

Pelvic congestion syndrome

Abstract

Background: The precise aetiology of pelvic congestion syndrome (PCS) remains poorly understood but is believed to be multifactorial having mechanical, hormonal and psychological components.

Materials and methods: Minimally invasive techniques of embolisation or sclerotherapy of the ovarian veins has become the mainstay of treatment for PCS. Studies report a technical success rates from 89–100% and clinical success rates of 58–100%.

Conclusions: Embolisation and sclerotherapy can be done as a day surgery procedure concurrently with diagnostic venography and given current evidence provide better long term pain relief than medical therapy.

Keywords: interstitial cystitis, May Thurner syndrome, Nutcracker syndrome, pelvic neoplasms.

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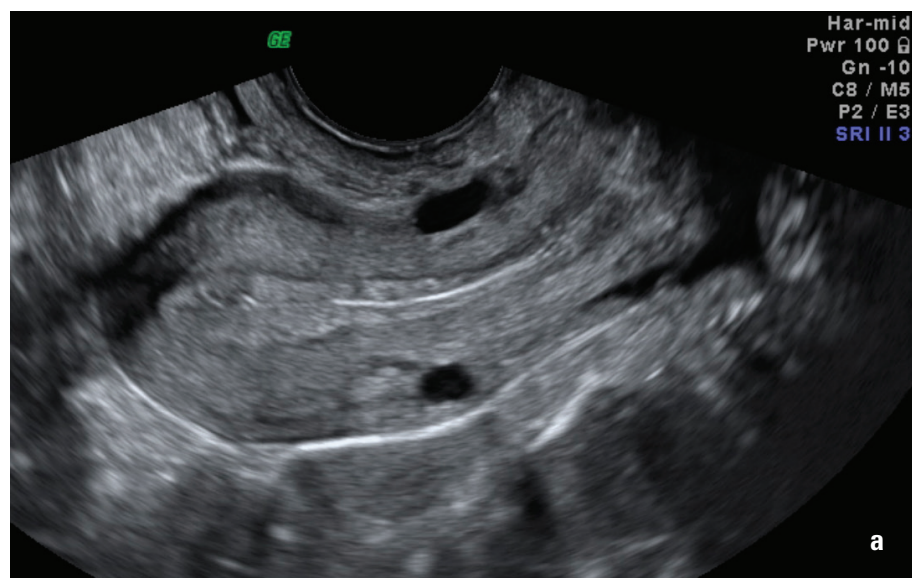


Figure 1 a, b: Sagittal section: dilated and tortuous ovarian vein.

Introduction

Pelvic congestion syndrome (PCS) is characterised as chronic pelvic pain that is worse with prolonged standing, premenstrually, with postural changes and after intercourse.¹ It

remains a poorly understood condition lacking definitive diagnostic criteria, unclear aetiology and no standard approach to management. Diagnosis is made on characteristic clinical features, non-specific findings on physical

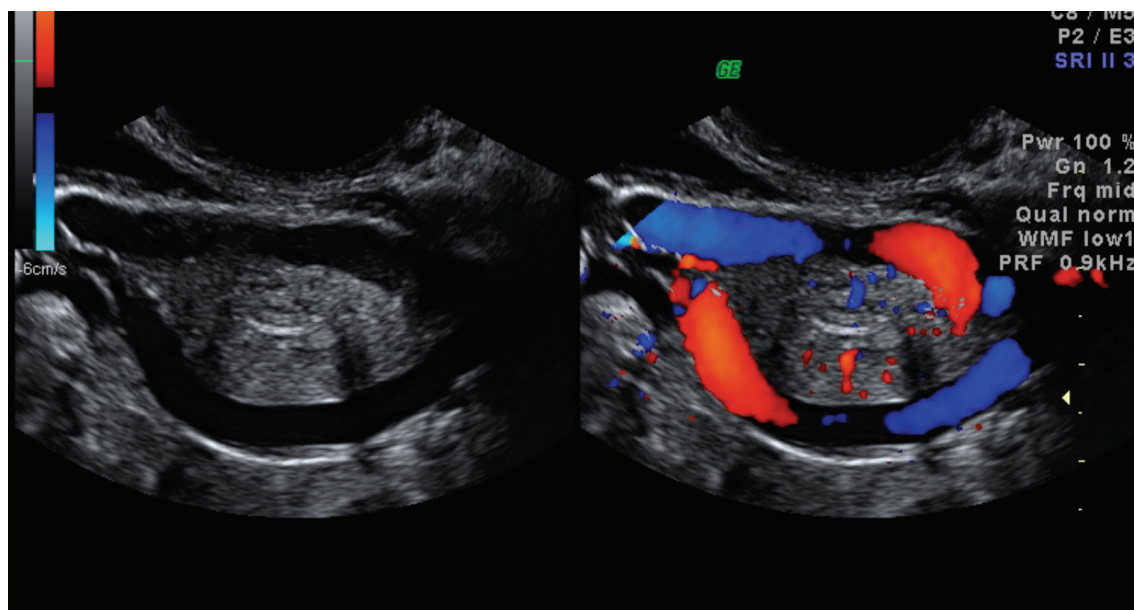


Figure 2: Transverse section.

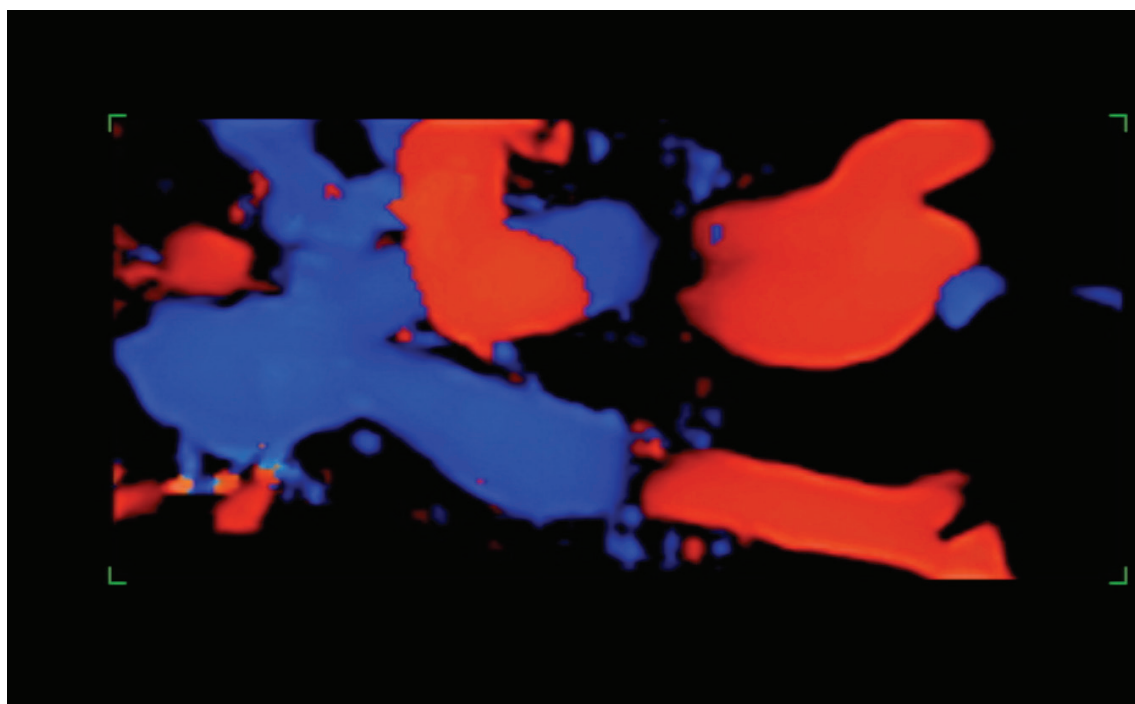


Figure 3: 3D reconstruction of the vessels.

examination and imaging to exclude other pathology and add support to the diagnosis. Clinically, women usually present with pelvic pain present for greater than six months, that first manifested in pregnancy or postpartum and they describe the pain dull ache or heaviness that is exacerbated with activities that increase intraabdominal pressure. Physical examination may elicit ovarian tenderness on bimanual exam along with cervical motion and uterine tenderness. Gluteal, vulvar and thigh varices may also be noted.²

As the historical and physical findings associated with PCS are non-specific the list of differential diagnoses is large. They include gynaecological causes, disorders originating from the urinary tract or gastrointestinal tract, musculoskeletal

causes, neurological disorders and mental health issues. Those conditions that need careful consideration and exclusion are pelvic neoplasms, interstitial cystitis, Nutcracker syndrome and May Thurner syndrome. Pelvic neoplasms include bladder neoplasm, colon cancer and ovarian cancer. In particular ovarian cancer needs to be excluded when PCS is the working diagnosis as it can present with vague abdominal pain, discomfort or pressure, have symptoms including constipation, urinary frequency and dyspareunia.³ Interstitial cystitis resulting from chronic inflammation of the bladder is emerging as a common cause of chronic pelvic pain in women, its hallmark features are bladder pain and urinary frequency.⁴ Nutcracker syndrome and May Thurner syndrome are both rare but are important

anatomical disorders to consider in regards to PCS. Nutcracker syndrome occurs due to the compression of the left renal vein between the abdominal aorta and the superior mesenteric artery, symptoms include haematuria, abdominal or flank pain exacerbated by sitting, standing or walking and varicoceles.⁵ May Thurner syndrome occurs due to the compression of the left common iliac vein between the overlying right common iliac artery and the underlying vertebral body. This compression may cause discomfort, swelling or deep vein thrombi.⁶

Sonography is regarded as a first line investigation into PCS, it is non-invasive, easily accessible and inexpensive, it also allows for the exclusion of other pelvic pathology including ovarian cancer, Nutcracker syndrome and May Thurner syndrome. Either transabdominal or transvaginal scan may be employed to show the characteristic findings of PCS such as dilation of the left ovarian vein with reverse caudal flow, presence of tortuous and dilated pelvic venous plexuses, polycystic ovarian changes, dilated arcuate veins crossing the uterine myometrium and variable duplex waveform in the varicoceles during a Valsalva maneuver.⁷ Currently, there is no consensus in the literature for a cut off of ovarian vein diameter, measurements range from 2–4 mm for mild dilatation to 5–8 mm for severe.^{7–9} In addition, dilation of the ovarian vein as well as other findings in PCS are well reported in asymptomatic women.^{10,11} Other imaging modalities include CT and MRI with venography considered the gold standard and allows for immediate treatment with embolisation.¹² However, venography is too invasive to be included in a general workup for pelvic pain clinically indicative of PCS. A study by Tropeano, *et al.* demonstrated that 90% of patients that demonstrated pelvic venous reflux on ultrasound subsequently had a ovarian varicocele on venography.¹³ This finding suggests that Doppler ultrasound maybe employed as a screening tool for patients of clinically suspected PCS.

The precise aetiology of PCS remains poorly understood but is believed to be multifactorial having mechanical, hormonal and psychological components.^{8,9,13–15} The absence of PCS in menopausal women suggests a hormonal aetiology, which is supported by studies showing a reduction in pain scores with treatments that suppress ovarian function. The studies by Farquhar, *et al.* and Soyal, *et al.*, which show reduction in pain scores with medroxyprogesterone and gonadotrophin-releasing hormone agonist, also show further improvements in women who received psychotherapy.^{9,15} According to the mechanical theory the dilation of ovarian veins during pregnancy to accommodate a 60-fold increase in blood flow is believed to then lead to incompetence of the venous system, dilatation of veins and retrograde flow in the non-pregnant state.^{1,16} The cause of pain in PCS can most likely be attributed to the increased dilation causing stasis which results in the release of local pain-producing mediators.

PCS can be managed either medically or surgically. Medical approaches involve hormonal suppression. Treatment with medroxyprogesterone, GnRH agonists and subcutaneous etonogestrel insert all result in a decrease in pain scores.^{9,15,17} However while these drugs provide short-term relief their benefits are not sustained. Surgical options include ligation (open and laparoscopic) and hysterectomy with salpingo-oopherectomy. Studies of these techniques have not been

subjected to RCT but observational data and case series report decreases in VAS scores.¹⁸ Minimally invasive techniques of embolisation or sclerotherapy of the ovarian veins has become the mainstay of treatment for PCS. Studies report a technical success rates from 89–100% and clinical success rates of 58–100%.^{10,18–20} Embolisation and sclerotherapy can be done as a day surgery procedure concurrently with diagnostic venography and given current evidence provide better long term pain relief than medical therapy.

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