Complex pathologies in a patient referred for varicose veins

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ABSTRACT

Varicose veins are commonly due to saphenous vein reflux, but they can manifest more complex venous pathologies. A 45-year-old woman presented with painful leg varicosities and pelvic pain. Duplex examination showed bilateral superficial venous reflux, and, on further interrogation, cross-sectional imaging demonstrated enlarged ovarian veins and nonthrombotic iliac vein compression. Ovarian vein embolization followed by iliac vein stenting and bilateral lower extremity venous ablations and sclerotherapy was performed. After 5 years, she reports no pelvic symptoms and minimal leg symptoms. This case highlights the complex interplay of these venous pathologies and their successful treatment. (J Vasc Surg Cases Innov Tech 2023;9:1-4.)

Keywords: May-Thurner syndrome; Nonthrombotic iliac vein compression; Pelvic congestion syndrome; Chronic venous disease; Chronic venous insufficiency

Varicose veins (VV) are a common presentation of chronic venous insufficiency (CVI).[1] However, the constellation of symptoms associated with VV can be related to various disease processes and affect different aspects of quality of life. Superficial reflux (SR) is a common finding, but other concomitant venous pathologies could potentially contribute to the formation of VV.[2] With advanced imaging, nonthrombotic iliac vein compression (NIVL) is diagnosed in 5% of patients with CVI and 80% of patients with pelvic congestion syndrome (PCS).[3,4] Therefore, identifying all contributing factors to the disease helps to create a tailored management plan providing long-term relief and decreasing recurrence.

This case report presents a 45-year-old woman with VV who, on further interrogation, was diagnosed with multiple complex venous pathologies (PCS and NIVL), highlighting treatment strategies that provide durable symptomatic relief. The patient provided consent.

CASE REPORT

A 45-year-old woman, gravida 2 para 2, presented with painful lower extremities. She denied a history of venous thromboembolism. On further interrogation, she reported a 2-year history of dyspareunia, dysmenorrhea, and pelvic pain, with extensive, nonrevealing gynecological workup. On physical examination, she had bilateral lower extremity VVs and edema. Ultrasound examination showed bilateral great saphenous veins (GSVs) and right anterior accessory saphenous vein reflux without deep vein reflux. The initial Venous Clinical Severity Score was 11, and she was thought to have CEAP C3 disease. Magnetic resonance venography (MRV) demonstrated enlarged ovarian veins (OV) and evidence of NIVL without renal vein compression (Fig 1). Lower extremity disease classification based on complete evaluation was CEAP $C3E_PA_{sgsvA,\ dciv}P_{r,o}$, and her pelvic disease $S_2V_2P_{CIV,O},E_{NT}$ according to the Symptoms-Varices-Pathophysiology classification.[5,6] Because of the patient's pelvic symptoms, the pelvic pathology was treated first.

Venography was performed through bilateral common femoral vein access. Selective left OV venogram showed severe reflux and significantly dilated pelvic veins draining through the internal iliac vein to the compressed left common iliac vein (CIV) (Fig 2, *A* and *B*). The left and right OVs were enlarged with 14 mm and 8 mm diameters, respectively. OVs were embolized using Azur Coils (Terumo Medical Corporation, Somerset, NJ). Iliocaval venography showed ascending paravertebral vein collaterals suggesting left CIV stenosis (Fig 2, *C*). Intravascular ultrasound (IVUS) examination confirmed 80% stenosis of the left CIV (Fig 3) and 70% stenosis of the right external iliac vein (EIV). The lesion in the right EIV had minimal respiratory variation and was not stented owing to its proximity to the access site. The left CIV was stented with an 18 × 90 mm Wallstent (Boston Scientific, Marlborough, MA). Completion venography showed good flow with resolution of the collaterals.

The patient was placed on clopidogrel and had significantly improved symptoms, but her right leg pain worsened 1 month

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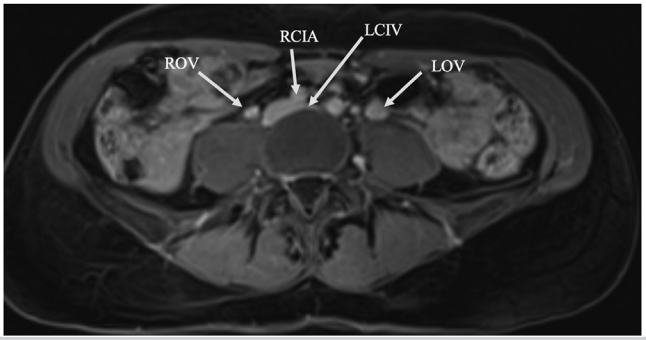

Fig 1. Compressed left common iliac vein (*LCIV*) by right common iliac artery (*RCIA*). The diameter of the right ovarian vein (*ROV*) is 5.6 mm and of the left ovarian vein (*LOV*) is 6.9 mm.

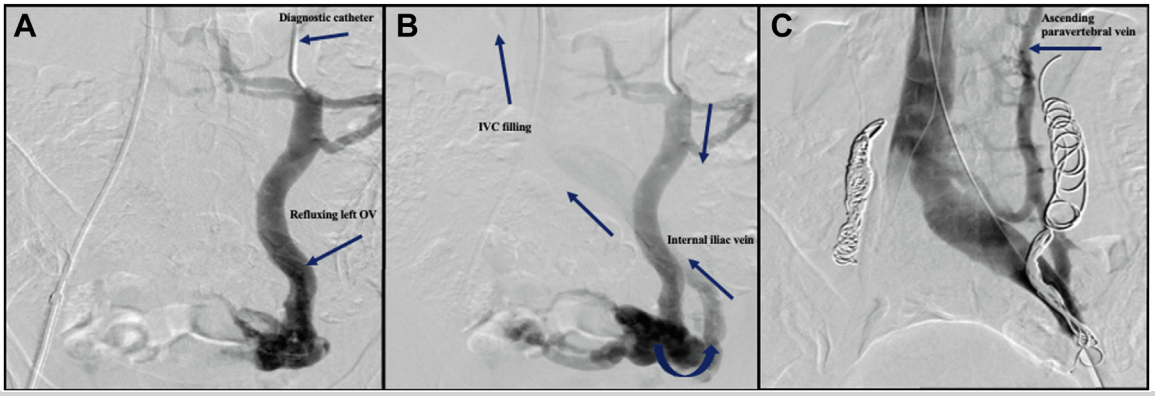

Fig 2. **A**, Selective catheterization of a dilated refluxing left ovarian vein (OV). **B**, Filling of pelvic venous plexus with contrast and drainage through the internal iliac vein into the left common iliac vein (CIV) and inferior vena cava (*IVC*) (arrows point to the direction of flow). **C**, Venogram with ascending paravertebral vein collaterals, a sign of venous pelvic hypertension.

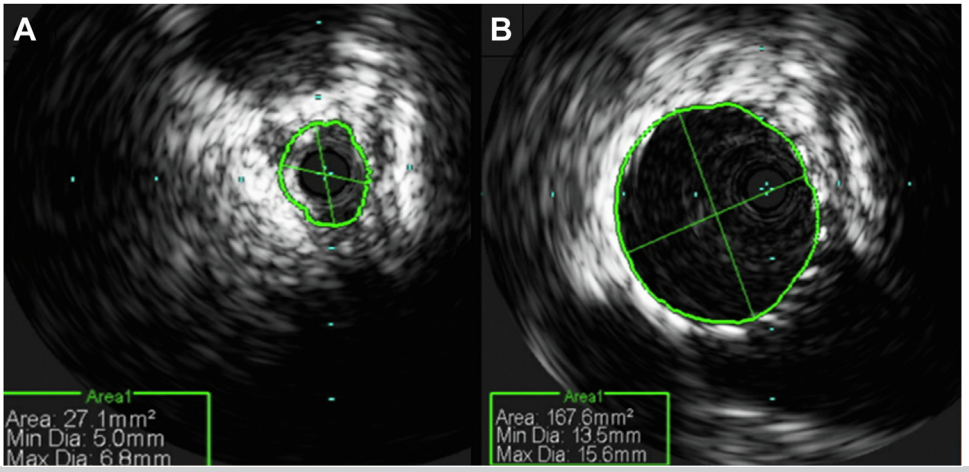

Fig 3. **A**. Intravascular ultrasound (IVUS) measures of the left common iliac vein (CIV) cross-sectional area, demonstrating stenosis. **B**. IVUS of the same area after stenting.

later. Venography through popliteal vein access and repeated IVUS examination confirmed the EIV lesion close to the common femoral vein and stenosis of the right CIV (both >50%), probably owing to a change in the iliocaval confluence configuration secondary to contralateral stent placement. The right CIV was stented with a 16 × 90 mm Wallstent, and kissing balloon venoplasty was performed (Fig 4). The right EIV was venoplastied with a 12 × 80 mm Mustang balloon (Boston Scientific). Stenting underneath the inguinal ligament was avoided. Completion venography showed excellent flow bilaterally.

Fig 4. Bilateral common iliac vein (CIV) kissing stents during the second procedure.

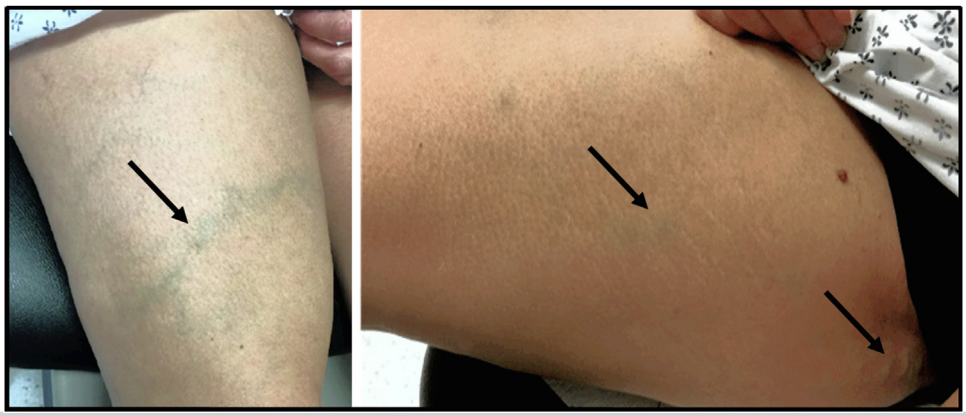

Fig 5. Right lower extremity varicosities (black arrow) treated by ultrasound-guided sclerotherapy.

After 4 months, she complained of persistent mild leg swelling, but the VVs were significantly less engorged and painful. Ultrasound examination revealed a right and left GSV measuring 0.49 and 0.36 cm, respectively, with 2 seconds of reflux. Bilateral GSV and right anterior accessory saphenous vein radiofrequency ablations were performed. Three years later, she complained of worsening pain and inflammation along a right high thigh VV, possibly connected to pelvic tributaries (Fig 5). That varicosity was not a source of symptoms on prior examinations. Ultrasound-guided foam sclerotherapy resolved her symptoms. At 5 years, she has complete resolution of her pelvic pain and minimal leg symptoms (Venous Clinical Severity Score = 4). With saphenous veins occlusion, iliac stent patency, and OVs occlusion based on the patient's reported symptoms. Follow-up ultrasound examinations have demonstrated iliac stents patency and continuous saphenous veins occlusion. She will continue to follow-up with iliac vein stent ultrasound examinations and clinical examinations yearly.

DISCUSSION

This case illustrates a patient with a prevalent complaint of VV, but a relatively rare complex interplay of PCS and NIVL. A detailed and thorough history at the initial presentation was critical to uncovering the various disease processes. Chronic pelvic pain is pain originating from the pelvis and lasting more than 6 months. It affects 26% of the world's female population and is secondary to PCS in up to 40% of cases.[7] PCS typically presents with dyspareunia, dysmenorrhea, pelvic pain worsened by postural changes, and atypical VV (buttock, perineal, or vulval).[8] Concomitant NIVL has been described in up to 80% of patients.[4]

In this case, MRV was revealing because it demonstrated most of the underlying pelvic pathologies. Even though ultrasound examination has been used to assess pelvic pathologies, the overall sensitivity for diagnosing NIVL is low.[9] Conversely, MRV provides accurate anatomical visualization and has shown 100% sensitivity and 22.7% specificity for detecting NIVL compared with IVUS.[10] Even so, in our case, MRV failed to diagnose the right NIVL, which was diagnosed using IVUS examination.

Because the patient expressed prominent pelvic symptoms and had significant MRV findings, the pelvic pathology was addressed first. Nevertheless, our general approach to patients without pelvic pain diagnosed with SR and NIVL is first to treat the SR and reassess the need for additional treatment. This approach is based on studies showing the presence of CIV stenosis in up to one-third of patients undergoing MRV of the pelvis, regardless of their symptoms.[11] Aurshina et al[12] retrospectively examined 120 MRVs and found iliac vein stenosis (≥50%) in approximately 34.2% of patients. Iliac vein stenosis of 50% or more and 70% or more did not correlate with venous symptoms.[12] Thus, our institutional algorithm involves the treatment of the SR first and reassessing the patient's symptoms. If patients develop recurrence or experience insufficient relief, they undergo MRV of the abdomen and pelvis to assess for venous outflow obstruction. Other indications for MRV are asymmetrical examination, rapid recurrence of symptoms, no improvement after venous ablation, or clinical evidence of pelvic processes, such as chronic pelvic pain, a history of radiation, mass, or pelvic surgery.

Nonetheless, there has yet to be a general agreement on which pathology should be treated first. For patients with evidence of PCS and NIVL, some advocate for concomitant treatment, whereas others support treating gonadal reflux only and reserve iliac vein stenting for patients with persistent symptoms. Daugherty et al[13] reported CIV stenting only without OV embolization as the mainstay for treating patients with PCS and NIVL. In a larger study, Santoshi et al[4] proposed simultaneous treatment with venous stenting and OV embolization, identifying significant reductions in pain. Therefore, in our case, the patient was treated with simultaneous stenting and embolization.

Antithrombotic therapy is recommended for long-term stent patency, with no definite consensus on the type or duration after stenting owing to nonstatistically significant differences in primary patency.[14] Our therapeutic approach involves a year of clopidogrel after stenting followed by aspirin 81 mg for life and ultrasound examination surveillance yearly.

CONCLUSIONS

VVs are a common reason for vascular referral. The current case report is unique because it illustrates the interplay of OV reflux, NIVL, and SR, emphasizing the importance of further interrogation in selected patients with CVI; treating underlying venous pathologies is crucial for providing effective and durable symptom relief.

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