

## WHAT WOULD YOU DO?

# Recurrent Venous Disease Following Great Saphenous Vein Ablation

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## CASE PRESENTATION

An active 62-year-old woman with a long history of varicose veins and an unknown vein procedure performed 20 years earlier initially presented with a small, painful, left medial malleolar ulcer (clinical, etiology, anatomic, and pathophysiology [CEAP] classification clinical class 6; Venous Clinical Severity Score [VCSS] 19) (Figure 1), which healed with

compression. She subsequently underwent endothermal ablation of a large refluxing great saphenous vein (GSV) along with microphlebectomy, perforator ligation, and foam sclerotherapy (Figure 2).

Three years later, the patient returns with an increase in swelling and symptoms of aching and throbbing in her leg with standing and exercise (CEAP class 5, VCSS 11) (Figure 3). Superficial and deep venous duplex ultrasound shows an ablated GSV, an anterior accessory saphenous vein that is 10 cm in length, has a maximum diameter of 11 mm, and has 4.6 seconds of reflux. There is also a perforator vein in the

area of the previously healed ulcer that is 6 mm in diameter (Figure 4). She has 1.5 seconds of reflux in the common femoral and femoral vein, but no reflux in her popliteal or tibial veins. She has normal spontaneous phasic flow in the external iliac vein, but the duplex ultrasound suggests that she has compression of her left common iliac vein by the crossing iliac artery (Figure 5).



Figure 1. Appearance of the limb prior to treatment.

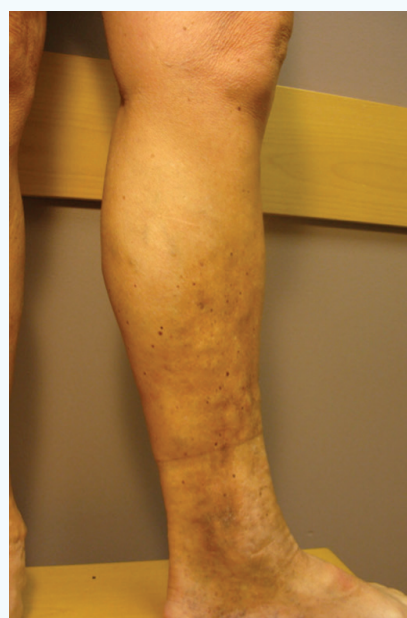


Figure 2. Three months after treatment.



Figure 3. The appearance of the leg after 3 years.



Figure 4. Distal calf perforator vein.



**Is any other imaging needed to work up her possible outflow obstruction?**

**Dr. Dillavou:** Because she is a CEAP class 5 patient, she should undergo left iliac venogram with intravascular ultrasound (IVUS); this may be a factor in her ulceration as well as her recurrent left leg venous pathology.

**Drs. Garcia and Gasparis:** The B-mode ultrasound image shows a > 50% diameter reduction of the left common iliac vein, which is suspicious for a nonthrombotic iliac vein lesion. Whereas the deep venous reflux in the common femoral vein and femoral vein may indicate a postthrombotic etiology associated with outflow obstruction, it could also be secondary to volume overload from the superficial system.

The patient's clinical symptoms and physical findings should dictate subsequent steps in terms of diagnosis and treatment. The presented clinical scenario (increase in swelling and symptoms of aching/throbbing and no significant progression of skin damage) correlates more with new superficial venous disease as demonstrated by the lower extremity ultrasound. There is significant reflux in the ante-

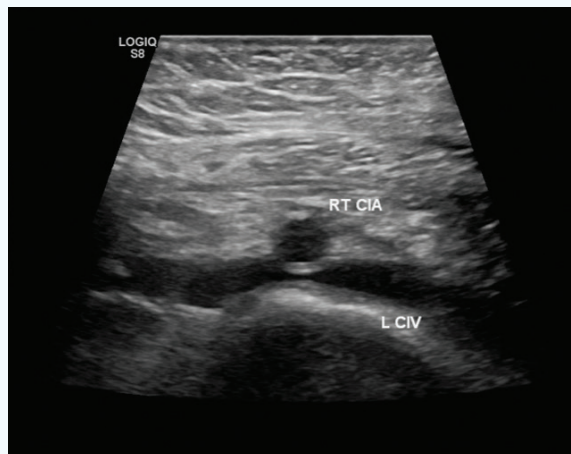


Figure 5. Transabdominal duplex ultrasound demonstrating probable left common iliac vein compression.

rior accessory great saphenous vein (AAGSV), which measures 11 mm and is associated with extensive varicose veins.

If clinical signs and symptoms were more severe or they did not correlate with ultrasound findings (eg, venous claudication, pain out of proportion to severity of superficial reflux, severe edema, skin damage, and/or recurrent ulceration), you could consider additional imaging with ascending multiplanar venogram and IVUS with the intention to treat (ie, balloon venoplasty and stenting).

In this patient with increased swelling and symptoms of aching/throbbing, no ulcer recurrence, and significant superficial venous disease, there is no need for further imaging.

**Dr. Kolluri:** We reserve axial imaging for suspected complex anatomic anomalies or if there is concern for malignancy based on the surface duplex ultrasound of the iliac veins and the inferior vena cava. We also review past axial images, if available. We also confirm that the patient has undergone a routine, age-appropriate cancer screening. We then proceed straight to venography and IVUS as the next step. Axial imaging is obtained if atypical iliac vein compression or anomalous anatomy is noted on the venogram/IVUS.



**Would you treat the outflow obstruction, and if so, would you treat this before or after treatment of superficial reflux?**

**Drs. Garcia and Gasparis:** In the absence of a significant progression of skin damage or recurrence of venous ulcer, there is no need to treat the venous outflow. I would only consider treating the outflow venous obstruction (if one exists) if symptoms worsened or if

no clinical improvement is objectively detected in subsequent follow-up visits after effective treatment of the superficial reflux.

Follow-up evaluation using clinical (CEAP, VCSS) and quality-of-life instruments appears reasonable to evaluate for improvement.

**Dr. Kolluri:** The patient's symptoms seem to correlate with the neovascularization from the anterior accessory vein and reflux in the related large varicose veins. These large varices are unlikely to decompress with relief of iliac vein obstruction. We also know that this is a common pattern of neovascularization after endothermal ablation. Aggressive treatment of superficial venous insufficiency leads to correction of common femoral reflux in more than 80% of patients and femoral vein reflux in 30% of patients with concomitant deep vein reflux. I recommend superficial intervention and compression therapy first in this situation and then monitoring of clinical symptoms. I would consider treatment of outflow obstruction in 3 months or so, if the symptoms of venous claudication persist.

**Dr. Dillavou:** I would treat the outflow obstruction with an appropriately sized Wallstent (Boston Scientific

Corporation) if a more than 50% narrowing was diagnosed. I would treat this around the same time as the distal pathology.



**What modality or modalities would you use to treat her superficial reflux?**

**Dr. Kolluri:** I would recommend thermal ablation of the proximal straight portion of the AAGSV along with microphlebectomy of the large tributaries and foam sclerotherapy of the smaller varicose veins in the calf, like Dr. Gibson's initial approach. Similarly, based on the patient's preference, I would also consider cyanoacrylate closure of the proximal anterior accessory saphenous vein in lieu of thermal ablation.

**Dr. Dillavou:** I would laser ablate the perforator with a 1,470-nm, 400- $\mu$ m probe and foam the anterior accessory vein with polidocanol microfoam.

**Drs. Garcia and Gasparis:** With a relatively large AAGSV at a diameter of 11 mm that is nontortuous and is 10-cm long, I would select a thermal technology (radiofrequency ablation or endovenous laser ablation) over nonthermal, nontumescent (mechanochemical

ablation, polidocanol endovenous microfoam, cyanoacrylate glue). This is based on personal experience rather than any available scientific data, as there is no literature comparing such a clinical scenario.

In the same setting, following treatment of the AAGSV, I would treat the varicosities with mini phlebectomy and ultrasound-guided sclerotherapy. Additional ultrasound-guided sclerotherapy may be needed at follow-up to treat any residual reservoir in the area of skin damage.



### Would you treat her refluxing perforator vein?

**Dr. Dillavou:** Yes, because it is large and in the area of a healed ulcer.

**Drs. Garcia and Gasparis:** The guidelines from the Society for Vascular Surgery/American Venous Forum suggest that experienced interventionalists should treat pathologic perforating veins (those with outward flow of > 500 ms duration, with a diameter of > 3.5 mm, located beneath a healed or open venous ulcer), unless the deep veins are obstructed (grade 2B).

In our practice, we limit the treatment of perforating veins to patients with recalcitrant or recurrent ulcerations who experience no improvement after effective treatment of any underlying superficial reflux and/or a proximal chronic venous obstruction. We prefer to use thermal ablation and ultrasound-guided sclerotherapy.

**Dr. Kolluri:** This perforator fits the “pathologic perforator” description as per the Society for Vascular Surgery/American Venous Forum guidelines. However, I generally stage perforator ablation, unless there is an active nonhealing ulcer. My order of treatment for this patient would be to perform axial reflux treatment as previously mentioned, wait 3 months and treat outflow obstruction (if the symptoms persist), and 3 months later, ablate the perforator (if symptoms persist).

This patient has combined superficial, deep, and perforator reflux along with deep vein obstruction. There are multiple elective approaches to treat chronic venous insufficiency. In the absence of evidence-based or guideline-based treatment algorithms, I believe in shared decision making with the goal of treating the patient and not the vein. It makes logical sense to go from least invasive to the most invasive treatments, while monitoring patients’ response to therapies over a few months. Chronic venous insufficiency is aptly named, as the symptoms are chronic and treatments are elective. Time is on our side. ■

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