Pelvic Congestion Syndrome: Diagnosis and Treatment Challenges

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Disclosure

Speaker name: Kathleen Gibson, MD

I have the following potential conflicts of interest to report:

- Consulting: Consultant for Medtronic
Pelvic Venous Disorders:

- Leg veins
- Vulvar veins
- Pelvic congestion syndrome

A common problem with a wide variety of presentations. Term “pelvic congestion syndrome” overly simplistic and does not cover whole spectrum of these disorders.
Pathophysiology/Etiology

- Incompetence of the ovarian or internal iliac veins (PCS with or without labial/vulvar varices)
- Nutcracker syndrome: compression of the left renal vein by the superior mesenteric artery v. “stretch” of renal vein across aorta leading to incompetence of the left ovarian/pelvic/perirenal veins
- In almost all cases (nutcracker being the exception), syndrome occurs during/after pregnancy
Ovarian Vein Anatomy

- Provides drainage of the parmetrium, cervix, mesosalpinx, pampiniform plexus
- Drainage Pattern: 2 - 3 trunks form single vein at L4. Right empties into IVC, left the left renal vein.
- Mean diameter 3.1 mm
- 2 - 3 valves
- Valvular incompetence in 47% of women
Pubis, Vulva, Labia Majora
- Round Ligament
- Obturator Vein

Inner Thigh, Posterior Vulva
- Internal Pudendal
- Ovarian Veins

Gluteal, Posteromedial Thigh
- Gluteal
- Internal Pudendal

Villavicencio, et al
Questions/Controversies

• Who are these patients?
• How should they be worked up?
• What is the best treatment?
Recognition/Physical Examination:
Leg Veins with Pelvic Source

Anterior

Medial

Posterior
Characteristics of Patients in our Practice: Perineal Veins

- **72 symptomatic** patients seen over 18 mos (7/2012-12/2013), compared to 1164 women seen in same time period without pelvic source varicose veins
- Mean age 44.15 (compared to mean age of 51.8 in 1163 women seen in our clinic with vvs during same period, p<0.0001)
- Median births 3, mean birth weight 3538 g (7 lb 12 oz), mean largest baby 3770 g (8 lb 5 oz)
- Mean BMI 21.9 (compared to 25.8 for “vv all” population, p<0.0001)
## Patient Reported Symptoms

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aching</td>
<td>68% (49)</td>
</tr>
<tr>
<td>Throbbing</td>
<td>47% (34)</td>
</tr>
<tr>
<td>Heavy</td>
<td>35% (25)</td>
</tr>
<tr>
<td>Pressure</td>
<td>33% (24)</td>
</tr>
<tr>
<td>Fullness</td>
<td>18% (13)</td>
</tr>
<tr>
<td>Painful</td>
<td>12% (9)</td>
</tr>
<tr>
<td>Swollen</td>
<td>11% (8)</td>
</tr>
<tr>
<td>Other (stabbing, burning, inflamed, bursting)</td>
<td>17% (12)</td>
</tr>
</tbody>
</table>
## Activity/Temporal Relationships

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menses</td>
<td>65% all, 73% premenopausal (47)</td>
</tr>
<tr>
<td>Exercise</td>
<td>38% (27)</td>
</tr>
<tr>
<td>Standing</td>
<td>36% (26)</td>
</tr>
<tr>
<td>Dyspareunia</td>
<td>25% (18)</td>
</tr>
<tr>
<td>Sitting</td>
<td>17% (12)</td>
</tr>
<tr>
<td>Condition</td>
<td>N (%)</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>GSV incompetence</td>
<td>39 (54.1%)</td>
</tr>
<tr>
<td>Terminal valve incompetence</td>
<td>22 (30.6%)</td>
</tr>
<tr>
<td>Leg pain</td>
<td>60 (83.3%)</td>
</tr>
<tr>
<td>Pelvic pain</td>
<td>5 (6.9%)</td>
</tr>
<tr>
<td>Hx of hemorrhoids</td>
<td>38 (52.8%)</td>
</tr>
</tbody>
</table>
Conclusions from Study Duplex Scans

- The majority of patients had some GSV incompetence
- The minority of patients had terminal valve incompetence
- Pelvic source veins could be missed as a source—“if you don’t look for them, you can miss them”
- Be suspicious in patients that “fit the profile”
The Profile

• Primary symptoms are throbbing and aching, worse during menstrual cycle
• Patients with perineal/pelvic source varicose veins are younger, and thinner than the “general” population of patients with varicose veins
• Symptomatic perineal veins occur in women who have been pregnant, and data suggests they may have infants with higher birth weights than the general population
• Pain scales show inverse correlation with age, no correlation with BMI or GSV involvement
Typical pelvic symptoms

- Pelvic heaviness/pain (at least 6 months)
- Dysparuenia
- Urinary frequency
- Lumbar pain
- Often patients have had alternative diagnoses proposed-endometriosis, leiomyomata, adenomyosis, etc.
Improving Diagnosis

• Clinical suspicion: pattern recognition, symptoms worse with menses, symptoms during pregnancy
• Duplex ultrasound: follow to highest proximal point in the limb, plus transabdominal duplex
• Transvaginal ultrasound
• Cross-sectional imaging
• Venography (with intent to treat)-the gold standard
Transabdominal Ultrasound

- Uterus
- Ovarian vein
- L CIV
- R EIA
A standardized ultrasound approach to pelvic congestion syndrome

Nicos Labropoulos¹, Patrick T. Jasinski¹, Demetri Adrahtas¹, Antonios P. Gasparis¹ and Mark H. Meissner²

IVC Iliac Vein Duplex Scan

<table>
<thead>
<tr>
<th>Flow</th>
<th>Thrombus</th>
<th>Flow</th>
<th>Thrombus</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVC Prox</td>
<td>Normal</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>IVC Juxtarenal</td>
<td>Normal</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>IVC Dist</td>
<td>Normal</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Right Ovarian Vein</td>
<td>Possible comp.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Left Ovarian Vein</td>
<td>No</td>
<td>Possible comp.</td>
<td>L CIV</td>
</tr>
<tr>
<td>R CIV</td>
<td>Possible comp.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>R IIIV</td>
<td>Normal</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>R EIV</td>
<td>Normal</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Iliacs</td>
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</table>
Transvaginal Ultrasound

Courtesy of Mark Meissner, MD
Cross-Sectional Imaging
Venography-Gold Standard
Our duplex technique

• Fasting, supine, head at 30 degrees (can be upright)
• Curvilinear probe, 2-5 mHz
• Image IVC, left renal vein, ovarian veins, periuterine veins, and internal iliac veins (deep and posterior to common iliac veins)
• Look for obstruction, direction of flow
• Ovarian veins are along psoas-may have multiple trunks
• Look for ovarian vein reflux and periuterine vein reflux with Valsalva
Treatment of Pelvic source veins: Current Controversies

• No consensus on best mode of treatment
• No long term outcome papers, quality of evidence is poor
• Recurrence rates are not well established or defined (clinical recurrence v. imaging recurrence)
• Treat the “reservoir” v. what is bothering the patient
• How to measure success?
• Options: coil embolization/sclerotherapy of pelvic veins v. sclerotherapy of vulvar veins alone
Treatment: Perineal Veins

- Treat the patient, not the diagnostic image
- Careful history - what is bothering your patient, why did they come to see you?
- Can treat the source (“top down”) or the branches/reservoir (“bottom up”)
- Considerations: expense, recovery, insurance coverage, radiation exposure
My Technique (Bottom Up Approach) for vulvar veins: 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
Before and After
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
When to Treat the Pelvic Source?

- When the primary symptom complex is pelvic: low back pain, heaviness in the pelvis, pain with intercourse, worse with menses
- Failure of treatment/frequent or early recurrence of vulvar and leg veins treated from the “bottom up” approach
- Patients with significant symptoms often eager for treatment
Considerations

• Investigate/rule out compression (May - Thurner or Nutcracker) can mimic reflux symptoms
• How old is the patient? Symptoms improve after menopause.
• How severe are the symptoms? What anatomic location?
• 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
Treatment Approaches for Coil Embolization

- Via jugular (my favorite) v. femoral vein approach
- Select both ovarian veins, both internal iliac veins
- Verify diagnosis: rule out obstruction (Nutcracker/May Thurner)
- Coil/sclerotherapy “sandwich” technique v. coils alone for the ovarian veins
- Balloon occlusion sclerotherapy for the internal iliac branches
Tools/Techniques I Like

- IJ approach
- Renal curve sheath/MPA
- Microcatheters
- Occlusion balloon
- STS foam with or without Lipiodol
- Toradol during procedure
Ovarian Vein: Sclerotherapy/Coil Embolization
Pelvic Venous Insufficiency (My Protocol):

Asymptomatic

Minimally Symptomatic

Symptomatic

Don’t Treat

Pelvic Symptoms

Coils & Sclerotherapy

No Pelvic Symptoms

Sclerotherapy From Below
Conclusions

- Pelvic source veins of the pelvis, vulva, perineum, and thigh share a common anatomic source with pelvic congestion syndrome, but patient presentation can differ.
- As disease state has increased attention, improvements and standardization for diagnostic techniques needed.
- Treatment methods vary, no data to tell us what is best.
- Costs must be considered: we must be responsible with our health care dollars.
- We need to learn more! Validated assessment tools are needed.
THANK YOU!
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