Venous embolisation for patients with pelvic congestion syndrome

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Disclosure

Speaker name:
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I have the following potential conflicts of interest to report:

☑ Consulting (Medtronic, Gore, GEM, Guerbet)
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☐ I do not have any potential conflict of interest
Definition

PCS is a clinical syndrome with specific anatomic findings, chronic pelvic pain of greater than 6 months duration secondary to pelvic venous insufficiency and associated pelvic venous distention.

Epidemiology

• Chronic pelvic pain may account for approximately 10% of outpatient gynecologic visits and for 1/3 of diagnostic laparoscopy performed

• 30% are unexplained and present both diagnostic and therapeutic challenges

• Pelvic varicosities are present in up to 30% of women with unexplained chronic pelvic pain

• Up to 20% of patients with lower limb varices partly or completely of pelvic origin

Asciutto et al. Eur J Vasc Endovasc Surg 2009
Bora et al. JBR-BTR 2012
Mechanism

3 connected systems:
- Femoro-ilio-caval venous system and SFJ
  - Internal iliac veins
  - Ovarian veins

Umeoka et al. Radiographics 2004;24:193-208
Symptoms

- Chronic pelvic pain and heaviness
  - Without evidence of inflammation or other obvious pathology
  - Worsened by walking, standing position and before menstruation
- Dyspareunia, post-coital pain, dysmenorrhea
- Unexplained dysuria
- Perineal heaviness
- Fullness of leg veins (with or without leg varices)
- Previous pregnancies or surgery for lower limb varices

...when combined with ovarian point tenderness

94% sensitive and 77% specific for PCS...

Imaging

- Transvaginal color duplex US
- MDCT
- MR angiography
- Venography

The findings are underestimated because the patient is not in the upright position.
Retrograde venography +++

- Left renal vein study
- Ovarian veins study
- Internal iliac veins and afferents study
  - Inferior gluteal vein
  - Uterine vein
  - Internal pudendal vein
  - Obturator vein
- Left ilio-caval return study

Gold standard/Valsalva/Cartography
Venographic findings suggesting PCS

- Dilation of the ovarian vein (diameter > 6 mm)
- Ovarian vein reflux
- Uterine vein engorgement
- Congestion of the ovarian venous plexus
- Filling of pelvic veins across midline
- Filling of vulvovaginal or thigh varicosities

• Dilation of the OV
• OV reflux

• Uterine vein engorgement
• Congestion of the OV plexus
• Filling of pelvic veins across midline

• Filling of vulvovaginal (IPV) or thigh varicosities (IGV)
Customisation

- Type of embolic materials
- Number of vessels
- Approach to high flow varices
- Approach to anomalies
  - Nutcracker syndrome
  - May Thurner syndrome
Principles of treatment

• Complete and definitive occlusion
  - Pelvic leakage sites
  - Pelvic venous hyperpressure

• Before treatment of lower limb varices
• Outpatient procedure
• Femoral or jugular or brachial approach
• Four vessels study
• Pain control
• Embolic materials alone or in combination
Embolic materials

• Coils
  - 0.035” ++
  - 0.018”

• Sclerosing agents
  - 2 ml Polidocanol 2%
  - + 4 ml air + 2 ml contrast: foam

• Cyanoacrylate glue
  - Glubran®2
  - Well-trained hands ++

• Plugs
  - Oversizing +

• Combination +++
Ratio 1:1 Glue/Lipiodol
Microcatheter is mandatory
Systematic bilateral embolization?
Complications: rare

- Pain +++
- Venous puncture related
- Reaction to contrast media
- Spasm
- Vein rupture
- Embolization of non-target vessels (coil migration)
**Results**

*Trans-venous occlusion of incompetent pelvic veins for chronic pelvic pain in women: a systematic review*

Vivak Hansrani, Abeer Abbas, Sahil Bhandari, Ann-Louise Caress, Mourad Seif, Charles N. McCollum


**Details of the systematic review process:**

- **Titles identified through database searching:** n=3456
- **Titles screened after removal of duplicates:** n=2198
- **Abstracts screened:** n=232
- **Full text articles assessed for eligibility:** n=26
- **Excluded (n=13):**
  - 2 studies less than 15 subjects
  - 3 studies primary outcome varicose vein reoccurrence
  - 5 studies on hormone therapy
  - 1 study on surgery
  - 2 studies had only the abstract available
- **13 studies included in this systematic review**
<table>
<thead>
<tr>
<th>Author, date, country</th>
<th>Patient group</th>
<th>Treatment</th>
<th>Study type</th>
<th>Outcomes, follow up period</th>
<th>Key results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asciutto et al. 2009 Germany [32]</td>
<td>71 women with history of pelvic or menstrual discomfort</td>
<td>Ovarian (OV) and internal iliac (III) vein coil embolization</td>
<td>Prospective observational study</td>
<td>Pain questionnaire (VAS) 3 Year follow up</td>
<td>Significant improvement of symptoms after embolization in patients with isolated OV incompetence. Mean 5.2 SD 3.5 before and 1.2 SD 0.9 after treatment; P &lt; 0.0001</td>
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<tr>
<td>Capasso et al. 1997 Belgium [30]</td>
<td>19 women with PCS</td>
<td>Bilateral ovarian vein glue/coil embolization</td>
<td>Prospective observational study</td>
<td>Pain score Trans-abdominal ultrasound 15 Month follow up</td>
<td>74% of patients had improvements in pain symptoms (complete relief in 58%, partial in 16%). 26% had persistent dyspareunia</td>
</tr>
</tbody>
</table>
| Chung et al. 2003 Korea [31] | 106 women with PCS | (a) Unilateral ovarian vein embolization n = 52  
(b) Hysterectomy with bilateral oophorectomy n = 27  
(c) Hysterectomy with unilateral oophorectomy n = 27 | Quasi-randomized trial | Visual analogue scale 12 Month follow up | Complete thrombosis in 72.2%, partial occlusion in 11.3%. Unchanged in 16.7% Mean VAS from 7.8 to 2.2 for embolization (P < 0.05) vs. hysterectomy groups (b) 7.7 to 4.6, and (c) 7.8 to 5.6 (P < 0.05) |
| Creton et al. 2007 France [34] | 24 women with pelvic vein syndrome | Ovarian and internal iliac vein coil embolization | Prospective observational study | Visual analogue scale 3 Year follow up | Mean clinical improvement score was 80%, 77%, 80% and 76% respectively at 45 days, 1, 2, 3 years Mean VAS improved from 7.9 to 2.2 (P < 0.001) |
| d'Archambeaux et al. 2004 Belgium [30] | 48 women with PCS | Bilateral ovarian vein coil and/or glue embolization | Prospective observational study | Visual analogue scale Mean follow up | VAS 7.8 to 2.7 pelvic pain, 4.9 to 2.2 menstrual pain and similar for urinary urgency and dyspareunia (P < 0.005) |
| Gandini et al. 2007 Italy [28] | 38 women with CPP | Ovarian vein coil sclerotherapy with ethanol (CEAP) | Prospective observational study | Visual analogue scale Mean follow up | 82% experienced pain reduction after coil embolization. 12 patients reported no change in pain levels or had become more severe Mean pelvic pain had improved significantly from 7.6 ± 1.8 before embolization to 2.9 ± 2.8 after embolization (P < 0.0001); 83% exhibited clinical improvement at long-term follow-up |
| Kwon et al. 2006 Korea [40] | 67 women with CU | Lateral ovarian vein coil embolization | Prospective observational study | Pain severity scale 45 months | Complete disappearance of symptoms in 60 patients (53.5%). VAS was 7.3 ± 8.7 pre-procedural versus 0.8 ± 1.2 at 5 years. (P < 0.0001) 24 (12.6%) women developed recurrent lower leg varices at 5 years 59% total relief, 10% with some relief |
| Kim et al. 2006 USA [38] | 127 women suffering from PCS | Bilateral ovarian vein coil/ sclerobolization with interval iliac vein coil embolization | Prospective observational study | Visual analogue scale Mean follow up | 45 months | |
| Laborde et al. 2013 Spain [33] | 179 women suffering from CPP and lower limb varices | Bilateral ovarian vein embolization | Prospective observational study | Visual analogue scale 5 Year follow up | Complete disappearance of symptoms in 60 patients (53.5%). VAS was 7.3 ± 8.7 pre-procedural versus 0.8 ± 1.2 at 5 years. (P < 0.0001) 24 (12.6%) women developed recurrent lower leg varices at 5 years 59% total relief, 10% with some relief |
| Maleux et al. 2000 Belgium [36] | 41 women with PCS | Bilateral ovarian vein glue/coil embolization | Prospective observational study | Symptom questionnaire Mean follow up | 20 months |
| Pieri et al. 2003 Italy [35] | 33 women suffering from PCS | Bilateral ovarian vein foam sclerotherapy (3% STSF) | Prospective observational study | Pain scale Doppler examination 6 Month follow up | Mean vessel diameter reduced from 4.5 mm to 3.19 mm of the right OV and 6.3 mm to 4.5 mm of the left OV. CPP and lower limb varices resolved in 90% of patients |
Overall > 30 articles (1993-2014)
- Technical success > 90%
- Clinical success 70-83%
- Worsening 4%
- VAS 7.6 – 2.9
- Recurrence 5%

1-202 patients
Follow-up: 2-60 months
The care of patients with varicose veins and associated chronic venous diseases: Clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum

Peter Gloviczki, MD, Anthony J. Comerota, MD, Michael C. Dalsing, MD, Bo G. Eklof, MD, David L. Gillespie, MD, Monika L. Gloviczki, MD, PhD, Joann M. Lohr, MD, Robert B. McLafferty, MD, Mark H. Meissner, MD, M. Hassan Murad, MD, MPH, Frank T. Padberg, MD, Peter J. Pappas, MD, Marc A. Passman, MD, Joseph D. Raffetto, MD, Michael A. Vargoz, MD, RVT, and


14.3 We suggest treatment of pelvic congestion syndrome and pelvic varices with coil embolization, plugs, or transcatheter sclerotherapy, used alone or together.

14.4 If less invasive treatment is not available or has failed, we suggest surgical ligation and excision of ovarian veins to treat reflux.
Conclusion

• PCS remains controversial
• Embolisation could be considered the most effective treatment for PCS
• Reported pain relief of more than 80-90%
• The technique depends on:
  - Type of patients
  - Type of vessels
  - Type of embolic materials
• Lack of strong scientific evidence?
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