

# Abdominopelvic venous pathology and chronic venous disease: a guide for general practice

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## Introduction

Chronic venous disease is common, affecting a wide spectrum of the community. It is disabling and contributes a large health burden.<sup>1</sup> Its presentations are varied because of the complex interplay between symptoms and pathology. The understanding of the pathology of chronic venous disease is rapidly evolving as are the treatments available.

Chronic venous disease has traditionally been associated with the clinical presentations of venous incompetence in the lower limbs such as varicose veins and venous ulcers. Further investigation and management has traditionally been localised to the lower limb. Specifically, this has been in searching for and treating venous incompetence in the superficial veins of the lower limb: the long and short saphenous veins.<sup>2</sup> However, the concept of obstruction or valvular incompetence affecting the abdominopelvic veins, which return venous blood from the lower limbs and pelvis to the inferior vena cava (IVC), has become increasingly well recognised.<sup>3</sup>

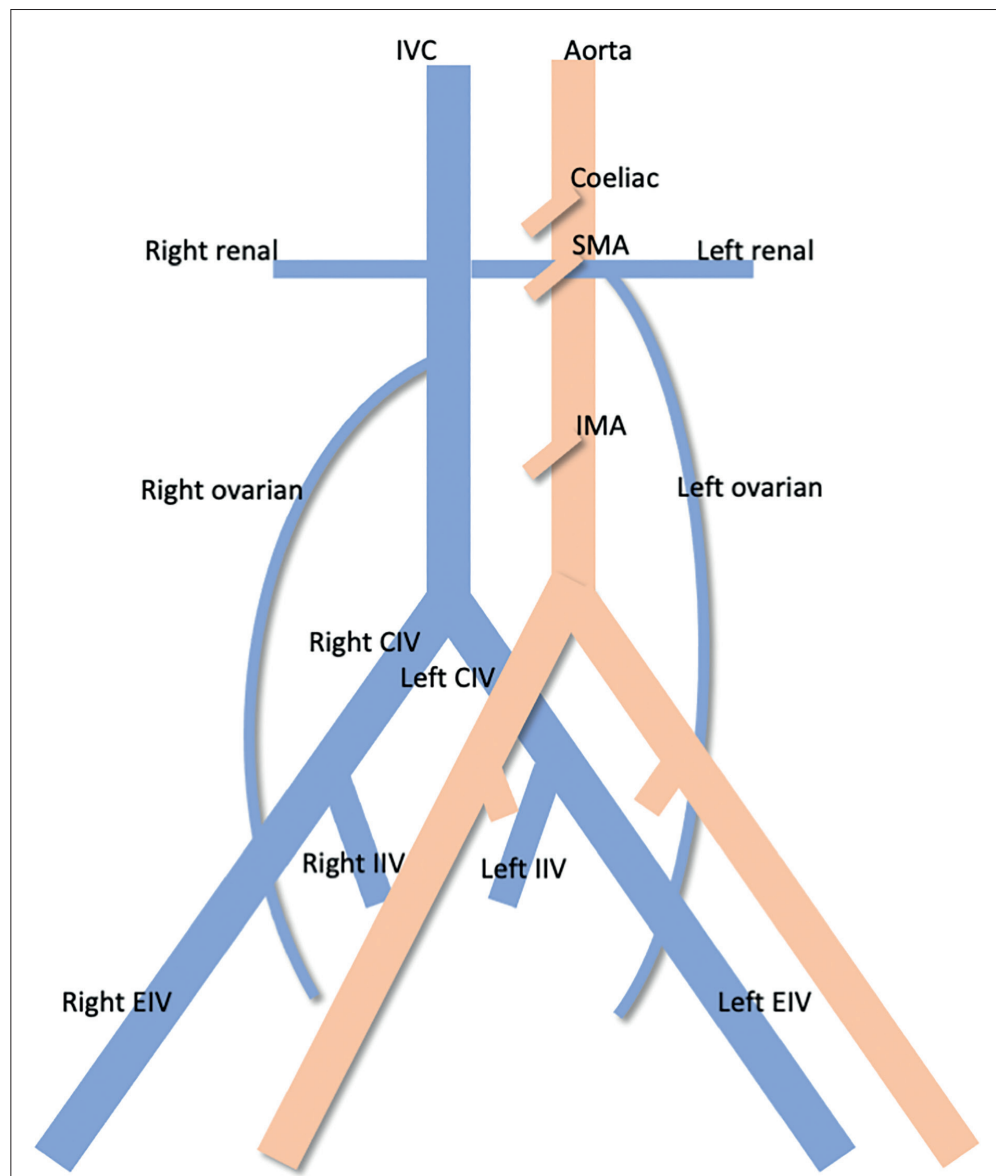
## Pathophysiology

Any of the abdominopelvic veins can be affected by 1) obstruction and/or 2) valvular incompetence, and, most commonly, the left renal, ovarian, internal iliac, external iliac, and common iliac veins are involved.<sup>3</sup> A simplified diagram depicting these selected veins is shown in Figure 1.

Obstruction can be intraluminal or extraluminal. Intraluminal obstruction is commonly post-thrombotic changes after deep venous thrombosis (DVT).<sup>4</sup> For example, intraluminal obstruction from residual thrombus in the common iliac vein (CIV) and

external iliac vein (EIV) can cause recurrent DVTs. Extraluminal obstruction is commonly external compression of veins by adjacent arteries.<sup>4</sup> For example, external compression by the right common iliac artery can obstruct venous return through the left CIV and cause recurrent left lower limb DVTs (traditionally referred to as May–Thurner Syndrome).

Valvular incompetence can be congenital, and anatomical



**Figure 1.** Simplified diagram depicting selected abdominopelvic veins (light blue) and arteries (light pink). CIV = common iliac vein. EIV = external iliac vein. IIV = internal iliac vein. IMA = inferior mesenteric artery. IVC = inferior vena cava. SMA = superior mesenteric artery.

### Box 1. Clinical presentations for which abdominopelvic venous pathology should be considered

Lower limb venous incompetence disease	Chronic venous ulcers Recurrent lower limb varicosities after treatment of long and short saphenous veins Atypical distribution of pelvic and lower limb varicose veins (vulva, testicles, medial and posterior thigh) Venous claudication (pain, heaviness, aching, throbbing and cramping with prolonged standing or walking, which improves after prolonged lower limb elevation)
DVT	Recurrent lower limb DVT with no apparent provoking factor Post-thrombotic syndrome (venous claudication, dependent oedema, skin changes, and venous ulceration)
Chronic pelvic congestion syndrome	Chronic left flank pain with micro- or macrohaematuria Chronic pelvic pain in females (dull unilateral or bilateral pain with occasional flares, worse with prolonged standing or walking that improves with lying down, postcoital ache, <sup>a</sup> focal adnexal tenderness on bimanual examination, duration >6 months)
<sup>a</sup> Pelvic pain symptoms and associated signs have been found to be sensitive but not specific for abdominopelvic pathology and, for example, deep dyspareunia is a symptom of many differentials for pelvic pain. <sup>5</sup> Prolonged postcoital ache has been found to be more likely to be associated with abdominopelvic venous pathology. <sup>6</sup> DVT = deep vein thrombosis.	

variation in the presence and absence of valves in the abdominopelvic veins is common.<sup>7</sup> Incompetence can also be acquired, and pregnancy is believed to affect the valvular function in the abdominopelvic veins of some women.<sup>7</sup> For example, absence of valves or valvular incompetence after pregnancy may explain ovarian vein and internal iliac incompetence in women with symptoms of pelvic venous congestion syndrome.

### When should GPs consider abdominopelvic venous pathology?

This phenomenon can result in a wide range of clinical presentations that can be difficult to diagnose and involve multiple medical disciplines. This often results in patients 'bouncing' between wound care specialists, interventional radiologists, vascular surgeons, gynaecologists, general surgeons, haematologists, pain specialists, physicians, and psychiatrists. As such, GPs are well placed to identify patients at risk of abdominopelvic venous pathology. Although any number of veins can be affected and each of these affected by obstruction or valvular incompetence in any number of ways, there are a few common clinical presentations that result. Box 1 depicts these eight clinical presentations, which can be categorised into relating to lower limb venous incompetence disease, DVT, and chronic pelvic congestion syndrome, and for which abdominopelvic venous pathology should be considered.

### Investigations for abdominopelvic venous pathology

Duplex transabdominal and transvaginal venous ultrasound, magnetic resonance (MR) venogram, computed tomography (CT) venogram, intravascular ultrasound, intravascular pressure gradient testing, and conventional catheter venography have all shown promise in diagnosing abdominopelvic venous pathology, and often multiple modalities are necessary before intervention.<sup>3</sup> Duplex transabdominal and transvaginal venous ultrasound is considered first-line imaging because of its safety profile.<sup>4,7</sup>

In regards to obstruction to venous flow in abdominopelvic veins, no validated methods of defining a clinically or haemodynamically significant venous stenosis exists, and additionally these values may differ between patients.<sup>4</sup> Similarly, in regards to valvular incompetence in abdominopelvic veins, validated cut-offs for pathological

duration of reflux or pathological vein diameters have not been established.<sup>3</sup>

Where direct access to duplex ultrasound is available, specialist referral with the results of a duplex transabdominal and/or transvaginal venous ultrasound is recommended. Because of the inconsistent relationship between severity of imaging findings and patient symptomatology in abdominopelvic venous pathology, referral of all patients regardless of imaging findings for specialist input is recommended. Where direct access to duplex ultrasound is unavailable, as in the UK, early referral is recommended.

### Referral

Referral to a vascular surgeon or interventional radiologist for further investigation and subsequent management of abdominopelvic venous pathology as a cause for any of the above clinical presentations is recommended.

### Specialist treatment

Over the last decade, the risk–benefit profile for surgical treatments for abdominopelvic venous pathology have become clear, and this consequently has seen these treatments become more widely accepted.<sup>4,7</sup> Treatment options however are still only widely accepted for treating two specific situations.

These are 1) stenting for obstruction in the EIVs and CIVs and 2) embolisation for incompetent ovarian veins. Obstruction to venous flow in the EIVs and CIVs can present as any of the clinical presentations referred to in Box 1 except for left flank pain with micro- or macrohaematuria. Incompetence in the ovarian veins commonly presents not only as pelvic venous congestion syndrome, but can also present as many of the clinical presentations referred to in Box 1.

European guidelines provide a class IIa recommendation (evidence favours efficacy) for stenting of iliac vein obstruction associated with severe symptoms and signs based on evidence provided by mostly observational studies.<sup>2</sup> No recent guidance is available on embolisation of incompetent ovarian veins. There is a lack of randomised controlled trial evidence in this field; however, large observational studies have shown symptomatic improvement and proven the safety profile for both interventions.<sup>4,7</sup>

## Conclusion

Chronic venous disease is debilitating and greater awareness that abdominopelvic venous pathology may be playing a role is necessary. Pathology can result because of obstruction to venous flow or because of valvular incompetence, and the iliac, ovarian, and left renal veins are most commonly affected. There are a few common clinical presentations, and these patients should be referred to an interventional radiologist or vascular surgeon for further input. If available, duplex transabdominal and transvaginal venous ultrasound provides an excellent first-line investigation. At present, curative treatment is limited to stenting for obstruction in the EIVs and CIVs, and embolisation for incompetent ovarian veins.

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