

# Venous leg ulcer resistant to compression and conservative treatment for 5 years cured by staged endovenous surgery and foam sclerotherapy — a case report from India



In November 2017, a 69-year-old lady presented with two venous leg ulcers on her left leg, resistant to compression and conservative treatment for 5 years, presented. Duplex ultrasound showed normal deep veins, but venous reflux in the great saphenous vein and perforators. After one of the authors attended a specialist vein clinic in the UK, the patient underwent staged endovenous treatment, following The Whiteley Protocol®. Endovenous laser alone (stage 1) resulted in an improvement that stabilised but did not heal the ulcer. Ultrasound guided foam sclerotherapy to the “stasis” veins in the ulcer bed (stage 2) resulted in a cure.

### Authors:

Ashish D Dhadadas, Sachin S Patil, Mark S Whiteley

**Ashish D Dhadadas** is a Consultant and General Surgeon at the Samata Hospital, India; **Sachin S Patil** is a Consultant Radiologist at the Samata Hospital, India; **Mark S Whiteley** is a Consultant Venous Surgeon at the Whiteley Clinic, Guildford and the Faculty of Health and Biomedical Sciences, University of Surrey, Guildford, UK

Leg ulcers place an enormous burden on the healthcare systems in all countries, as well as causing the individual patient and their relatives great distress and inconvenience. Most leg ulcers are venous in origin and traditionally these are treated with dressings to the ulcer itself and compression (Nelson and Adderley, 2016).

In 1993, it was found that most venous leg ulcer are caused by superficial venous reflux, which is commonly known as “varicose veins” or, if no varicose veins are visible on the surface, “hidden varicose veins” (Shami et al, 1993). In 2007, The Effect of Surgery and Compression on Healing and Recurrence (ESCHAR) randomized trial showed that surgical treatment of this venous reflux resulted in a lower ulcer recurrence rate after healing than compression (Gohel et al, 2007). In 2018, the Early Venous Reflux Ablation (EVRA) randomized trial showed that endovenous surgery to treat the superficial venous reflux resulted in quicker healing of the venous leg ulcer than compression (Gohel et al, 2018).

### Case report

In November 2017, a 69-year-old lady

presented for a surgical opinion with two non-healing ulcers on her left lower leg [Figure 1]. She had been suffering from these ulcers since 2012 and had failed to heal with conservative management, debridement and compression. The patient was wearing Sigvaris Class 2 graduated compression stockings and was concordant with compression. The ankle-brachial pressure index (ABPI) was not formally recorded but the arterial Doppler waveform was normal. The morbidity was such that she was confined to her home and could barely carry out her day-to-day chores.

The larger ulcer on the anterior aspect of left lower leg measured 15 cm × 12 cm × 3 cm (depth). This seems deep for a venous ulcer but was due to its chronicity and the numerous attempts of debridement which had not resulted in healing. It was infected with maggots at the time of the first clinical examination. The smaller ulcer, which was situated medially, measured 6 cm × 3 cm × 1 cm (depth). The patient weighed 105 kgs. There were no underlying conditions such as diabetes mellitus or peripheral vascular disease.

After the removal of maggots and debridement of ulcers, a Doppler ultrasound was performed on the lower limb. It revealed



*Figure 1.* Photograph of the two non-healing leg ulcers on the left before any endovenous treatment. The ulcers had not healed after 5 years of dressings and compression.



*Figure 2.* Four weeks after endovenous ablation of the great-saphenous vein, the smaller ulcer has healed and the larger one has improved.



*Figure 3.* Three months later, the larger ulcer remained open and static for the next 6 months.



*Figure 4.* Foam sclerotherapy was injected into the underlying "stasis veins" and this re-started the healing, with complete ulcer healing just under 4 months after the foam sclerotherapy.

an incompetent saphenofemoral junction and incompetent para-tibial, posteromedial perforators. The deep veins were patent.

After attending the Whiteley Clinic in the UK for a one-day individual observational course, the clinicians followed The Whiteley Protocol® (Whiteley, 2018) and offered the patient endovenous laser treatment of the incompetent superficial veins of the left lower limb. This treats the venous reflux and is stage 1 of the protocol. She was discharged home after the procedure and advised to have daily

dressings changes. The patient was prescribed compression stockings after being measured at the three recommended sites on her leg: just above the ankle, mid calf and mid thigh. However, as she could not bear to wear Class 3 full-leg compression stockings due to pain caused from constriction, she was advised to wear Class 2 below-knee compression stockings from Sigvaris, which suited the shape of her leg. The patient was followed up every 15 days.

The smaller, medial ulcer healed in 4 weeks. However, the larger, anterior ulcer persisted

[Figure 2]. It shrank in size to 5 cm × 2 cm × 0.5 cm (depth) [Figure 3], but by September 2018 had not shown any further improvement. The patient was very motivated to try to heal the long-standing ulcers and claimed good compliance with using the compression stockings.

It was then decided to perform stage 2 of The Whiteley Protocol® and treat the ulcer bed veins ('stasis veins') with foam sclerotherapy. Sodium tetradecyl sulphate 0.5% (Fibrovein®, STD Pharma, Hereford, UK) made into a foam with air using the Tessari method was injected, using ultrasound guidance. Post-foam sclerotherapy, regular wound dressings and Class 2 compression stockings were continued. The ulcer healed completely by January 2019 (after nearly 4 months) [Figure 4].

### Discussion

Mobile patients with venous leg ulcers should be referred to specialist units for venous duplex ultrasound and considered for endovenous surgery. This is not only in line with current international and national guidelines from America (Gloviczki et al, 2011), Europe (Wittens, 2015) and the UK (National Institute for Health and Clinical Excellence [NICE], 2013), but randomized trials have demonstrated that endovenous ablation surgery results in faster ulcer healing (Gohel et al, 2018) with a lower chance of recurrence (Gohel et al, 2007).

This case study has shown the benefit of endovenous intervention in a patient who had been suffering from a venous leg ulcer for 5 years, with no relief from compression or other conservative management. The Whiteley Protocol® was followed, which is outlined in a recently published book (Whiteley, 2018). The protocol differs from the ESCHAR (Gohel et al, 2007) and EVRA (Gohel et al, 2018) trial protocols with respect to the staged intervention and the separation of treatment of reflux and stasis.

Stage 1, the endovenous laser ablation, treated the superficial venous reflux, but did

not result in the complete healing of the ulcer. This was only achieved when the residual "stasis" veins that underlie many if not all venous ulcers, were treated with ultrasound-guided foam sclerotherapy, stage 2 of the protocol.

### Conclusion

Following the findings of the ESCHAR (Gohel et al, 2007) and EVRA (Gohel et al, 2018) randomized controlled trials and the current clinical NICE (2013) guidelines for varicose veins (which include venous leg ulcers), patients who are mobile and who have venous leg ulcers should be referred to specialist services for venous duplex ultrasound and consideration for endovenous surgery.

Trials have proven that in suitable patients, this results in the faster healing of venous leg ulcers, with significantly less chance of a recurrence in the future.

WAS

### References

- Gloviczki P, Comerota AJ, Dalsing MC et al (2011) The care of patients with varicose veins and associated chronic venous diseases: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg* 53(5 Suppl): 2S-48S
- Gohel MS, Barwell JR, Taylor M et al (2007) Long term results of compression therapy alone versus compression plus surgery in chronic venous ulceration (ESCHAR): randomised controlled trial. *BMJ* 335(7610): 83
- Gohel MS, Heatley F, Liu X et al (2018) A randomized trial of early endovenous ablation in Venous Ulceration. *N Engl J Med* 2018; 378:2105-2114
- National Institute for Health and Clinical Excellence (2013) *Varicose Veins: Diagnosis and Management. Clinical guideline [CG168]* Available at: <https://www.nice.org.uk/guidance/cg168/chapter/1-recommendations#referral-to-a-vascular-service-2> (accessed 5 September 2019)
- Nelson EA, Adderley U (2016) Venous leg ulcers. *BMJ Clin Evid* pii: 1902
- Shami SK, Sarin S, Cheatle TR et al (1993) Venous ulcers and the superficial venous system. *J Vasc Surg* 17(3): 487-90
- Whiteley MS (2018) *Leg Ulcer Treatment Revolution*. Whiteley Publishing Ltd, Guildford, UK
- Wittens C, Davies AH, Bækgaard N et al (2015) Editor's choice - management of chronic venous disease: clinical practice guidelines of the European Society for Vascular Surgery (ESVS). *Eur J Vasc Endovasc Surg* 49(6): 678-737