

## **Foam Sclerotherapy in Treatment of Varicose Veins: Results From Europe**

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### **ABSTRACT**

The concept of foam sclerotherapy was originally introduced by Orbach in 1944 who described the use of a froth made by shaking a syringe of sclerosant with air.<sup>1</sup> He found that this was 10% more effective than the sclerosant used alone.

Little was heard of this technique until Cabrera published an article in 1997 describing his experience in 261 limbs with long saphenous varices and 8 patients with vascular malformations.<sup>2</sup> Some of the varicose veins reached 20 mm in diameter. He considered that foam greatly extended the range of vein sizes which could be managed by ultrasound guided sclerotherapy. He felt that the increased efficacy of foam was attributable to it displacing blood from the treated vein and increasing the contact time between the sclerosant and the vein. He used a 'microfoam', that is a foam made of very small bubbles. His method of preparing this foam was not published.

Subsequently a series of authors has described methods of preparing 'home-made' foam which may be used for ultrasound guided sclerotherapy. Monfreux described a method necessitating a glass syringe which produced small quantities of polidocanol foam which he used in a series of patients with truncal varicose veins.<sup>3</sup> Sadoun described a method of preparing foam using a plastic syringe avoiding the need for reusable glass syringes.<sup>4</sup>

In 1999 Henriot reported his results in 10,000 patients with reticular varices and telangiectases of the lower limb treated between the years 1995-8.<sup>5</sup> He found that the outcome of foam treatment in small varices was excellent and that reduced volumes and concentrations of sclerosant could be employed compared to liquid sclerosants. Benigni reported the findings of a pilot study comparing liquid and foam sclerosants. He measured the outcome using a visual analogue scale to describe the improvement in appearance. He found that foam resulted in a 20% improved appearance compared to liquid sclerosant.<sup>6</sup>

Subsequently Tessari has described a method of preparing foam using two disposable syringes and a three-way tap.<sup>7</sup> This method can be used to produce large quantities of foam suitable for treating saphenous trunks and large varices. Frullini has added his own method of producing foam to this increasing list.<sup>8</sup>

No randomised clinical trial comparing this technique to surgery has so far been published. However, a large multi-centre trial is currently in progress in Europe comparing surgery to a commercial pharmaceutical foam (Varisolve<sup>®</sup>, Provensis, UK). Cabrera has published a clinical series of

500 lower limbs treated by foam sclerotherapy. He reported that after three or more years 81% of treated long saphenous trunks remained occluded and 97% of superficial varices had disappeared. This required one session of sclerotherapy in 86% of patients, two in 11% and three sessions in 3% of patients. No DVT or pulmonary embolism was encountered in this series. Frullini and Cavezzi have reported similar data in a series of 453 patients.<sup>9</sup> Early observations showed that 93% of veins remained occluded after treatment with Tessari foam. A number of instances of limited calf vein thrombosis have been observed following foam sclerotherapy.

Currently ultrasound guided foam sclerotherapy is being taken up by an increasing number of phlebologists. In the short term its efficacy is probably equivalent to that of surgery. It has the advantage that it requires no general or regional anaesthesia to perform and takes much less time than equivalent surgical techniques. The long term efficacy of this treatment in comparison to surgery is unlikely to be established for several years.

### **References**

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