How to best approach chronic venous occlusions?

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Disclosure

Speaker name:
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☒ I have the following potential conflicts of interest to report:
☒ Consulting/Honoraria: BTG, Optimed, Cook, Volcano, BSCI
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)
☐ I do not have any potential conflict of interest
Venous Intervention

Acute DVT treatment
  Catheter-directed thrombolysis
  +/- Stenting

Chronic DVT treatment (PTS)
  Endovascular reconstruction
  Stenting

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How to best approach chronic venous occlusions?

- Performance of old generation stents
- Patient selection
- Testing prior to intervention
- Key points interventional approach
- Postinterventional care
Most commonly used iliofemoral venous stents

- Wallstent
- EverFlex
- Luninexx
- Lifestent
- SMART stent
- Zilver Vena stent
Primary patency of non-dedicated iliofemoral vein stents

Non-thrombotic (N=1122)

Acute thrombosis (N=629)

Chronic postthrombotic (N=1118)

Mahmood K. Razavi et al. Circ Cardiovasc Interv. 2015;8:e002772
Clinical outcomes of iliofemoral venous stents

<table>
<thead>
<tr>
<th>Major bleeding</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonthrombotic</td>
<td>0.3%</td>
</tr>
<tr>
<td>Acute thrombosis</td>
<td>1.1%</td>
</tr>
<tr>
<td>Chronic postthrombotic</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

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Clinical outcomes of iliofemoral venous stents

Pulmonary embolism

<table>
<thead>
<tr>
<th>Type</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonthrombotic</td>
<td>0.2%</td>
</tr>
<tr>
<td>Acute thrombosis</td>
<td>0.9%</td>
</tr>
<tr>
<td>Chronic postthrombotic</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

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Clinical outcomes of iliofemoral venous stents

Early stent thrombosis

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonthrombotic</td>
<td>1.0%</td>
</tr>
<tr>
<td>Acute thrombosis</td>
<td>6.5%</td>
</tr>
<tr>
<td>Chronic postthrombotic</td>
<td>6.8%</td>
</tr>
</tbody>
</table>

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Clinical outcomes of iliofemoral venous stents

Complete pain relief

- Nonthrombotic: 81.5%
- Acute thrombosis: 100%
- Chronic postthrombotic: 69.3%

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Clinical outcomes of iliofemoral venous stents

Complete edema relief

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonthrombotic</td>
<td>68.0%</td>
</tr>
<tr>
<td>Acute thrombosis</td>
<td>100%</td>
</tr>
<tr>
<td>Chronic postthrombotic</td>
<td>63.6%</td>
</tr>
</tbody>
</table>

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Clinical outcomes of iliofemoral venous stents

Complete ulcer healing

Nonthrombotic 81.1%
Acute thrombosis -
Chronic postthrombotic 70.8%

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Candidates for Endovascular Therapy of PTS: Clinical & Anatomical Criteria

• Clinical: Presence of the post-thrombotic syndrome
  – Quality-of-life limiting venous claudication and other symptoms of venous leg hypertension
  – Skin changes (Varicosis, Hyperpigmentation, Lipodermatosclerosis)
  – Ulcers
  – Pelvic congestion symptoms
  – Varicocele
  – Recurrent thrombophlebitis

• Anatomical: Occlusion of common femoral vein, or iliac vein, or inferior vena cava
Useful Tests prior to Intervention

- Vein plethysmography (to verify chronic venous insufficiency)
- Exercise testing (to quantify venous claudication)
- Duplex sonography (access site femoral vs popliteal)
- MR or CT Phlebography
Key Points Interventional approach (1)

- Contrast-enhanced CT or MR are essential for planning the procedure.
- Do not use common femoral access for most cases because common femoral vein is often postthrombotic.
- Stiff exchange length glide wires for crossing venous occlusions (in rare cases 0.018 CTO wire: Asahi Astato 30)
Key Points Interventional approach (2)

- IVUS may be helpful for planning stent implantation, particularly if the common femoral vein is involved
- Nominal diameter predilation
- Stent from normal inflow to normal outflow
- Stenting across the inguinal ligament may be necessary when common femoral vein is postthrombotic
- High pressure ballooning of all implanted stents
Postinterventional care

• All patients need at least 3 months of anticoagulation therapy post stenting
• The role of antiplatelet agents is unknown
• Definite duration of anticoagulation depends on VTE risk factors
• Regular postinterventional clinical and Duplex monitoring at 3, 6, and 12 months, and than once yearly
Take home

• Endovascular therapy of iliofemoral obstruction is the treatment of choice for patients with PTS
• Most patients have improvement of PTS symptoms and signs and better quality of life
• Primary patency rates with old-generation stents are 60% at 5 years
• Patency rates with new generation dedicated venous stents are being investigated
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