Iliac vein recanalizations: Indication, techniques and outcome

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Disclosure

Speaker name:

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I have the following potential conflicts of interest to report:

☐ Consulting

☐ Employment in industry

☐ Stockholder of a healthcare company

☐ Owner of a healthcare company

☒ Other(s)

Speaker honoraria (BARD/BD, Optimed, Biotronik)

☐ I do not have any potential conflict of interest
Iliac vein recanalizations

- Indications

- Techniques

- Outcomes
Indications

**Thrombotic lesions**
- Acute iliofemoral vein thrombosis
- Chronic postthrombotic lesions

**NIVL**
- Nonthrombotic iliac vein lesions
- May-Thurner-syndrome
- Other compression syndromes (tumors, cysts, fibrosis,...)

**Iliocaval atresia**
“Open vein hypothesis”

Primary aim = reduction of postthrombotic syndrome

CONCLUSIONS

Among patients with acute proximal deep-vein thrombosis, the addition of pharmacomechanical catheter-directed thrombolysis to anticoagulation did not result in a lower risk of the post-thrombotic syndrome but did result in a higher risk of major bleeding. ( Funded by the National Heart, Lung, and Blood Institute and others; ATTRACT ClinicalTrials.gov number, NCT00790335.)
Entity of thrombosis

Ascending

Descending

Transfascial

Vasa 2016, Supplement 90. DOI 10.1024/0301-1526/a000485

www.veinguide.com
Learning points

- Iliofemoral DVT versus femoropopliteal DVT

- Additional IVUS versus angiography only

- Liberal stenting versus restrictive stenting

- Venous stents versus arterial stents for veins

- For severe symptoms & low bleeding risk


Comerota AJ et al. Circulation 2018;doi:10.1161/CIRCULATIONAHA.118.037425
Chronic postthrombotic syndrome

Edema, telangiectasia, venous ectasia, varicose veins, hyperpigmentation, lipodermatosclerosis, ulceration

+ venous claudication!
Recommendations

**ESVS recommendations:**
In patients with *clinically relevant chronic ilio-caval or ilio-femoral obstruction* or in patients with *symptomatic non-thrombotic iliac vein lesions*, *percutaneous transluminal angioplasty and stent placement using large self expanding stents* should be considered. [Grade – IIa; Level of evidence B]

Wittens C et al. Eur J Vasc Endovasc Surg 2015

**SVS/AVF guidelines:**
In a patient with *inferior vena cava or iliac vein chronic total occlusion or severe stenosis*, with or without *lower extremity deep venous reflux disease*, that is associated with *skin changes at risk for venous leg ulcer (C4b), healed venous leg ulcer (C5), or active venous leg ulcer (C6)*, we recommend *venous angioplasty and stent recanalization in addition to standard compression therapy to aid in venous ulcer healing and to prevent recurrence*. [Grade – 1; Level of evidence - C]


**CIRSE recommendations:**
Patients with *CEAP clinical class 3-6 and chronic venous outflow obstruction* should be considered for interventional therapy

Mahnken AH et al. Cardiovasc Intervent Radiol 2014
Iliac vein recanalizations

- Indications
- Techniques
- Outcomes
Planning of the procedure

1. supine / prone

2. Urinary catheter

3. High-end US-machine

4. 6F + 10F sheath

5. 0.035 Terumo (stiff-angled), Asahi Astato 30

6. MP, CXI, Seeker catheter

7. IVUS

8. NC-Ballon (Atlas), high pressure Manometer (Presto)

12. Selection of dedicated venous stents
Acute deep venous thrombosis (DVT)
Iliac vein recanalizations

- Indications

- Techniques

- Outcomes
Outcome data

Meta-Analysis 37 studies: technical success 94-96%, periprocedural mortality 0.1-0.7%

## 5 year patency

<table>
<thead>
<tr>
<th>Study</th>
<th>Stent</th>
<th>N (total)</th>
<th>N (NIVL/MTS)</th>
<th>Follow Up</th>
<th>Primary Patency (total)</th>
<th>Primary Patency (NIVL/MTS)</th>
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<tbody>
<tr>
<td>O’Sullivan G et al. presented @ LINC 2017</td>
<td>Zilver Vena</td>
<td>35</td>
<td>n/a</td>
<td>12 months</td>
<td>88%</td>
<td>n/a</td>
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<td>De Wolf MAF et al. Eur J Vasc Endovasc Surg 2015</td>
<td>Sinus Venous</td>
<td>75</td>
<td>35</td>
<td>12 months</td>
<td>92%</td>
<td>100%</td>
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<td>Stuck AK et al. J Endovasc Ther 2017</td>
<td>Sinus Obliquus</td>
<td>24</td>
<td>4</td>
<td>10 months</td>
<td>83%</td>
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<tr>
<td>Stuck AK et al. Vasa 2018</td>
<td>Sinus Obliquus</td>
<td>93</td>
<td>29</td>
<td>12 months</td>
<td>79%</td>
<td>89%</td>
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<tr>
<td>Razavi M. et al. J Vasc Surg Venous Lymphat Disord 2018</td>
<td>Vici Venous</td>
<td>30</td>
<td>11</td>
<td>12 months</td>
<td>93%</td>
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<tr>
<td>Black S et al. Eur J Vasc Endovasc Surg 2018</td>
<td>Vici Venous</td>
<td>88</td>
<td>n/a</td>
<td>21 months</td>
<td>78%*</td>
<td>n/a</td>
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<tr>
<td>Lichtenberg M et al. Vasa 2018</td>
<td>Venovo</td>
<td>80</td>
<td>30</td>
<td>6 months</td>
<td>96%</td>
<td>97%</td>
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<tr>
<td>Lichtenberg M et al. Vasa 2018</td>
<td>Vici Venous</td>
<td>82</td>
<td>40</td>
<td>12 months</td>
<td>94%</td>
<td>100%</td>
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<td>Lichtenberg M et al. Vasa 2018</td>
<td>Sinus Obliquus</td>
<td>48</td>
<td>26</td>
<td>12 months</td>
<td>94%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*assisted primary patency

Razavi MK et al. Circ Cardiovasc Interv 2015
Key points

- Careful patient selection (iliocaval/iliofemoral)

- Treatment option for acute \textit{and} chronic cases

- Equipment-Expertise-Environment

- Close post-interventional follow-up
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