WHAT WOULD YOU DO?

Recurrent Pelvic-Derived Vulvar and Lower Extremity Varicose Veins

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CASE PRESENTATION

A 38-year-old woman with a history of bilateral varicose veins for 10 years and bilateral great saphenous vein ablation presents with bilateral leg heaviness, fatigue, and throbbing in the right leg more than the left (CEAP [clinical, etiology, anatomy, pathophysiology] C2; Venous Clinical Severity Score, 6). Symptoms are worse with prolonged sitting and standing and improve with leg elevation and graduated compression stocking use. She describes bulging in her right groin and labia. She has a history of three prior pregnancies, and the vulvar veins were worse with each pregnancy, becoming smaller after delivery. They feel full and throb with menstrual cycles and for several hours postcoitally.

Upon further questioning, she describes pulling and stretching in her pelvis with prolonged standing. She denies any personal or family history of superficial or deep vein thrombosis, hypercoagulable disorders, pulmonary emboli, venous ulcerations, or variceal bleed. Figure 1 shows images of recurrent bilateral varicose veins.

Ultrasonography performed during the office visit demonstrates pelvic-derived varices in the groin extending onto the anterior and posterior thighs. Vulvar varices are identified, measuring 5 to 6 mm in diameter.

What additional imaging would you perform to assess the pelvic venous system, if any?

Dr. Angle: MRI is my preferred test for women with pelvic venous disease. The differential diagnosis is broad and postcontrast acquisitions can be done with multiphase vascular imaging that better defines the origin of dilated veins. CT is very useful, but many of these women are younger patients and any opportunity to avoid radiation exposure is helpful.

Dr. Gibson: If the patient has no clinically significant pelvic or abdominal symptoms, I often will do no further imaging. From the duplex ultrasound scan and the

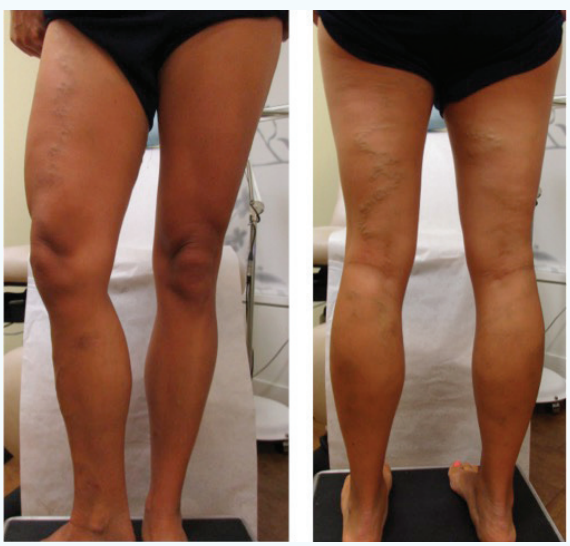

Figure 1

physical examination in this patient, it is likely that pelvic venous reflux is causing the vulvar and leg varicose veins. If no pelvic intervention is being contemplated, further imaging would be of academic interest only, as it would not change patient management. For patients with pelvic-derived varicose veins of the vulva and leg, my primary mode of treatment is to treat with a bottom-up approach, most typically with ultrasound-guided foam sclerotherapy. I reserve treatment of pelvic veins from a top-down approach (coil embolization and sclerotherapy) for patients with significant pelvic symptoms or those in whom the bottom-up approach has failed or in patients with early recurrence. It is important to target the patient's symptoms rather than targeting findings on imaging. This avoids overtreating the patient, which adds unnecessary cost and potential complications.

On the other hand, if the patient has pelvic or abdominal symptoms that are severe enough that she would consider pelvic intervention, my primary next step in terms of imaging is a transabdominal ultrasound. Although not all practices have vascular technologists with expertise in this area, appropriately trained personnel can usually perform very accurate studies that can demonstrate venous reflux, compression, and flow patterns. Our lab uses a technique as described by Labropoulos et al.[1] If the patient's symptoms are atypical or if I am concerned about the potential for other pathologic conditions that could cause pelvic pain (eg, endometriosis, uterine fibroids), then I will perform cross-sectional imaging, either CT venography (CTV) or MR venography (MRV). In my practice, catheter venography and intravascular ultrasound (IVUS) are the gold standard for the diagnostic workup of pelvic venous disease (reflux and obstruction); however, due to the invasive nature and costs of this approach, I typically will perform this on an intent-to-treat basis.

Drs. Kolluri and Jolly: Our imaging modality of choice would be MRV if there are no contraindications. Otherwise, we would obtain a CTV. However, if the noninvasive approach proves nondiagnostic or uncertain, we would proceed directly with invasive venography and IVUS.

CASE CONTINUED

MRI shows indentation of the left common iliac vein by the overlying right common iliac artery, ovarian vein dilation, and pelvic varices (Figure 2).

Would you choose to treat the pelvic venous system? If so, would you perform ovarian vein embolization or treat from a bottom-up approach?

Drs. Kolluri and Jolly: If the primary patient complaints are pelvic, we would recommend addressing pelvic pathology, and if the primary complaints are related to the lower extremity, then we would do a bottom-up approach. If there are both, as in this patient, we would recommend staged approach with initial pelvic venous treatment, followed by varicose vein treatment of the lower extremities.

Dr. Angle: Treatment of clinically significant large vessel disease is important to prevent recurrence of pelvic varicose veins. We have found that iliac venous stents are a pretty durable treatment of common iliac vein compression. However, gonadal vein insufficiency often presents with incidental mild left common iliac vein compression or left renal vein compression. What we often don't know is the significance of vein compression seen on MRI.

Dr. Gibson: My decision on how to approach the patient is based entirely on her presenting symptoms and what is bothering her the most. If her symptoms are primarily in her leg and vulva, I will start with a bottom-up approach, usually with ultrasound-guided foam sclerotherapy. As I limit the volume of foam sclerosant I will use in a single setting to about 10 to 15 mL, the extensive nature of the varicose veins in this case would usually mean that several treatment sessions in the office would be necessary. If the patient's primary complaint were her pelvic symptoms, I would start with treatment of the pelvic veins with coil embolization of the ovarian veins and internal iliac varicose vein sclerotherapy. In my experience, treating the pelvic varicose veins sometimes diminishes the size of the varicose veins in the vulva and leg; however, in most

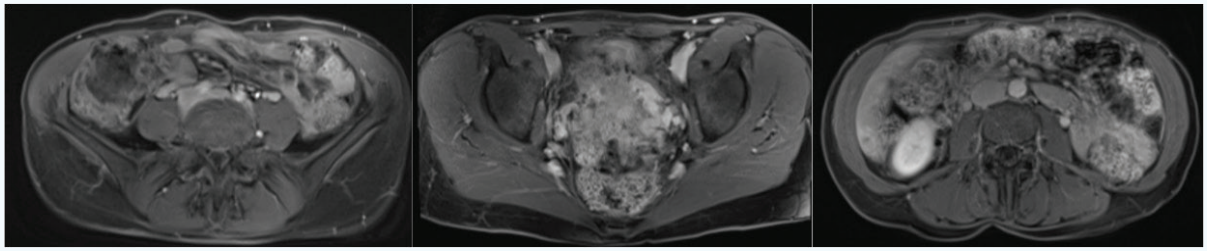

Figure 2

cases, leg and vulvar treatment will still be required. It is important to spend time with the patient, carefully taking a history of symptoms and making sure that the patient's goals are being addressed rather than simply addressing the abnormalities seen on imaging. In patients with both leg and pelvic symptoms, it is also important to appropriately manage their expectations and inform them that multiple treatment modalities and treatment sessions may be necessary.

How would you assess for significance of the iliac vein compression? Would you perform internal iliac venography at the time of ovarian vein embolization?

Dr. Gibson: When patients present with findings consistent with either iliac vein compression and pelvic venous reflux, I typically evaluate both at the time of ovarian vein embolization. Before performing ovarian vein embolization, selective venography is performed of the common, external, and internal iliac veins with balloon occlusion venography of the internal iliac veins and of the left renal vein and both ovarian veins. When iliac and/or renal vein compression is suspected, I additionally perform IVUS. In my practice, I use cross-sectional area reduction with IVUS to determine the degree of iliac vein compression. Because patients with pelvic venous reflux are often thin, they often have both iliac and renal vein compression demonstrated on imaging as well as reflux. It can be difficult to determine which is responsible for the patient's symptoms based on imaging alone. If the patient has unilateral leg swelling and is nulliparous, I am more likely to treat the iliac vein compression primarily. If the patient is multiparous, has no leg edema, and has dilated refluxing gonadal veins, I am more likely to embolize the gonadal and internal iliac veins. In this patient, it is likely that the left iliac vein compression on MRI is an incidental finding, as it is occurring on the side where she is less symptomatic, and she does not have symptoms of edema or venous claudication.

Dr. Angle: I assess iliac vein compression with selective venography through jugular vein access, including IVUS and pressure measurements. None of these tests are perfect—there is no gold standard—so experienced operators should be familiar with all of these tests. Iliac venography is not as useful as MRI or IVUS in determining the reduction in cross-sectional area of the iliac vein, but it does provide important information about flow dynamics through visualization of collaterals and qualitative assessment of contrast flow.

Drs. Kolluri and Jolly: With iliac vein compression and left renal compression (nutcracker or retroaortic left renal), we start with iliac vein recanalization. In most cases, this is sufficient to manage the pelvic symptoms in our experience. If there is no renal vein compression, the decision regarding iliac vein recanalization depends on results of venography and the internal iliac vein flow direction during venography. If the flow is primarily directed into the ovarian vein and left renal vein, we would consider revascularization of the left iliac vein.

How would you address the superficial lower extremity varices (eg, ambulatory phlebectomy vs liquid sclerotherapy vs ultrasound-guided foam sclerotherapy)?

Drs. Kolluri and Jolly: In this particular situation, the patient reports both pelvic and lower extremity symptoms. So, we would wait at least 3 to 6 months after the pelvic intervention and reassess the symptoms and the size of the varices and then offer procedures. In our practice, the options given to our patients with this particular pattern involving extensive varicosities would include microfoam treatment (Varithena, BTG International) or foam-assisted (polidocanol 0.5%) and ultrasound-guided ambulatory phlebectomy, wherein we inject the foam into the varices as the first step, followed by duplex-guided tumescence of the hyperechoic veins and duplex-guided phlebectomy to minimize blood loss and increase precision.

Dr. Gibson: I typically perform either ultrasound-guided foam sclerotherapy, ambulatory phlebectomy, or a combination of both for superficial lower extremity varicose veins. I do not treat varicose veins with liquid sclerotherapy because foam sclerotherapy is more effective in my experience. I treat labial/vulvar varicose veins of all sizes with foam sclerotherapy, and in the leg, I base my treatment choice on vein size and patient characteristics such as skin tone and history of scarring. For veins < 4 mm, my treatment of choice is foam sclerotherapy, whereas I reserve ambulatory phlebectomy for larger veins.

Dr. Angle: Foam sclerotherapy allows the use of lower concentrations of sclerosant compared to liquid sclerotherapy, which reduces the risk of skin injury. Foam also improves clinical success compared to liquid sclerotherapy because of better retention of the sclerosant in treated varicose veins. I will try at least two sessions with foam sclerotherapy before considering switching to phlebectomy.

CASE SUMMARY

Due to the presence of both pelvic and lower extremity symptoms, the patient was initially treated with

ovarian vein embolization including venographic assessment of the internal iliac veins. Pelvic pain and back pain resolved within 1 month of ovarian vein embolization, but she continued to have vulvar and right leg discomfort with prolonged standing. She subsequently underwent ultrasound-guided foam sclerotherapy of the vulvar veins as well as liquid sclerotherapy of the right leg varicosities, resulting in resolution of vulvar and leg symptoms. ■

1. Labropoulos N, Jasinski PT, Adrahtas D, et al. A standardized ultrasound approach to pelvic congestion syndrome. Phlebology. 2017;32:608-619.

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