Pelvic Venous Insufficiency: A Primer

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Purpose

Pelvic Venous Insufficiency (PVI) is a common source of chronic pelvic pain impacting women globally. The symptoms of PVI are often non-specific and may overlap with other pathologies resulting in underdiagnosis and lack of treatment. The purpose of this study is to provide an overview of the current literature on PVI.

Pathophysiology

- Dilation and dysfunction of ovarian and internal iliac veins → decreased flow rate and reflux
- Common presenting symptoms include chronic, dull, unilateral/bilateral pelvic pain secondary to incompetent pelvic veins
- Pelvic pain is NOT necessary for diagnosis of PVI
- Many patients present exclusively with atypical varicose veins on the thigh or on the vulva. These varicose veins release substance P and neurokinins A & B which may contribute to pain

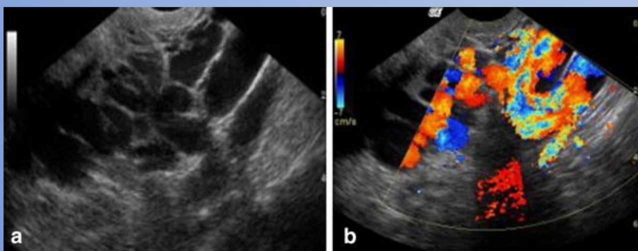

Figure 1. Transvaginal ultrasound with use of B-mode (a) and color-doppler (b) to show engorgement of left ovarian vein.

Diagnosis

- Multifactorial and relies on correlation of imaging with clinical presentation
- Ultrasound is often first-line screening tool prior to CT or MRI
  - Allows for simultaneous visualization of parauterine veins and ovarian veins and exclusion of other gynecologic abnormalities
- After non-invasive imaging, venography can be used for visualization of ovarian veins and degrees of congestion,

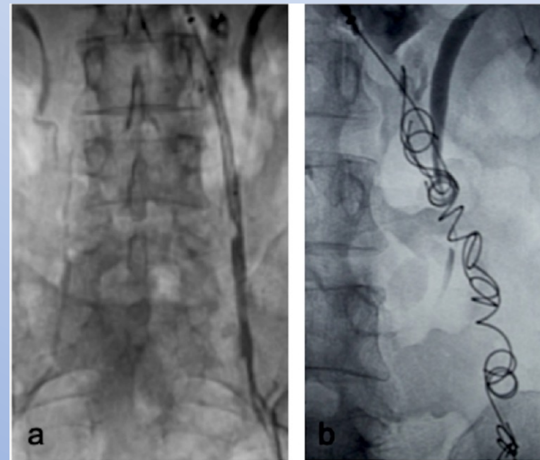

Figure 2. Fluoroscopic image showing left ovarian dilation (a) and coil embolization (b)

Grade	I	II	III
CT findings	Retrograde flow remained in the left ovarian vein (not reaching the parauterine veins)	The retrograde flow advanced into the ipsilateral parauterine veins and no farther	Retrograde flow crossed the midline passing through the uterus (from the left to the right parauterine plexus)
Illustration			

Figure 3. Hiramura Classification of PVI based on ovarian vein reflux on CT

Treatment: Endovascular Approach

- Treatment may involve pharmacological, surgical, or endovascular approaches:
- Sustained clinical improvements after embolization vary greatly among studies (47% to 100%)
- Symptoms may occur after ovarian vein embolization form other venous tributaries
- Post-embolization syndrome (PES) may occur in 20% of patients
- Some studies suggest there is not a statistical significance difference in clinical results with bilateral vs unilateral embolization

Take Home Points

PVI is a common condition but is poorly understood leading to its underdiagnosis and undertreatment as a cause of pelvic pain.

Ultrasound is a great tool to help evaluate for reflux of ovarian and internal iliac veins while ruling out other pathology. Venography can help determine degree of congestion.

Further research is needed to determine an algorithm for diagnosis and treatment that will yield successful, reproductive symptomatic relief for patients.

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