenous interposition
- October 2013
  - Chronic R LE swelling
  - Venous claudication
  - CEAP C4
Limited collaterals

High Grade CFV Stenosis

Synechiae

U/S guided popliteal puncture
- Balloon angioplasty to 12 mm (Conquest balloon)

January 2014
- Persistent swelling & claudication
- CFV occlusion by U/S
- No improvement following CDT

Management Options
- Compression
- Endophlebectomy
- In line interposition
  - Jugular vein
  - Prosthetic
  - Palma cross femoral bypass
**Palma Cross-Femoral Bypass**

- Indications
  - Unilateral iliac occlusion
  - NL contralateral iliac
  - > 4 mm contralateral GSV

- Technique
  - 25 - 30 cm contralateral GSV
  - Suprapubic tunnel
  - Interrupted end to side anastamosis
  - Adjuvant AV fistula

- Alternative conduits
  - Ipsilateral GSV
  - 8 - 10 mm ringed PTFE

**Adjuvants to Surgical Reconstruction**

- Options
  - Side branch
  - GSV interposition
  - Prosthetic
  - < 0.3 graft diameter
  - Anastamosis to graft hood
  - Surgical vs percutaneous closure at 3 – 6 months
  - Aids to re-exploration
    - Encircling prolene suture
    - Orthopedic washers
    - Silastic sheets

- Intraoperative
  - Anticoagulation
  - Interrupted anastamoses
  - ? Heparin bonded grafts

- Post-operative
  - Anticoagulation
  - Intermittent pneumatic compression
  - Early ambulation
  - 30-40 mm compression stockings
  - Post-operative surveillance
Outcomes after Reconstruction

Jost, J Vasc Surg 2001

• 44 iliocaval reconstructions (42 patients)
  • 21 Palma-Dale reconstructions
    Saphenous vein – 18
ePTFE – 3
  • 20 Inline reconstructions
  • 1 Patch angioplasty

• 1º patency
  • GSV – 77% (4 yrs)
ePTFE – 0% (1 yr)

Other Open Techniques

Endophlebectomy

• Indications
  • Partial EIV / CFV obstruction
  • Inflow / outflow for other procedures

• Technique
  • Longitudinal venotomy
  • Sharp removal of synechiae / webs
    (intima preserved)
  • Patch closure

• 8 month patency (N = 13)
Puggioni et al; J Vasc Surg 2004
  • Primary - 77%
  • Secondary - 93%

Inline Prosthetic Reconstruction

• Externally supported PTFE
  • IVC 16 – 20 mm
  • Iliocaval 14 mm
  • Femorocaval 10-12 mm

• Factors effecting thrombogenicity
  (Plate, Surgery 1984)
  • Wetting graft with heparin
  • AV fistula < 3X graft diameter

Reconstruction of Iliac Venous Obstruction

Gloviczki P, Rutherford’s Vascular Surgery 2005

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Number</th>
<th>Follow-Up</th>
<th>Patency</th>
<th>Clinical Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross Femoral, Saphenous Vein</td>
<td>175 patients</td>
<td>6 – 144 mo</td>
<td>44 – 100%</td>
<td>69 – 100%</td>
</tr>
<tr>
<td>Cross Femoral, Prosthetic</td>
<td>47 patients</td>
<td>1 – 60 mo</td>
<td>17 - 85%</td>
<td>67 – 86%</td>
</tr>
<tr>
<td>In Line Prosthetic</td>
<td>59 patients</td>
<td>1 – 150 mo</td>
<td>29 – 100%</td>
<td>49 – 100%</td>
</tr>
</tbody>
</table>
Conclusions

- Prevention of primary importance
  - Accurate diagnosis of iliofemoral DVT
  - Prompt thrombolytic treatment
- Percutaneous recanalization & stenting is 1st line treatment
- Surgery for failure of endovascular approaches
  - Low morbidity
  - Good early results
- However, surgery remains a necessary fall back position
  - Palma procedure
  - In line reconstruction
  - Hybrid procedures