

# Successful ultrasound-guided foam sclerotherapy for vulval and leg varicosities secondary to ovarian vein reflux: a case study

**P Paraskevas**

Vein Health Medical Clinic, Melbourne, Australia

## Abstract

Pelvic varicose veins secondary to ovarian vein reflux are common and can present with clinical pelvic congestion syndrome (PCS). After assessment with duplex ultrasound and venography, treatment often involves surgical ovarian vein ligation and more recently embolization of the ovarian vein(s) followed by ultrasound-guided foam sclerotherapy (UGFS) of the pelvic tributaries. This paper presents one out of many PCS patients treated with UGFS of the pelvic tributaries alone, with clinically symptomatic improvement.

**Keywords:** vulval varicosities; ovarian vein reflux; pelvic congestion syndrome; ultrasound guided sclerotherapy; duplex ultrasound

## Introduction

Vulval varicosities are a common presentation to the phlebology clinic and are said to occur in 2–7% of pregnancies.<sup>1,2</sup> Vulval varicosities can present in association with lower limb varicose veins and also as one of the symptoms of pelvic congestion syndrome (PCS), secondary to ovarian vein reflux (OVR). Undiagnosed pelvic vein reflux is one of the sources of recurrence following surgical stripping, endovenous laser ablation (EVLA) and ultrasound-guided sclerotherapy (UGS) of lower limb varicosities.<sup>3</sup> This case study examines the appropriate course taken in a patient presenting with vulval varicosities and the possible treatment modalities available.

PCS is a distinct clinical entity found commonly in relatively young, multiparous women and 'characterized by chronic pelvic pain, in the setting of pelvic varicosities'.<sup>4</sup> The syndrome was first described by Taylor in 1949,<sup>5</sup> but was shown by Hobbs<sup>6,7</sup> to be the result of venous engorgement of

the pelvis due to dilation and incompetence of one or both ovarian veins. Although sapheno-femoral tributaries or isolated internal iliac reflux can lead to pelvic varicosities, 71% of PCS cases will be caused directly from ovarian vein incompetence.<sup>4</sup>

## Case presentation

A 42-year-old Gravida 2 Para 2 woman presented to our clinic in early 2006 with left lower leg varicose veins, particularly in the postero-medial thigh and posterior lower leg regions (Figure 1).

She complained of heaviness in the lower pelvis and along the posterior thigh, just prior and during menstruation. Her gynaecological history was otherwise unremarkable. She was not taking any medications at the time.

As part of the routine investigation protocol, a thorough lower limb duplex venous mapping scan was performed. There was no great or small saphenous vein incompetence. The iliac, common femoral, femoral and popliteal veins were patent and competent. The external pudendal, inferior epigastric and superficial circumflex iliac veins were also competent. Large vulval and perineal veins were observed on ultrasound, feeding into the posterior thigh circumflex vein (PTCV) postero-laterally and eventually communicating with a lateral lower leg peroneal vein perforator. A transabdominal

Correspondence: Dr P Paraskevas MBBS FACP FRACGP  
G Cert HSc (Medical Sonography), Vein Health Medical  
Clinic, Suite 18, Level 1, 28–32 Arnold Street, Box Hill,  
Victoria 3128, Australia.

Email: drparaskevas@veinhealth.com.au

Accepted 16 December 2009



**Figure 1** A 42-year-old woman with vulval varicosities extending into the medial aspect of the left thigh

ultrasound examination of the major organs was performed and this was normal. For completeness, a transvaginal ultrasound was also performed, and the patient's ovaries and uterus were found to be normal. Multiple pelvic varicosities were visualized, however, particularly concentrated around the left side of the uterus, cervix and extending into the left vulval area.

These scans were then followed up with a specific right and left ovarian vein ultrasound examination. The left ovarian vein was found to be dilated and terminating in the left renal vein. It measured 5 mm in diameter and demonstrated reflux on spectral Doppler. The right ovarian vein did not demonstrate reverse flow, measuring 2 mm in diameter.

Due to the predominant symptoms being related to the vulval, perineal and lower limb varicosities as well as lack of any overt symptoms of PCS, the patient was treated conservatively with ultrasound-guided foam sclerotherapy (UGFS) of the vulval and perineal varicosities and lower limb varicosities. Sodium tetradecyl sulphate (STS) solution (Fibrovein™ Australasian Medical and Scientific, Artamon, NSW, Australia) foamed with air (3 parts air and 1 part 1.5% STS) was used. Three

millilitres of foam was injected into the left vulval veins via two separate injections and the PTCV was injected with 6 mL foam totally utilizing six separated injections of 1 mL foam. A class 2 Compression Stocking (Venosan, St Gallen, Switzerland) was applied and the patient was asked to wear a firm pair of cotton underwear and walk for half an hour immediately after completion of treatment. She returned one week post-treatment for a left lower limb follow-up duplex scan which demonstrated that all the treated veins were well sclerosed and the deep veins were patent with normal flows. Three further follow-up visits one month apart were made for the removal of intravascular coagula. The patient did not report any adverse symptoms.

The patient was then reviewed at six months post-treatment at which time there was mild post-sclerotherapy pigmentation along the inner and posterior thigh region. She no longer reported heaviness during menstruation and was very happy with her progress. Final review three years later was unremarkable. There were no visible vulval varicosities on ultrasound, no symptoms of period pain and discomfort, and no recurrence of her lower leg varicosities. Follow-up ultrasound of the pelvis revealed relative absence of any pelvic, vaginal varicosities. Ovarian vein scanning revealed a persistent 5 mm refluxing left ovarian vein.

## Discussion

This case demonstrates successful and minimally invasive treatment of vulval and lower leg varicosities secondary to ovarian reflux with UGFS. Most importantly though, sustained, symptomatic improvement of the existing pelvic symptoms was achieved, without the need for invasive surgery or ovarian vein embolization for the left OVR.

PCS is a relatively common but often overlooked disease involving venous insufficiency of the ovarian veins. The left ovarian vein is more commonly involved and vulval, perineal and proximal superficial thigh veins are frequently secondarily involved.

Patients presenting with vulval varicosities and pelvic symptoms should therefore be investigated for PCS. Initial clinical suspicion of PCS relies on a thorough history and examination. Typical symptoms include pelvic heaviness or deep pre- and perimenstrual pelvic pain, postcoital pelvic pain, urinary frequency and symptoms of irritable bowel syndrome.<sup>4</sup> Patients with OVR and PCS may often present with extensive gluteal varicosities, vulval

and groin varicosities, and lower leg varicosities. These presentations should alert the physician to the likely possibility of pelvic varicosities and OVR.

There are many imaging modalities to consider when investigating OVR and although earlier reports have advocated venography to demonstrate pelvic varices, these techniques are invasive and may in some cases invalidate assessment for reflux.<sup>4</sup> As such, ultrasound, having once been a screening test for PCS, is now rapidly becoming the investigation of choice.

Ovarian veins greater than 5 mm, which demonstrate caudal flow without augmentation, are considered incompetent.<sup>8</sup> In addition to this, dilated or tortuous veins in and around the broad ligament can be considered pathognomonic for PCS and should be reported to support the ovarian vein evaluation. The diameter of the pelvic veins should be recorded. These can be graded as mild (<5 mm), moderate (5–7 mm) and severe (8–10 mm) depending on the diameter and gravitational distension.<sup>8</sup>

All patients with symptoms of PCS should undergo standard transabdominal and transvaginal sonography to investigate suspected ovarian vein insufficiency and to rule out other potential pathology such as ovarian cysts, fibroids, tumours and uterine enlargement.<sup>8</sup> Diagnosis of PCS should obviously be delayed until investigations looking for other causes of pelvic pain, including endometriosis and urinary tract infection, are ruled out.

Once diagnosed, treatment based on the clinical severity and after careful patient consultation needs to be instituted. Currently, the three available treatments for OVR are surgical ligation,<sup>6</sup> endovascular embolization<sup>9,10</sup> and detergent foam sclerotherapy. There is currently no evidence that endovascular treatment produces better results than surgery. The advantages of coil embolization are that it can be delivered safely, with little hospital time and no scars. The disadvantages include inadvertent migration of coils into the pulmonary arteries leading to pulmonary embolus and incomplete treatment particularly in cases with multiple ovarian vein branches or difficult to visualize ovarian vein anatomy.

Having treated the ovarian veins, vulval and pelvic veins are targeted next. These are usually not troublesome and can be treated safely by UGFS with STS.<sup>4</sup>

There is a case, however, for completely avoiding both ovarian vein ligation and coil embolization, particularly in select cases of mild-to-moderate PCS. In such instances and as illustrated in this case, adopting a conservative approach by just

treating the vulval, perineal, gluteal and thigh tributaries, may reduce down-time, unnecessary hospital admission and any associated potential complications. The author postulates that there may be a possible reduction in reflux of more proximal veins and perhaps within the ovarian veins as a result of sclerosis of the vulval veins. This may be analogous to normalization of saphenofemoral junction incompetence following successful ablation and sclerotherapy of lower leg saphenous veins and tributaries, respectively. This requires further evaluation with pre- and postovarian vein scans in PCS patients receiving conservative treatment as described.

As in all cases, a successful outcome should be defined in a holistic sense; that is, not necessarily by resolution of the OVR but by the sustained, long-term resolution of PCS symptoms and successful treatment of lower limb varicosities. Treatment of vulval varicosities is carried out by the author in all patients with vulval and pelvic vein reflux to minimize chances of recurrence following EVLA and UGS of lower limb veins.

Further retrospective studies comparing ovarian vein coiling, surgery and conservative UGFS of vulval and perineal tributaries alone, for mild-to-moderate PCS, with life-time analysis investigation should be performed.

## References

- 1 Dodd H, Wright HP. Vulval varicose veins in pregnancy. *Br J Hosp Med* 1959;1:831–2
- 2 Dixon JA, Mitchell WA. Venographic and surgical observations in vulvar varicose vein. *J Surg Gynaecol Obstet* 1970;131:458–64
- 3 Thibault PK, Lewis WA. Recurrent varicose veins. Part 1: evaluation utilizing duplex venous imaging. *J Dermatol Surg Oncol* 1992;18:618–24
- 4 Richardson GD, Beckwith TC, Mykytowycz M, Lennox AF. Pelvic congestion syndrome – diagnosis and treatment. *Aust N Z J Phlebol* 1999;3:51–6
- 5 Taylor HC. Vascular congestion and hyperaemia: part 1. Physiologic basis and history of the concept. *Am J Obstet Gynaecol* 1949;57:211–30
- 6 Hobbs JT. The pelvic congestion syndrome. *Br J Hosp Med* 1990;43:200–6
- 7 Hobbs JT. Varicose veins arising from the pelvis due to ovarian vein incompetence. *Int J Clin Pract* 2005;59:1195–203
- 8 Park SJ, Lim JW, Ko WT, Le DH, et al. Diagnosis of pelvic congestion syndrome using transabdominal and transvaginal sonography. *Am J Roentgenol* 2004;182:683–8
- 9 Edwards RD, Robertson IR, MacLean AB, Hemingway AP. Case report: pelvic pain syndrome – successful treatment of a case by ovarian vein embolization. *Clin Radiol* 1993;47:429–31
- 10 Richardson GD, Driver B. Ovarian vein ablation: coils or surgery? *Phlebology* 2006;21:16–23