Treating C6 Venous Disease Requires Tandem Effort

Chronic venous ulcers are notoriously difficult to heal unless wound care physicians and vein specialists work together.

BY KATHYLEE SANTANGELO, MD

As a vein specialist, I frequently see patients who have been struggling with nonhealing venous wounds for 6, 8, or even 12 months despite receiving weekly wound care treatment. Sometimes they are referred to me after they have endured months of pain, reduced mobility, frustration, and inconvenience from therapy that doesn't address their underlying venous insufficiency or venous hypertension, rendering standard wound care ineffective. Another common scenario is for patients to come to me after their venous wounds recur a short time after they have healed.

Over the last 8 years, I've worked hard to foster collaborative relationships with wound care physicians with the goal of promoting a team approach to treating venous wounds. I tell wound care physicians that if they refer patients to me for a venous study and subsequent treatment of any venous incompetence or hypertension that may be contributing to wounds, together we can identify and treat the root cause of the ulcers.

Patients with venous wounds comprise approximately 30% of my practice, and I receive referrals from eight wound care centers, including one center 3 hours away. We are the only vein center in Oklahoma that is accredited by the Intersocietal Accreditation Commission, which generates some referrals from wound care physicians I don't personally know, but most referrals are a direct result of my outreach to wound care physicians. The best and most gratifying way to get referrals is for satisfied patients to return to the wound care center and share the dramatic results they've experienced. It's not unusual for patients to come to our center for their initial visit in such severe pain that they can't stand to have their dressing changed. The patients who return for follow-up 72 hours after I've ablated problematic veins are practically different people; they're in much less pain, and their wounds no longer soak their socks with drainage.

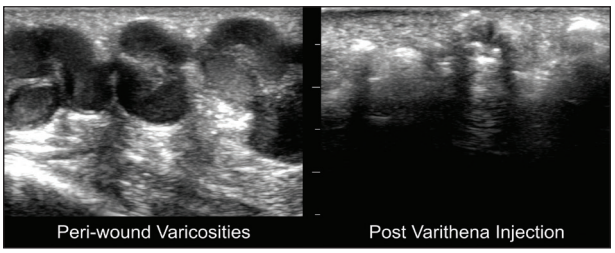

Figure 1. Peri-wound varicosities, pre- and post-Varithena® injection.

TREATING UNDERLYING DISEASE

Patients with chronic venous wounds and venous insufficiency probably have venous hypertension and many have a cluster of pathologic subcutaneous veins surrounding the ulcer bed. These veins become dilated and create pressure, causing a change in the microcirculation that pathologically alters the endothelium of the veins and releases damaging vasoactive substances.

The pathophysiology of ulcer healing is not well established. According to the fibrin cuff theory, the venous hypertension causes excessive fibrin deposition around the capillary beds, which leads to a 20-fold decreased oxygen permeability. Other nutrients also diffuse less, leading to tissue hypoxia and impaired wound healing. The inflammatory trap theory posits that leukocytes are trapped in the capillaries; they release proteolytic enzymes and free radicals that cause endothelial damage, which results in hyperpermeability and fibrin deposition. Another theory is that various proinflammatory cytokines and growth factors, including tumor necrosis factor α and matrix metalloproteinases, incite the destruction of normal tissue.[1]

When duplex ultrasound shows reflux in the truncal or great saphenous veins, we treat the refluxing veins first. Guidelines for the management of venous leg ulcers cite evidence that treating superficial venous reflux disease in truncal veins promotes ulcer healing and prevents ulcer recurrence.[2] In my opinion, it's also helpful to ablate the abnormal varicosities in the ulcer bed, which often promotes changes in the subcutaneous tissue, dermis, and epidermis. These changes lead to an improvement in the induration and inflammation that surrounds the wound.

Because a catheter cannot access the tortuous periwound varicosities, I use polidocanol injectable foam 1% (Varithena®) to shut down these veins. In the past, I used physician-compounded foam to treat veins I could not reach with a catheter-based ablation device, but Varithena® is a superior sclerosant that leads to predictable results. Varithena's® gas mixture (65% oxygen, 35% carbon dioxide) contains only trace amounts of nitrogen (< 0.8%), which makes the microfoam safer for my patients.

Recently, I treated a 48-year-old morbidly obese, hypertensive, diabetic man who presented with CEAP (clinical, etiologic, anatomic, pathophysiologic) class 6 venous disease and a Venous Clinical Severity Score of 18 on his right leg. He reported a history of recurrent right lower leg wounds since 1995; the current wound recurred approximately 2 months before his visit and measured 3.5 X 2.5 X 0.2 cm. He had been in wound care for the previous 2 months. Duplex ultrasound documented normally functioning deep veins of his right leg and superficial venous reflux in his great saphenous vein, as well as a cluster of tortuous refluxing tributaries surrounding the ulcer bed. We used Varithena® to ablate both his refluxing great saphenous vein and the tortuous refluxing varicosities in the periwound. His wound was healed within 1 week, and it has not recurred.

All wound patients return to my office 72 hours after the procedure for an ultrasound to ensure they haven't developed a deep vein thrombus related to the ablation procedure. Although they continue receiving care at a wound care center, I see them again at 1 and 6 months. Whenever possible, we'll schedule a venous ablation procedure the day before or the day of their visit to wound care so they don't have to make an extra trip to have dressings applied to their wounds after our procedures.

Treating lower extremity wounds almost always involves combination therapy and must be tailored to the patient's specific pathology. It's important for the vein specialist and the wound care physician to make all modalities available to the patient. These difficult wounds are only healed when the team concentrates on mitigating potentially correctable problems, including patients' lifestyle habits that predisposed them to their condition.

DEVELOPING RELATIONSHIPS WITH WOUND CARE CENTERS

I take every opportunity to show wound care physicians how we can work together to better treat patients with venous wounds. I've presented at their monthly meetings to discuss the classification, signs, and symptoms of venous disease, what reflux in the great saphenous system looks like on an ultrasound, and the treatment modalities for venous disease, including thermal and chemical ablation. I've hosted a dinner for wound care physicians to talk about new nonthermal, nontumescent ablation techniques. I've also invited wound care physicians to my facility and, using a mock ultrasound exam, have shown them how we evaluate venous disease so they can tell their patients what to expect from an evaluation.

Figure 2. Pre- and postablation of the great saphenous vein.

Another way I build and maintain referrals with wound care centers is to host "lunch and learns" at their facilities in which I'll bring lunch for the entire staff and spend time educating the nurses and referral coordinators about what we do. Routinely and informally interacting with and educating wound care staff keeps our patients in the front of their minds when a physician mentions referral. We host these casual educational sessions every 3 to 6 months at local wound care centers and annually at facilities located more than an hour away.

I once worked in a wound care center and have an appreciation for the extensive therapies wound care physicians provide to their patients. However, just as wound care physicians assess arterial circulation to guide their diagnosis and therapy, they should have a vein specialist evaluate the patient's venous circulation. A collaborative relationship with a vein specialist is integral to healing difficult venous wounds and giving patients back their lives. ■

1. Vasudevan B. Venous leg ulcers: pathophysiology and classification. Indian Dermatol Online J. 2014;5:366-370.
2. O'Donnell TF Jr, Passman MA, Marston WA, et al. Management of venous leg ulcers: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. J Vasc Surg. 2014;60:3S-59S.

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INDICATIONS

Varithena® (polidocanol injectable foam) is indicated for the treatment of incompetent great saphenous veins (GSV), accessory saphenous veins, and visible varicosities of the GSV system above and below the knee. Varithena® improves the symptoms of superficial venous incompetence and the appearance of visible varicosities.

IMPORTANT SAFETY INFORMATION

The use of Varithena® is contraindicated in patients with a known allergy to polidocanol and those with acute thromboembolic disease. Severe allergic reactions have been reported after administration of liquid polidocanol, including anaphylactic reactions, some of them fatal. Observe patients for at least 10 minutes after injection and be prepared to treat anaphylaxis appropriately. Intra-arterial injection or extravasation of polidocanol can cause severe necrosis, ischemia or gangrene. Patients with underlying arterial disease may be at increased risk for tissue ischemia. If intra-arterial injection of polidocanol occurs, consult a vascular surgeon immediately. Varithena® can cause venous thrombosis. Follow administration instructions closely and monitor for signs of venous thrombosis after treatment. Patients with reduced mobility, history of deep vein thrombosis or pulmonary embolism, or recent (within 3 months) major surgery, prolonged hospitalization, or pregnancy are at increased risk for developing thrombosis. The most common adverse events observed were pain/discomfort in extremity, retained coagulum, injection site hematoma or pain, common femoral vein thrombus extension, superficial thrombophlebitis, and deep vein thrombosis. Physicians administering Varithena® must be experienced with venous procedures, possess a detailed working knowledge of the use of the duplex ultrasound in venous disease and be trained in the administration of Varithena®.

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