

Using a minimally invasive treatment for venous reflux

This paper describes endoluminal thermal ablation, which is used in the treatment of varicose veins and offers a less invasive treatment of venous reflux in patients with venous leg ulcers.

Author:
Michael Jünger

Approximately 70% of chronic leg ulcers are caused by venous reflux. Removal of or tying off of incompetent trans- and extrafascial veins has been shown to be the most efficient surgical treatment to achieve long-lasting healing. In a patient with venous disease, reducing venous and capillary hypervolaemia and hypertonia will cause the chronic inflammatory process to stop and help to initiate healing processes, leading to granulation tissue formation and epithelialisation.

For the past 70 years the gold standard for surgical treatment has involved stripping and removal of long and short saphenous veins, phlebectomy, and the dissection or ligation of perforators. More recently, new endoluminal thermoablative treatments have been developed, offering less invasive methods. This paper describes one such treatment for venous disease.

METHOD

The varicose saphenous vein is punctured at the most distal site of insufficiency. Using ultrasound and local anaesthetic techniques, a catheter with a heat-delivering tip is introduced into the vein and placed a small distance from the sapheno-femoral or sapheno-popliteal junction and slowly pulled back.

Various catheters can be used to administer appropriate energy doses to the wall of the varicose vein. Lasers act as the energy source (for example a 980nm diode laser) and produce a temperature at the fibre tip of >1100°C, while radiofrequency catheters work with temperatures of 85°C to 90°C. An alternative system based on water steam as the energy medium has also been developed by René Milleret and colleagues.

Directly after applying heat to the wall of the saphenous vein, the vascular structures shrink and the blood flow ceases. This can lead to successful closure of the vein in around 100% of cases^[1]. These results can be achieved by means of various laser wavelengths^[2]. Higher energy dosages appear to result in higher closure rates after one year^[3].



Figure 1 – Using an endovenous laser technique for venous reflux

LONG-TERM RESULTS

Two years after the surgical procedure, it has been reported that 93.4%^[4] and 90%^[5] of saphenous veins remained closed. At three years follow-up, various authors have shown a closure rate of >85%^[6,7]. Using the radiofrequency catheter, a five-year closure rate of 87.2% has been reported^[8].

USE IN VENOUS LEG ULCERS

This haemodynamically-efficient and minimally invasive treatment of varicose long and short saphenous veins has been shown to be beneficial for patients with venous leg ulcers. In one study, after treatment of insufficient saphenous veins by endovenous laser application, the ulcers of all 13 patients treated were epithelialised at one year^[9].

CONCLUSION

Endoluminal thermal ablation has been used for treatment of venous reflux in patients with varicose veins and can provide long-term occlusion of the vein. This minimally invasive procedure has also been shown to be effective in the management of venous leg ulcers in combination with compression therapy.

AUTHOR DETAILS

Michael Jünger, Department of Dermatology, University of Greifswald, Germany

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