Pelvic Varices: Treatment of Chronic Pelvic Pain and Atypical Lower Extremity Varices

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Consulting Fee: Medtronic, BTG, Vascular Insights, Vesper Medical

Speakers Bureau: Medtronic, BMS

Research Grants: Medtronic, BTG, Vascular Insights, Bayer, AngioDynamics
Presentation of Pelvic Venous Disorders:

- Leg veins
- Vulvar veins
- Pelvic symptoms
Considerations

- Investigate/rule out compression appearing as reflux
- How old is the patient?
- How severe are the symptoms? Where are they?
- Treat the patient, not the diagnostic image
- Careful history - what is bothering your patient, why did they come to see you?
- Considerations: expense, recovery, insurance coverage, radiation exposure
Do the symptoms fit the diagnosis?

- Chronic noncyclical pelvic pain more than 6 months in duration

- History & Exam - 94% sensitive, 77% specific (Beard RW, Br J Obstet Gynaecol 1988)
  - Post-coital pain
  - Ovarian tenderness
  - Unusually distributed varices

- Chronic pelvic pain
  - Pelvic pain > 6 months
  - 10% of outpatient gynecologic visits
  - Causes (Soysal, Human Reprod 2001)
    - Endometriosis (39%)
    - Pelvic congestion syndrome (31%)
    - Pelvic inflammatory disease (11%)
    - Adhesions (10%)
    - Fibroids (3.7%)
    - Irritable Bowel
Current controversies

- No consensus on best mode of diagnosis or treatment
- No long term outcome papers
- No scale to describe, rate severity or quality of life
- Recurrence rates are not well established
- How to measure success? No established dedicated QOL score
- Options: hormonal management v. coil embolization v. sclerotherapy of pelvic veins v. both, v. hysterectomy
When to treat the pelvic source varicosities in the pelvis without leg or vulva varicose veins?

- When the symptoms have a significant impact on patient quality of life/well being - counsel them; symptoms usually improve after menopause
- When the risk/benefit ratio is acceptable to the patient
- In the absence of insurance coverage, the treatment can be afforded by the patient
- Should not treat these veins prophylactically or if symptom impact is minimal
Pelvic Venous Insufficiency (my protocol):

- Asymptomatic
- Minimally Symptomatic
  - Don’t treat
  - Pelvic symptoms
    - Coils & Sclerotherapy
  - No Pelvic symptoms
    - Sclerotherapy From below
- Symptomatic
Treatment of Pelvic Venous Reflux

• 106 women with PCS failing 4 - 6 months medroxyprogesterone

• Diagnosis confirmed by laparoscopy and venography

• Randomized to
  • Ovarian vein embolization (n = 52)
  • Hysterectomy / BSO / HRT (n = 32)
  • Hysterectomy / USO (n = 34)

*p < 0.05

Slide courtesy Mark Meissner, MD
Results depend on outcome measure studied (not uniform)

### Qualitative Symptom Improvement

<table>
<thead>
<tr>
<th>Author</th>
<th>N</th>
<th>Treatment</th>
<th>Symptoms Resolved</th>
<th>Symptoms Improved</th>
<th>No Change / Worse</th>
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</thead>
<tbody>
<tr>
<td>Asciutto</td>
<td>71</td>
<td>Coils only</td>
<td>-</td>
<td>-</td>
<td>53%</td>
</tr>
<tr>
<td>Laborda</td>
<td>179</td>
<td>Coils only</td>
<td>-</td>
<td>-</td>
<td>6.2%</td>
</tr>
<tr>
<td>Nasser</td>
<td>100</td>
<td>Coils only</td>
<td>53%</td>
<td>47%</td>
<td>0%</td>
</tr>
<tr>
<td>Kim</td>
<td>97</td>
<td>Sclero + coils</td>
<td>-</td>
<td>-</td>
<td>17%</td>
</tr>
<tr>
<td>Monedero</td>
<td>100</td>
<td>Sclero + coils</td>
<td>64%</td>
<td>29%</td>
<td>7%</td>
</tr>
<tr>
<td>Hocquelet</td>
<td>33</td>
<td>Sclero + coils</td>
<td>61%</td>
<td>33%</td>
<td>6%</td>
</tr>
<tr>
<td>Capasso</td>
<td>-</td>
<td>Glue / coils</td>
<td>57.9%</td>
<td>15.8%</td>
<td>26.3%</td>
</tr>
<tr>
<td>Maleux</td>
<td>41</td>
<td>Glue</td>
<td>58.5%</td>
<td>9.7%</td>
<td>31.8%</td>
</tr>
<tr>
<td>Van der Vleuren</td>
<td>21</td>
<td>Glue</td>
<td>14.3%</td>
<td>61.9%</td>
<td>23.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>642</td>
<td></td>
<td></td>
<td></td>
<td>15%</td>
</tr>
</tbody>
</table>

*Slide courtesy Mark Meissner, MD*
Procedural Variability and Outcomes

**Extent of Embolization**

<table>
<thead>
<tr>
<th>Author</th>
<th>N</th>
<th>Left Ovarian</th>
<th>Right Ovarian</th>
<th>Left IIV</th>
<th>Right IIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asciutto</td>
<td>71</td>
<td>57.7%</td>
<td>4.2%</td>
<td>49.2%</td>
<td>57.7%</td>
</tr>
<tr>
<td>Nasser</td>
<td>113</td>
<td>100%</td>
<td>72%</td>
<td>80%</td>
<td>46%</td>
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<tr>
<td>Laborda</td>
<td>202</td>
<td>100%</td>
<td>95.5%</td>
<td>91.1%</td>
<td>73.8%</td>
</tr>
<tr>
<td>Maleux</td>
<td>41</td>
<td>78%</td>
<td>22%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pieri</td>
<td>33</td>
<td>97%</td>
<td>67%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chung</td>
<td>106</td>
<td>92.4%</td>
<td>15.1%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Capasso</td>
<td>19</td>
<td>100%</td>
<td>31.6%</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>

- 36% failure rate if refluxing IIV left untreated
- Improved results with bilateral ovarian embolization
- Tendency for recurrence in untreated veins

*Asciutto G, Eur J Vasc Endovasc Surg 2009*
†Monedero JL, Phlebology 2012

Slide courtesy Mark Meissner, MD
Principles of Treatment

• Define what you are treating-treat the patient not the imaging

• Make sure the clinical picture and the anatomic findings are in agreement

• Proper informed consent and management of patient expectations (goal may be improvement rather than resolution)

• Balance risks and benefits-this is a quality of life impacting disorder, not life threatening, so patient voice is important
Treatment approaches-pelvis

- Via Jugular (my favorite) v. femoral vein approach.
- Select both ovarian veins, both internal iliac veins
- Coil/sclerotherapy “sandwich” technique v. coils alone for the ovarian veins
- Balloon occlusion sclerotherapy for the internal iliac branches
Treatment steps

- Access prep both groins, and Right IJ (my favored access). Place larger sheath (8 French) past atrium and hepatic veins to maintain access - I like a renal curve bright tipped sheath

- Confirm diagnosis

- Treatment - I start LOV -> ROV -> 1st IIA -> 2nd IIA. Sandwich technique: occlusion balloon sclerotherapy, coils
Confirm diagnosis

- If no previous venogram, confirm diagnosis
- Will access both ovarian veins, both common, external, and internal iliac veins. Balloon occlusion venography helpful in internal iliac veins
- Rule out occlusive disease-sometimes I will use IVUS if there is a question (not necessary if diagnosis is obvious)
- Flow pattern can distinguish left renal vein obstruction with compensatory renal vein flow v. primary ovarian vein reflux
Criteria for abnormal venography

- From Beard, et al, 1984
  - Ovarian vein diameter ≥ 6 mm
  - Contrast retention > 20 sec
  - Pelvic venous congestion / Filling of IIV
  - Filling of vulvar / thigh varicosities
Left renal vein obstruction, iliac occlusion, aberrant anatomy

Circumaortic Left renal artery

Iliac vein occlusion
Diagnostic Venography

Left ovarian vein
Right ovarian vein
Internal Iliac Veins

Occlusion venography

Courtesy of Mark Meissner
Retrograde ovarian flow: primary reflux or left renal vein stenosis?

Rapid

Slow

IVUS

Pullback pressures

Flow pattern

Collaterals

OBSTRUCTION

REFLUX

Rapid

Rapid

Slow
Treatment steps

- Access prep both groins, and Right IJ (my favored access). Place larger sheath (8French) past atrium and hepatic veins to maintain access-I like a renal curve bright tipped sheath
- Confirm diagnosis
- Treatment-I start LOV->ROV->1\textsuperscript{st} IIA->2\textsuperscript{nd} IIA. Sandwich technique: occlusion balloon sclerotherapy, coils
Pre and Post Sclerotherapy
Post sclero appearance

Occlusion balloon

Ground Glass
Ovarian vein-sclerotherapy/coil embolization
Treatment steps

- Access prep both groins, and Right IJ (my favored access). Place larger sheath (8French) past atrium and hepatic veins to maintain access-I like a renal curve bright tipped sheath

- Confirm diagnosis

- Treatment-I start LOV->ROV->1\textsuperscript{st} IIA->2\textsuperscript{nd} IIA. Sandwich technique: occlusion balloon sclerotherapy, coils

- After care: outpatient procedure, access site precautions, NSAIDS
When to treat the pelvic source with leg or vulva varicose veins and no pelvic symptoms?

- When the symptoms have a significant impact on patient quality of life/well being - counsel them. Symptoms usually improve after menopause.
- When the risk/benefit ratio is acceptable to the patient.
- "Bottom up" my preferred approach in the absence of pelvic symptoms.
Anatomic Clinical Presentation - leg veins with pelvic source

Anterior

Medial

Posterior
<table>
<thead>
<tr>
<th>Study</th>
<th>Pt population</th>
<th>Outcome measure</th>
<th>Results</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratnam, et al 2008</td>
<td>218 women with “atypical varices”</td>
<td>Elimination of reflux on transvaginal ultrasound</td>
<td>84% elimination of reflux,</td>
<td>2 pts had coil embolization to lung, 1 to CFV</td>
</tr>
<tr>
<td>Creton, et al 2007</td>
<td>24 women with perineal vvs and pelvic symptoms</td>
<td>VAS for pain with menses, intercourse and in veins</td>
<td>76% improvement in combined score at 3 yrs</td>
<td>Only 10/22 had no recurrence at 3 years</td>
</tr>
<tr>
<td>Hartung 2015</td>
<td>119 women who underwent pelvic venography (chart review)</td>
<td>“Improvement” in symptoms of PCS and pain and “volume and extent” of varicose veins</td>
<td>91% had improvement in PCS symptoms, 51% “mild to moderate” leg improvement, but no “real significant improvement”</td>
<td>82% underwent subsequent treatment of leg veins</td>
</tr>
</tbody>
</table>
# Treatment with sclerotherapy

<table>
<thead>
<tr>
<th>Pt population</th>
<th>Outcome measure</th>
<th>Results</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sukovatykh, et al 2008</td>
<td>59 women with “atypical varices of pelvic origin”</td>
<td>“Clinical examination, duplex, and patient self-assessment of quality of life</td>
<td>32.6% “excellent”, 46.1% “good”, 19.1% satisfactory, 2.2% ”unsatisfactory”</td>
</tr>
<tr>
<td>Praskevas P, 2011</td>
<td>Case of one woman with pelvic source lower extremity varicosities</td>
<td>Symptoms, appearance</td>
<td>No visible varicose veins or symptoms at 6 months</td>
</tr>
</tbody>
</table>
Treating from the “bottom up”
My technique (bottom up approach): Ultrasound guided foam sclerotherapy

- In office procedure
- Small needle, ultrasound guidance
- 1% polidocanol mixed in a 1:4 ratio with O2/CO2
- Use warm gel, “stepoff”, I have an RVT assist as each of us flattens the skin with one hand
- Occasional microphlebectomy for unusually large branches
- Normal activities, “Spanx” for two weeks
Ultrasound guided foam sclerotherapy
Alternative Technique

- Ultrasound guided puncture of extrapelvic varices (Leg, vulvar, gluteal)
- Fluoroscopic calibration of varicose venous volume with contrast (angio suite)
- Foam sclerotherapy to level of broad ligament
Results (clinical F/U, not study)

- 72 patients
  - 15 not treated
  - 6 treated, LTF
    - 1 no improvement (2%)
    - 15 Improved (29%)
    - 35 Resolved (68%)
      - 7 no further treatment
      - 6 more sclerotherapy
      - 1 recurrence (more sclerotherapy)
  - 51 treated, not LTF
    - 35 Resolved (68%)
      - 1 recurrence (more sclerotherapy)
      - 6 more sclerotherapy
      - 2 Pelvic interventions

3-24 months
Unanswered questions

- Which approach offers the greatest improvement in symptoms in patients with pelvic source varicose veins of the vulva and leg?
- How often will leg and vulva symptoms go away with coil embolization alone?
- What is the recurrence rate after treatment of pelvic source veins in the vulva and leg. Does treatment of the pelvic reservoir decrease the recurrence rate?
- Which approach is the most cost effective?
- Are their clinical criteria that can be developed to tailor treatment to patient presentation?
- How do we measure outcomes?
Conclusions

- Pelvic vein incompetence is not uncommon in women, particularly after pregnancy
- Diagnosis should include proper history (pattern recognition) and diagnostic imaging in agreement with these findings
- Rule out compression
- Treat patients with significant impact on QOL
- Be systematic and methodical when treating
- Disease specific assessment tools needed
- Costs must be considered: we must be responsible with our health care dollars
- We need to learn more!
Thank you!