Treatment of venous ulcers is an important, yet often overlooked, part of comprehensive vascular care. In this Q&A, Raghu Kolluri, MD, updates clinicians on the patient burden, the challenges of working in a fragmented care structure, and on recently approved therapies and upcoming trial results. Dr Kolluri is a vascular medicine specialist at OhioHealth Heart and Vascular in Columbus, Ohio, and he is the President-Elect of the Society for Vascular Medicine. He presented on venous ulcers on Wednesday, February 7th at the International Symposium on Endovascular Therapy (ISET) in Hollywood, Florida.

**VDM:** Tell us about why you have been interested in the treatment of venous ulcers.

**Dr Kolluri:** Up to 70% of all leg ulcers in the United States are thought to be at least partially associated with venous insufficiency, and these patients experience significant morbidity. For example, patients with venous ulcers need to visit wound centers on a weekly basis for compression wraps, debridement, and wound care. These frequent visits coupled with drainage and malodor result in poor quality of life and social isolation. Despite the disease burden, the awareness of venous disease in general and venous leg ulcerations in particular is quite low.

This lack of awareness is a result of deficiencies in graduate medical education training programs. However, it’s important to note that there has been a significant uptick in venous education and awareness in the field of vascular diseases over the past 5 to 10 years that is related to the buzz surrounding major trials. Nonetheless, most of the new attention and education is around the flow aspects of venous disease, such as reflux or fixing iliac vein obstruction. Much less attention is given to comprehensive wound care for venous ulcers.

Most vascular experts are very familiar with Rutherford classification, but not many are up to speed with CEAP (Clinical, Etiology, Anatomy, Pathophysiology) classification and venous clinical severity clinical scores (VCSS). The CEAP and VCSS scores are objective clinical scores that clearly demonstrate the severity of venous disease. Similar to Rutherford, the CEAP classification has 6 stages. Rutherford ends with critical limb ischemia (CLI) and ischemic ulcers at stage 6, while CEAP ends at venous ulcerations at stage 6.

**VDM:** What advice do you have regarding care of venous ulcers?

**Dr Kolluri:** Appropriate diagnosis is an important part of the care for venous ulcers. The classic description is that venous ulcers are painless, but this is a misconception. Venous ulcers can be inflamed and painful, even to the point of disabling pain. In my presentation, we discussed the differential diagnosis of venous ulcers and varying presentations of venous ulcers.

The key is proper diagnosis, good wound care, debridement, use of artificial skin products, compression therapy and a good venous ultrasound to assess for reflux and obstruction. We want to fix the underlying venous problem while comprehensive ulcer care is being provided. We want the ulcer to heal, and then reduce recurrence by encouraging the use of graduated compression socks.

**VDM:** Is there any special training needed to perform compression therapy?

**Dr Kolluri:** Basic understanding of sub-bandage pressures, static versus dynamic compression, single layer versus multilayer compression, and medium-stretch versus long-stretch compression is important. However, no special training is required. Compression therapy is key in the management of venous disease. Many people tend to discount it and assume their patients can’t wear compression therapy. However, that hasn’t been the experience in our practice. We work with the patients to identify compression therapy that fits their lifestyle. Compression therapy is not just compression socks/stockings. There are multiple compression therapy options that patients choose from and wear, based on their physical, social, and financial situation.

**VDM:** How can skin substitutes and grafts aid in treatment?

**Dr Kolluri:** While there are several skin care substitutes that are marketed to improve wound healing, the two that are most commonly used are products with randomized controlled trial data backing them. Apligraft is a skin substitute that is an...
option for patients with ulcers that have not healed for at least 6 weeks. In a pivotal trial, significantly more patients completely healed at 6 months with Apligraft compared with Unna’s boot. Similarly, the use of EpiFix, a human amniotic membrane allograft, resulted in improved healing rates when compared with standard wound care.

**VDM:** What are your thoughts on recent trials?

**Dr Kolluri:** There are handful of clinical trials relevant to the audience at ISET. One particular multicenter trial called EVRA, is expected to report results a few months after ISET. We’ll discuss the study design and how endovenous therapies cannot only reduce the risk of ulcer recurrence, but also promote wound healing.

I think most of us in the field agree that there were issues with the older trial, the ESCHAR trial, which compared venous leg ulcer healing with vein striping compared to standard of care. The EVRA trial is more practical, and most of us who care for venous ulcers and perform venous therapies are hopeful that it will be a positive study and that it will demonstrate reduced recurrences, as well as better ulcer healing and better speed of ulcer healing.

**VDM:** How can one tailor care towards individual patients?

**Dr Kolluri:** Individualized patient care plans are important. Clinicians who are not currently familiar with treating ulcers can seek at the very least some basic training in compression therapy and in other wound care techniques.

Collaboration with wound centers is very important because the yield for learning from them is high, and the yield for finding disease when working with them is quite high. I recommend that fellows in training spend some time in the wound center because they not only learn about venous ulcerations but also learn about non-interventional CLI management.

**VDM:** Do you have any tips for performing dressing and debridement?

**Dr Kolluri:** Unless you’re in a clinic with appropriate nursing support, it is difficult to perform debridement. However, if you make a conscious choice to train in that area and master it, then you can take comprehensive vascular care to a whole other level. As mentioned, if training programs incorporate wound center rotation, it would be valuable for clinicians who want to do more in this area.

**VDM:** What challenges are part of working in the field of venous ulcer care?

**Dr Kolluri:** Venous disease care is fragmented. It’s delivered by podiatrists, wound specialists, and infectious disease doctors. As a result, the treatment is not homogenous, and the treatment algorithms and clinical pathway guidelines are not homogenous.

**VDM:** How can clinicians overcome the challenges of fragmented care?

**Dr Kolluri:** The key to developing good relationships is working together with the wound care physicians. When I came to Columbus, Ohio, I did not want to overstep boundaries with the wound care physicians, so I excused myself from routine wound care and established a wound-consult clinic once a week. I referred my wound patients to the wound physicians, and they started sending me patients with wounds that were not healing. We eventually developed a nice synergy in which we cared for patients as a team instead of as competitors. Additionally, the wound patients knew that they would come to me for venous interventions...
and then go back to the other physicians for wound care. It’s a win-win for everyone, but especially for the patient, when physicians work together in a collegial, collaborative manner.

**VDM:** What is the main point you’d like to communicate on this topic?

**Dr Kolluri:** The take-home point is that venous disease is not all cosmetic. There is a huge burden that results in significant morbidity and health care spending. Interventionalists can strategically place themselves to provide comprehensive care for these patients as long as they work in a team.

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*Editor’s Note: Dr. Kolluri is a consultant for Boston Scientific, BTG, Inari, Innovein, Medtronic, Philips-Volcano, Vesper Medical; Grant/Research Support-BTG. He is part of the Speakers’ Bureau for Boston Scientific and Philips-Volcano; and he discloses research consulting for Bard/BD and Spectranetics.*