Well-Recognized Venographic Signs Of Significant Iliac Vein Compression In Asymptomatic Young Volunteers

**May Thurner Anatomy**

- Anatomical variant with a prevalence 22-32% in cadaveric research. (1,2)
- General population unknown prevalence

**Disclosures:**

- **Consultancies:**
  - Angiocare
  - Medi
  - OptiMed
  - Vascular Insights
  - IQ Brand Group
- **Research funds:**
  - BTG
  - OptiMed
  - Olympus
  - Bayer
  - AB medica
  - Angiocare
  - Philips
  - Cook
  - Boston Scientific

**Radiographic signs**

- >50% compression of the common iliac vein (CIV)
- lumen deformity
- translucency: a visual impression of an overriding common iliac artery on multi-plane angiography
- presence of collateral veins on angiography

**Methods**

- Twenty participants were voluntarily included
  - between the ages of 18 and 45 years
  - Owing to the higher prevalence of May-Thurner compression: more females
- **Exclusions:**
  - A CESS score of 2 or higher
  - A CESS score of 3 or higher
  - arterial disease
  - history of vascular disorders
  - history of deep venous thrombosis
  - surgery to the groin, lower limb, or abdomen.
  - Active malignancy
  - allergy to lidocaine
  - allergy to contrast agents
  - Pregnancy (tested in all females)

• Because around 25% of treated patients do have a patent stent but no clinical improvement due to ??
  - Misleading clinical signs ?
  - Wrong radiographic signs

• We performed a study:
  - The aim of the current study was to assess the prevalence of angiographic signs of iliac vein compression in a group of healthy participants
  - To analyze the opinions for treatment of iliac vein compression in a selected group of clinicians.
Angiography

- evaluated for
  - >50% compression of the CIV (1 item),
  - lumen deformity of the CIV (1 item),
  - translucency: visual impression of an overriding common iliac artery (1 item)
  - collateral flow

- When only one of these factors was present, an adequately sized balloon (20x22 mm 40 mm, MaxiLD, Cordis, Johnson & Johnson, Diegem, Belgium) was inflated to occlude the CIV and search for collaterals

Results

<table>
<thead>
<tr>
<th></th>
<th>Without balloon occlusion</th>
<th>With balloon occlusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fifteen (94%) females showed at least two angiographic signs of iliac vein obstruction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None of the three male participants showed any angiographic sign of iliac vein obstruction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Following balloon occlusion, all showed collaterals.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Survey

- 30 vascular specialists
- 16 would stent a >50% CIV compression
- 23 considered collaterals to be the most typical angiographic sign indicating a significant venous obstruction.
- 15 would stent when collaterals were seen in combination with a 30 to 50% CIV compression
- 19 were not able to use IVUS
- 1 used solely IVUS with a 30 to 50% CIV compression as an indication for stenting

Table 1. Demographics of included subjects.

<table>
<thead>
<tr>
<th>Age (Median, IQR)</th>
<th>21 (20–22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Females, N (%)</td>
<td>16 (60)</td>
</tr>
<tr>
<td>Males, N (%)</td>
<td>4 (30)</td>
</tr>
<tr>
<td>Venous history, N (%)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Smoking, N (%)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Abdominal wall collateral, N (%)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>CEAP</td>
<td></td>
</tr>
<tr>
<td>C1, N (%)</td>
<td>16 (60)</td>
</tr>
<tr>
<td>C2, N (%)</td>
<td>4 (20)</td>
</tr>
<tr>
<td>&gt; C2, N (%)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

VCSS

0–1, N (%) | 20 (100)
2–3, N (%) | 0 (0)

N = number; CEAP = Clinical, anatomic, anatomic; and pathophysiologic; VCSS = Venous Clinical Severity Score.
Conclusion

- Because a high percentage of generally accepted signs of a significant iliac vein obstruction on venography are identified in healthy young subjects again confirms that imaging alone is not enough to select patients for stenting.

- Patient selection remains therefore a major challenge:
  - Depending on clinical signs and symptoms
  - Anatomical findings:
    - Depending on angiographic findings
    - Depending on echocardiography
    - Depending on menisci

- Future hemodynamical measurements:
  - 24 hour femoral vein pressure measurements
  - 24 hour non-invasive flow measurements.