

CASE REPORT

Bottom up Treatment for Vulvar and Lower Extremity Varicose Veins of Pelvic Origin: A Case Report

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Background: Extrapelvic varices of pelvic origin, such as vulvar varices, and lower extremity varicose veins (VVs) of pelvic origin are being diagnosed with increasing frequency. A proper management strategy, including history, physical examination, duplex ultrasound (DUS) of the lower extremities, DUS of pelvic escape points, selection of appropriate treatment, and post-treatment care, is essential for good patient outcomes and satisfaction.

Case report: A non-pregnant, 27 year old female presented with prominent vulvar varices in combination with right sided VVs on the anterior and medial thigh, calf, and buttock. She was successfully managed by bottom up treatment with ultrasound guided foam sclerotherapy. The bottom up technique involves treatment of VVs of pelvic origin by direct puncture of the pelvic escape points and associated VVs, without embolisation of the pelvic veins.

Conclusion: This case illustrates successful bottom up treatment in accordance with recent guidelines in a female patient with extensive VVs of pelvic origin.

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INTRODUCTION

Varicose veins (VVs) of pelvic origin belong to the clinical presentations of pelvic venous disorders caused by pelvic vein incompetence (PVI).¹ More than 90% of patients with VVs of pelvic origin do not have pelvic symptoms (such as chronic pelvic pain, dyspareunia, premenstrual pelvic pain) because the pelvic venous hypertension is transmitted through pelvic escape points directly to the veins of the vulva and lower extremity.^{2–5}

Whenever VVs of pelvic origin are suspected, duplex ultrasound (DUS) of both the lower extremity veins and the pelvic escape points is recommended. According to the European Society for Vascular Surgery (ESVS) guidelines on the management of chronic venous disease,¹ additional abdominal and or transvaginal DUS evaluation should be considered, whereas United States (US) guidelines⁵ do not advocate this if the patient has no pelvic symptoms. There are two possible treatment options for pelvic origin VVs: top down treatment such as pelvic vein embolisation or

treatment of iliac or renal vein compression if this is the cause of additional pelvic symptoms related to PVI and direct, so called bottom up treatment of pelvic escape points and related VVs. The idea of the latter approach is to directly treat the extrapelvic VVs in the genital region and VVs in the legs without having to treat asymptomatic pelvic veins within the pelvis.¹ Both European and US guidelines support the strategy of the bottom up approach in patients without pelvic symptoms.^{1,5}

The present case illustrates how this bottom up treatment strategy for pelvic origin VVs is performed in clinical practice. Informed consent and consent for publication were obtained from all individual participants included in the study.

REPORT

A 27 year old, non-pregnant female (gravida 3, para 2, abortus 1, G3P2Ab1) with a body mass index of 22 presented with prominent VVs of the vulva and the right lower extremity. She had not undergone any previous venous intervention and had no history of superficial or deep vein thrombosis.

The patient reported a feeling of heaviness and fatigue in her right leg, which was more pronounced in the perineal area and caused continuous limitation of her daily activities. She did not have any specific pelvic symptoms such as pelvic pain or dyspareunia. She had clearly visible VVs

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(Fig. 1a and b) without oedema, skin pigmentation, induration, or ulceration. She was wearing compression underwear all the time and elastic compression stockings exerting 23–32 mmHg most days. The revised Venous Clinical Severity Score (rVCSS) of the right leg was 9.

Duplex ultrasound of the lower limbs did not show any abnormality of the deep venous system or perforating veins. All veins of the superficial venous system except the right anterior accessory saphenous vein (AASV) were competent. The AASV reflux time was 2 seconds and the vein diameter was 5 mm. Reflux in the AASV originated from the external pudendal vein due to an incompetent clitoral pelvic escape point (Fig. 2a, b, and c). Reflux from two other pelvic escape points, the intermediate labial and perineal posterior pelvic, explained the presence of VVs in the labia majora, inner thigh, and buttock (Fig. 2d, e, and f). Transvaginal DUS revealed peri-uterine and peri-vaginal VVs with a diameter up to 8 mm and a 5.2 mm vein crossing the uterine body. Transabdominal DUS showed incompetence of the left ovarian vein (diameter 7.9 mm) and no abnormalities in other pelvic veins. Applying the SVP (Symptoms, Varices, Pathophysiology)⁵ and CEAP (Clinical, Etiologic, Anatomic, Pathophysiologic) classification¹ resulted in SVP: S_{3a,b} V_{2,3a,b} P_{LGV,R, NT; RPELV, R} and CEAP: C_{2s} E_p A_s P_r: NSV, AASV.

Due to the absence of pelvic symptoms, this patient was a candidate for bottom up treatment of pelvic origin VVs by ultrasound guided foam sclerotherapy (UGFS). During one session, the clitoral, intermediate labial, and perineal posterior pelvic escape points were punctured using a 21 G needle and treated with 25 mL foam of 3% sodium tetradecyl sulfate (STS). An anaesthetic ointment with prilocaine and lidocaine was used before the procedure.

One month after the first UGFS session, DUS showed occlusion of all pelvic escape points and some of the vulvar VVs. During this follow up visit, treatment of residual non-occluded VVs was performed. Two UGFS sessions one month apart were needed to ablate all vulvar VVs, the external pudendal vein at the mons pubis, the AASV with its

VVs, and atypical VVs on the inner thigh and buttock. The UGFS was performed with 1% or 0.5% STS, depending on the vein calibre.

The patient wore thigh length elastic compression stockings (23–32 mmHg) daily for 30 days after each treatment session and was prescribed a non-steroidal anti-inflammatory drug (NSAID) containing cream to reduce local pain, bruising, local oedema, and hyperpigmentation. Needle thrombectomy of palpable occluded VVs of the lower limb was performed a month after each UGFS session.

The patient's symptoms resolved completely after treatment and there were no visible VVs after up to two years follow up (Fig. 3a and b). The patient continued to occasionally wear compression stockings, especially during long working days. At the end of the treatment, the rVCSS was 1. The DUS examination revealed no incompetent pelvic escape points, VVs of the vulva, lower limb, or buttock.

DISCUSSION

This case illustrates a successful bottom up treatment strategy for a female patient with extensive extrapelvic VVs of pelvic origin by means of UGFS. In this case, a more expensive interventional treatment, consisting of coil embolisation, was avoided.

In the literature, treatment of VVs of pelvic origin remains controversial. The effectiveness of pelvic vein embolisation has been shown for pelvic symptoms associated with PVI;^{1,2} however, the efficacy of such an approach has not been proven in patients with VVs of pelvic origin.^{6–9} Disappearance of pelvic origin VVs was found in 12–20% of patients after coil embolisation and top down sclerotherapy.^{8,9} Another study has shown mild to moderate improvement in VVs of pelvic origin in 51% of patients after pelvic vein embolisation and none of the patients had a significant improvement.⁷ Around 80% of patients needed additional bottom up treatment to eliminate vulvar or leg VVs.^{7,9} Moreover, pelvic vein embolisation did not reduce the risk of VV recurrence, which was observed in 54.4% of patients

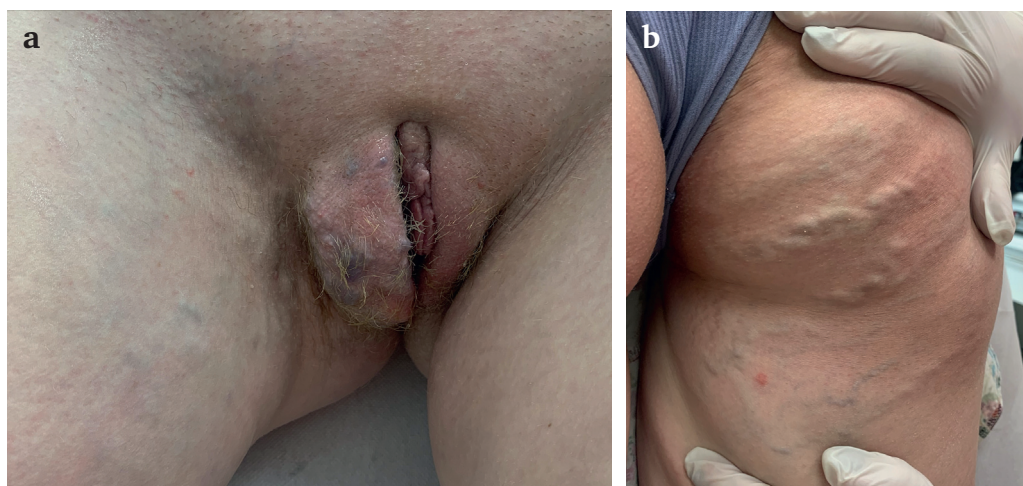


Figure 1. Presentation of the patient before treatment, with varicose veins in the labia majora (a) and buttock (b).

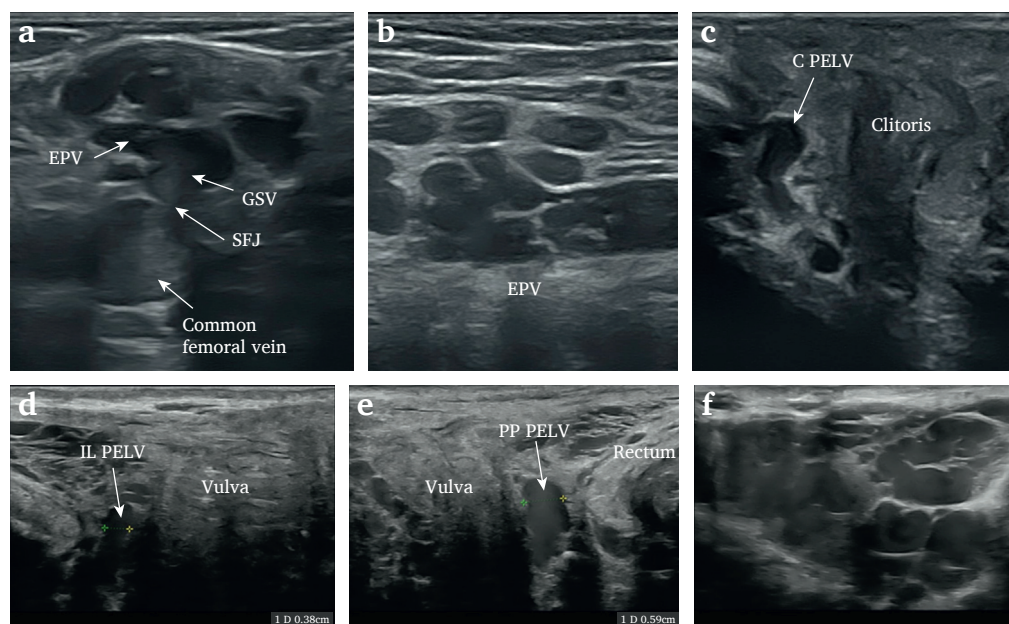


Figure 2. Pelvic escape points (PELVs) and related varicose veins (VVs): a) incompetent external pudendal vein (EPV) causing incompetence of the anterior accessory saphenous vein via a short segment of the great saphenous vein (GSV) just distal to the saphenofemoral junction (SFJ); b) incompetent external pudendal vein (EPV) forming a cluster of varicose veins on the mons pubis; c) incompetent clitoral pelvic escape point (C PELV) on the right side of the clitoris, causing reflux in the external pudendal vein; d) the intermediate labial pelvic escape point (IL PELV) located at the level of the mid labia majora, running along the side of the vagina in the urethrovaginal space to the pelvic floor; e) the perineal posterior pelvic escape point (PP PELV), located in the distal third of the labia majora, running between the vulva and rectum; f) varicose veins cluster of the labia majora supplied by intermediate labial and perineal posterior pelvic escape points.

at the three year follow up, despite pelvic vein embolisation.⁶

The ESVS 2022 guidelines recommend a management strategy for extrapelvic VVs of pelvic origin, depending on the presence or absence of pelvic symptoms.¹ Since most patients with VVs of pelvic origin are asymptomatic within the pelvis, they do not require any pelvic vein treatment, and minimally invasive procedures from below are usually sufficient. Moreover, the bottom up approach has its

advantages in terms of simplicity. It does not require radiation exposure or the use of Xray contrast, and is an outpatient treatment that may easily be repeated.¹ Due to the complexity of pelvic venous plexuses, relatively large amounts of sclerosant may be needed to obtain efficacious closure of the pelvic escape points, without important adverse events.

Potential disadvantages of the bottom up technique include pain during injection in the perineal area; this can

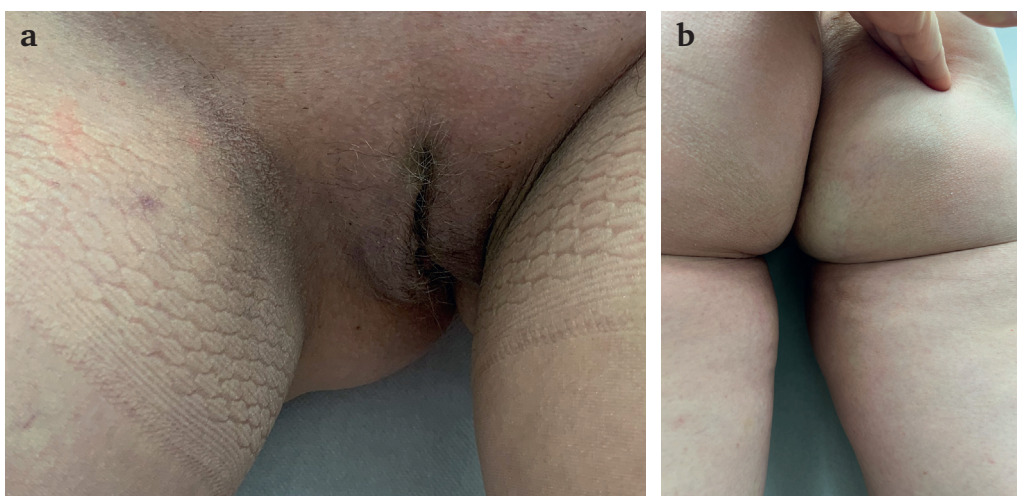


Figure 3. Presentation of the patient at the two year follow up visit after sclerotherapy of the pelvic escape points and varicose veins in the labia majora (a) and buttock (b).

be reduced by applying an anaesthetic ointment 45 minutes before the procedure. The adverse effects of this treatment include bruising, oedema, pain in the perineal area, vulva and pelvis, which may be present for a few days, and induration of the VVs. In most cases, the use of a topical NSAID is sufficient to reduce the effects of perivascular inflammation, local oedema, and hyperpigmentation. Systemic (oral) NSAIDs are rarely needed. In addition, topical NSAIDs are associated with fewer serious adverse events than systemic NSAIDs.¹⁰ Needle thrombectomy to evacuate thrombus from palpable varicosities in the lower extremity may also be useful to reduce post sclerotherapy hyperpigmentation.¹

Potential complications after sclerotherapy of lower limb pelvic origin VVs do not differ from the complications after typical sclerotherapy of tributary VVs and include hyperpigmentation, matting, induration of the VVs, and superficial vein thrombosis. Severe complications are very rare.

Conclusion

Varicose veins of pelvic origin are being diagnosed increasingly. Management should be individualised based on the patient's symptoms and expectations. This case illustrates successful bottom up treatment in a female patient with extensive VVs of pelvic origin, in accordance with recent guidelines.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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