

Principles and technique of foam sclerotherapy

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The invention of foamed obliterating agents has revolutionized management of varicose veins. Compared to liquid sclerosants, the obliterating foam is more efficient, especially for the closure of larger veins. This is due to the fact that foamed sclerosing agents are not easily neutralized by blood serum proteins which is the most important cause of low efficacy of liquid sclerosants. Also, the foaming enables the use of a lower dose of the sclerosant and that is of particular importance foam is visible in ultrasound which makes possible a controlled obliteration of large veins under sonographic control.

However, application of foam is technically more difficult and it may be associated with some adverse events. The only group of potentially serious complications that are related to the use of foam sclerotherapy are neurologic adverse events. Both mild complications: scotomas, paresthesiae and migraine-like headaches and severe ones: transient ischemic attacks (TIA) and strokes can occur following foam sclerotherapy but it should be emphasized that these events are very infrequent. The reported prevalence of minor adverse is about 0.2% and nearly they are always transient and benign.

Only a few cases of strokes or TIA following foam sclerotherapy have been described. Most likely, these events are related to the migration of injected gas bubbles to the cerebral circulation. To minimize frequency of these complications some rules should be obeyed (the same measures can also increase the efficacy of sclerotherapy). In general: technique of sclerotherapy should allow the foam to stay for a long time in the treated vein and the possibility of a quick passage of foam into the deep veins should be minimized; injected foam should be as stable as possible, carbon dioxide -or oxygen/ carbon dioxide- based foams should be used for large volume foam sclerotherapy and the patients with symptomatic patent foramen ovale or other leak points between the pulmonary and systemic circulation should not be managed with foam. Other complications that are not unique for the use of foam include: local inflammation, hyperpigmentation, necrosis at the side of drug injection and venous thrombosis. Prevalence of these complications can be substantially lowered by performing the procedure strictly following guidelines and by lowering the dose and the concentration of sclerosant whenever possible.

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