

European Consensus Meeting on Foam Sclerotherapy, April, 4–6, 2003, Tegernsee, Germany

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BACKGROUND. The introduction of sclerotherapy using foam sclerosants has revitalized interest in this method of treating varicose veins. Foam is made from detergent-type sclerosants already established as safe and effective in conventional liquid sclerotherapy.

OBJECTIVE. European experts in foam sclerotherapy were invited to exchange their opinions and to work on consensus statements and recommendations.

METHODS. A questionnaire covering different areas of foam sclerotherapy was sent to experts who have published or presented data, participated in clinical trials, or otherwise contributed to sclerotherapy with extemporaneous (self-made) foam. Based on the answers, several consensus statements and recommendations were approved during the consensus meeting.

RESULTS. The use of sclerosing foam is an appropriate procedure in the treatment of varicose veins. It is a powerful tool in the hands of an expert who has sufficient experience in sclerotherapy. Sclerosing foam is more powerful than liquid. Most recommendations for conventional liquid sclerotherapy also apply to foam sclerotherapy. Some differences between these two treatments were highlighted.

CONCLUSION. Foam sclerotherapy is a variation of a well-established treatment that improves varicose vein management. European experts came together to harmonize their opinions about sclerosing foam. The final document reflects the experts' opinion with the aim of defining principles for a safe and effective use of sclerosing foam and for its practical application. Foam sclerotherapy allows a skilled practitioner to treat larger veins including saphenous trunks.

FRANZ-XAVER BREU AND STEPHAN GUGGENBICHLER HAVE INDICATED NO SIGNIFICANT INTEREST WITH COMMERCIAL SUPPORTERS.

THE AIM of sclerotherapy is the elimination of intracutaneous, subcutaneous, and/or trans fascial varicose veins (perforating veins). The contact of the sclerosant with the endothelium leads to changes in the venous wall and to a local clot formation.¹ In the long term, successfully treated veins will be transformed into fibrous cords that cannot recanalize. The functional result corresponds to the surgical removal of a varicose vein.²

Varicose vein treatment with liquid sclerosing drugs has been performed for almost 100 years. This started with the work of Paul Linser in 1911³ and, independently, with that of Jean Sicard in 1916.⁴ There followed a search for sclerosing agents with fewer side effects than those used initially. The outcome of treatment using sclerosing drugs was not always very satisfactory during the period in which it was introduced.

In 1944, Egmont James Orbach⁵ described a new technical enhancement in varicose vein sclerotherapy. A small amount of air was injected into the vein before the liquid sclerosing solution to clear the vessel from blood and to allow undiluted contact of the drug with the endothelium. This procedure, known as "air block," was improved during the decades that followed.

The introduction of detergent sclerosing solutions allowed the production of foam. Initially, these were

used to replace the "air" in the air block⁶ and later on were used alone.^{7,8} Various techniques of foam preparation have been described since 1944. These range from "aspirating" (Flückiger,⁷ Gachet,⁹ and Sigg⁶), "stirring" (Cabrera and Garcia-Olmedo¹⁰), or "pumping" (Tessari,¹¹ Frullini,¹² and Grigg¹³) to the use of special devices (Mayer and Brücke⁸) and pressurized systems (Garcia-Mingo¹⁴). Foam produced immediately before the injection is now called "extemporaneous foam."

In the 1990s, the publications of Juan Cabrera^{10,15} and Alain Monfreux¹⁶ once again awakened interest in foam sclerotherapy. This has led to a renaissance of sclerotherapy in general. Doctors treating patients with varicose veins have been especially attracted to the use of duplex-guided sclerotherapy,^{17,18} which has been combined with foam sclerotherapy. A growing number of publications has appeared on this subject alongside articles describing other new techniques. These have provoked discussion as to whether foam sclerotherapy can be used as a single treatment of varicose veins or in combination with other techniques.

Three main methods have been described for conventional liquid sclerotherapy—sometimes called "schools"—which are named after their protagonists: the techniques of Tournay,¹⁹ Sigg,²⁰ and Fegan²¹