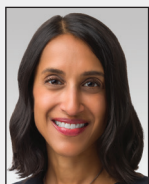


ASK THE EXPERTS

How Do You Treat (and Avoid) Recurrent Varicose Veins?

A comprehensive approach to varicose vein recurrence requires an understanding of the etiology of recurrence patterns, proper technique and imaging use, consistent follow-up, and patient education and compliance.

**With Ramona Gupta, MD, FSIR; Suman M. Wasan, MD, MS, FSVM;
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Superficial venous insufficiency and varicose veins affect approximately 23% of adults worldwide. Treatments have significantly evolved from surgical ligation and stripping to less invasive endovascular ablative procedures. Durability is an important long-term outcome measure. However, recurrent varicose veins occur with both surgical and endovascular techniques. Recurrence rates after endovenous ablation procedures have consistently been lower in long-term studies when compared to ligation and stripping. Multiple studies have confirmed durable closure rates approaching 95% after 5 years with thermal and newer nonthermal ablative technologies. Recurrent rates after ligation and stripping have ranged from 20% to 80%, with incidence increasing over time.¹

Importantly, recurrence patterns after endovenous ablation significantly differ from those after ligation and stripping—namely, saphenofemoral neovascularization.

The majority of recurrences after endovenous ablation are due to recanalization of a segment of previously treated vein or new reflux in an accessory saphenous vein or alternate truncal pathway. Specifically, recanalization of a segment of previously treated great saphenous vein (GSV) or reflux in the anterior accessory GSV (AAGSV) are common causes of recurrent disease in patients.

Treating these patterns of recurrence often involves employing nonthermal techniques. A recanalized short-segment GSV can be effectively treated with ultrasound-guided foam sclerotherapy (USGFS), with special attention paid to newly refluxing perforator veins, which are frequently identified in the thigh. Recurrent disease with new reflux in the GSV below the knee can be treated with cyanoacrylate adhesive closure or USGFS to avoid nerve injury. The AAGSV frequently becomes superficial, tortuous, and outside the sheath after only a few centimeters. Endovenous ablation is successful in treating the AAGSV to the saphenofemoral junction, although tumescing outside the sheath and achieving adequate depth to prevent skin burn can be difficult. Cyanoacrylate adhesive closure requires 10 cm of straight segment to treat. USGFS is an option but has routinely demonstrated lower closure rates. The short saphenous vein is also a common culprit for disease recurrence and can be successfully treated with most of the newer technologies, either thermal or nonthermal.

In addition, iliofemoral reflux and pelvic venous disease can be important causes of recurrent varicose veins that may be missed at initial evaluation. Diagnosis often requires cross-sectional imaging and/or venography with intravascular ultrasound. These important causes of lower extremity

varicose veins have extensive diagnostic and treatment considerations, including embolization, sclerotherapy, and/or stent placement in the appropriate clinical setting.

Recurrent varicose veins can be frustrating for the patient and the physician, but rates of recurrence are low with newer techniques, and patterns of recurrence are

easily recognizable. Physicians have multiple tools available to treat these new refluxing veins and can achieve excellent clinical outcomes.

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Recurrent varicose veins are a common complaint of patients who have undergone varicose vein treatment. Studies reveal that between 6.6% to 37% may have recurrence at 2 years, and this approaches 50% at 5 years.¹ Given this common occurrence, a comprehensive and systematic approach to evaluation and management of recurrent varicose veins seems prudent.

Several etiologies account for the majority of varicose vein recurrence, and all are readily identified by duplex ultrasound. First, incomplete initial treatment of axial refluxing varicose veins (above and below the knee) and tributaries may result in recurrence. It is not uncommon to see a patient who underwent axial vein ablation without treatment of associated below-knee or tributary varicose veins. The recently published Society for Vascular Surgery, American Venous Forum, and American Vein and Lymphatic Society CEAP (clinical, etiologic, anatomic, pathophysiologic) class 2 varicose veins guidelines provide an evidence-based recommendation for treatment of these remaining varicose veins.² Second, varicose vein

recanalization (especially after initial treatment) results in persistent junctional reflux. This pattern is commonly seen with varicose vein formation in the anterior saphenous vein after GSV ablation. Third, neovascularization near the saphenofemoral junction may occur, resulting in a cluster of painful varicose veins not amenable to compression. This is an unpredictable and difficult scenario in which further thermal ablation or saphenofemoral ligation is difficult and rarely effective; foam sclerotherapy seems to be the best option here. Fourth, midfemoral vein or paratibial vein perforator incompetence may result in recurrent varicose veins, especially in the setting of skin changes or ulcers. Finally, patients may develop recurrent varicose veins from pelvic sources. The recently updated guidelines on the evaluation of pelvic venous disorders provide a framework for management of these patients.³

Patients who have undergone vein treatment should be reevaluated at 3 months for residual symptomatic varicose veins and managed appropriately. Patients should be educated that varicose veins are a chronic recurrent disease, and routine reevaluation and treatment are warranted. Maintaining a healthy active lifestyle, avoiding obesity, and using compression are important activities of long-term management.

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2. Gloviczki P, Lawrence PF, Wasan SM, et al. The 2022 Society for Vascular Surgery, American Venous Forum, and American Vein and Lymphatic Society clinical practice guidelines for the management of varicose veins of the lower extremities. Part I. Duplex scanning and treatment of superficial truncal reflux: endorsed by the Society for Vascular Medicine and the International Union of Phlebology. *J Vasc Surg Venous Lymphat Disord.* Published online October 12, 2022. doi: 10.1016/j.jvsv.2022.09.004

3. Meissner M, Khilnani N, Labropoulos N, et al. The symptoms-varices-pathophysiology classification of pelvic venous disorders: a report of the American Vein & Lymphatic Society International Working Group on Pelvic Venous Disorders. *J Vasc Surg Venous Lymphat Disord.* 2021;9:569-584. doi: 10.1016/j.jvsv.2020.12.084



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In my vascular surgery practice, I have grown to serve a large volume of patients with venous pathologies. Superficial venous disease is quite prevalent, and therefore encountering patients with recurrences after treatment can be an inevitable challenge. Ultimately, any patient with venous reflux disease can have progression of the pathology such that recurrences occur. The first steps in my assessment when patients seek my care for recurring symptoms and varicose veins are always a fresh evaluation

with thorough history, detailed physical examination, and appropriately protocolized venous ultrasound.

Current vascular literature illustrates the evolution of our progress in superficial venous management. Traditional surgical stripping and/or ligation have been associated with 20% to 60% recurrence rates within 5 years of initial treatment, with the median presentation noted at 3 years.¹ Endothermal ablation has allowed us to improve these outcomes, as well as patient tolerance of treatment. Thermal ablation has a reported 95% success rate at 3 to 5 years and recurrence rates of 25% to 30% within the first 2 years.^{2,3} Early postsurgical recurrences (ie, within 1 month of intervention) are generally associated with technical failure or incomplete operations such as inadequate junctional ligation or persistent vein patency on early postoperative venous ultrasound. Late recurrences have been presumed to be related to deterioration of the remaining superficial venous system via altered venous hemodynamics and neovascularization.^{4,5} Recurrence after endovascular ablation is commonly associated with notable perforator vein reflux in the areas of significant symptom return.¹ This persistent reflux in thigh or calf perforator veins is suspected to contribute to recanalization, neovascularization, and even new reflux disease in vein segments that previously had no significant reflux.⁶ Concomitant untreated pelvic venous compression, as is seen in May-Thurner syndrome, and gonadal vein congestion are also associated with increased likelihood of recurrent superficial reflux disease. Additionally, obesity with body mass index > 30 kg/m² has been identified as a potential risk factor for both early and late recurrence of superficial reflux disease and varicosities.⁷ Given these documented outcomes, it is prudent to ensure each of these factors is taken into consideration while managing patients with superficial reflux disease.

My management plan for each patient starts with establishing healthy, consistent lifestyle practices, such as effective use of compression garments, regular skin health checks, leg elevation, exercise, and weight control. This optimization is critical to the long-term maintenance and prognosis of superficial venous pathologies. I then focus on ensuring any significant underlying deep venous disease has been appropriately treated. This may require venography, typically performed with intravascular ultrasound, to accurately assess the severity of

significant compressive lesions that may be targeted for treatment. Importantly, the indication to intervene on deep venous pathology is based on clinical severity, which includes the presence of red flag symptoms such as nonhealing venous ulcerations. After this, I ablate the involved refluxing superficial veins and varicosities. Commonly, this may be achieved via thermal ablation of the recanalized truncal veins as well as associated perforator veins. Removing the varicosities themselves can then be done safely using several approaches—foam injection, sclerotherapy, minimally invasive phlebectomy, or, if necessary, mechanical stripping of the veins. When appropriate, I offer nonthermal treatment methodologies with injection of foam sclerosant for ablation to limit the risk of thermal injury to the nearby nerves. Importantly, I make sure to take time with my patients to ensure a clear understanding of the underlying disorder and help set expectations for future maintenance. It is not uncommon to have lapses in compliance, particularly with regard to consistent application of compression therapy. In my practice, once symptoms have improved and venous ulcers treated, I encourage patients to follow-up at 6-month to 1-year intervals and use this opportunity to monitor for symptom recurrence and reinforce already established medical management strategies or offer alternative solutions as needed.

Although success rates for treatment of superficial venous reflux disease have continued to improve with evolving technology, recurrence of symptomatic disease and varicose veins remains a notable challenge. Optimizing medical management, considering associated underlying pelvic and perforator venous pathologies, offering minimally invasive options aimed at addressing the symptoms at hand, and educating patients regarding long-term expectations of care have been useful elements in my approach as a vascular provider. ■

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