

Strategy for primary great saphenous vein varices.

In those cases where the GSV lies in the saphenous compartment throughout the thigh place an 18 g canula in the GSV in the lower third of the thigh. This will treat the vein proximal to this level. You are going to inject strong sclerosant into this canula but this should not come close to the skin and risk pigmentation or thrombophlebitis.

If the GSV lies more superficially in part of its track this is strictly speaking an accessory vein and NOT the main saphenous trunk. It is better to inject less strong sclerosants here. In these cases place an 18 g canula in the saphenous trunk where it lies within the saphenous fascia. Place a Butterfly in the superficial accessory vein, usually in the distal third of the thigh. In patients with large thighs accessory veins may be too deep to use a butterfly and a cannula may be necessary. In patients with large GSVs (>5mm dia) it is usually best to canulate the GSV in the proximal AND distal parts of the thigh to ensure that all parts of the vein are adequately treated and do not recanalise.

Place further Butterflies in any additional accessory veins near the GSV. There may be the source of recurrence if left untreated.

Identify any major tributary of the GSV in the thigh. There should be at least one medial and one lateral tributary but they may be very small. Larger tributaries (3 mm dia and above) may supply enough venous flow to the GSV to keep it open above the level of the junction of the GSV with its tributaries. These can be managed by canulation with a Butterfly or direct needle injection once you gain competence in this technique.

In the calf use a 23 g Butterfly to treat the saphenous trunk and any varices. Insert all canulae and Butterflies before any treatment is commenced. The proximal veins rapidly go into spasm once treatment commences. In patients with primary varicose veins between 2 and 6 canulations are required to treat GSV reflux and associated varices.

Patient management by foam sclerotherapy



Figure 29. Canulae have been placed in the AASV near the SFJ and the GSV near the knee.

Butterflies have been inserted into the thigh varices and GSV in the calf..



Figure 30. Canulae have been placed in the SSV near the SPJ and the GSV near the knee.

Butterflies have been inserted into the distal SSV and the GSV in the calf.

Patient management by foam sclerotherapy

Primary small saphenous vein varices.

SSV varices are usually much less complex to treat than GSV varices since they have fewer tributaries and accessory veins. With the patient standing mark the location of the saphenous trunk and varices.

With the patient lying supine cannulate the SSV in the mid-calf region using an 18 g canula. This avoids making an injection in the 'tiger country' of the popliteal fossa. Use a 23g Butterfly to treat the distal SSV. Varices can be managed using a further Butterfly or by direct needle injection.

Usually 2 or 3 cannulations are required for the management of SSV varices.

Combined GSV and SSV reflux.

In patients where both the GSV and SSV are incompetent, cannulate both veins in order to treat the two saphenous trunks in one session. More limited treatment of superficial varices may be required to minimise the number of cannulations and volume of foam injected during the first treatment session.

Incompetent perforating veins.

In the calf, most incompetent perforating veins can be managed by cannulation of a superficial vein immediately fed from the perforator. This works for ankle (Cockett's) perforators as well as more proximal paratibial perforating veins. 3% STS in liquid form only should be used for medial calf perforators to avoid producing thrombosis the peroneal and posterior tibial veins. Foam may be used for proximal calf perforating veins, popliteal fossa perforators and perforating veins in the thigh. 3% STD in liquid form only should be used for ankle calf perforators to avoid sclerosing the peroneal and posterior tibial veins.

In the popliteal fossa, it is best to try and place a canula within the perforator so that the tip of the canula lies at or near the fascial opening.

Patient management by foam sclerotherapy

Medial thigh perforating veins are best cannulated with an 18 g canula to ensure reliable injection of the source of varices.

Where to put the needles

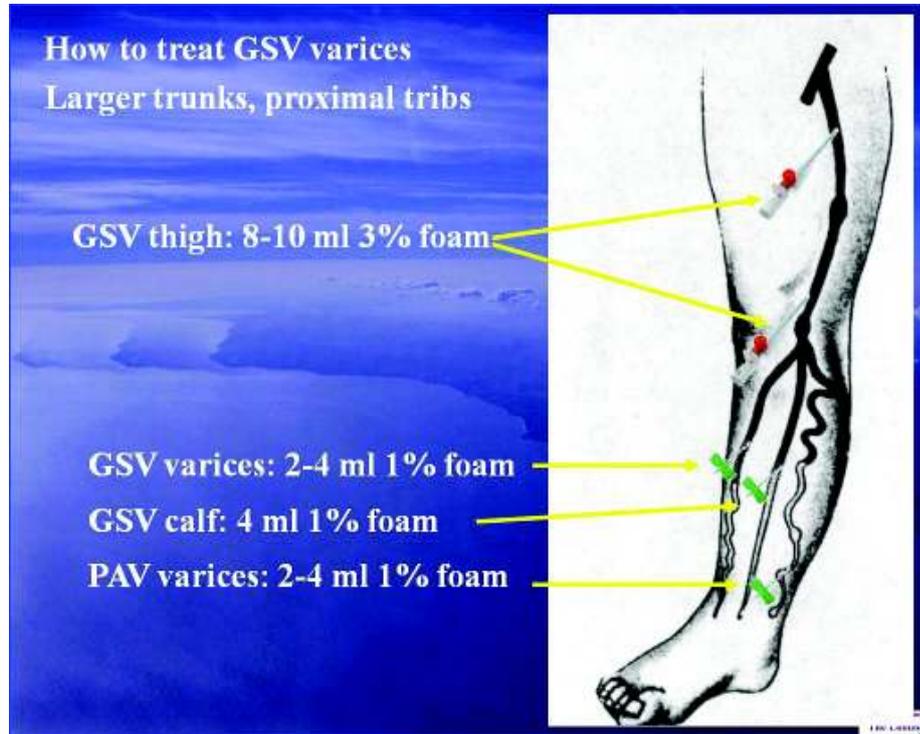


Figure 31. Suggested location of Butterflies and canulas for treatment of the GSV.

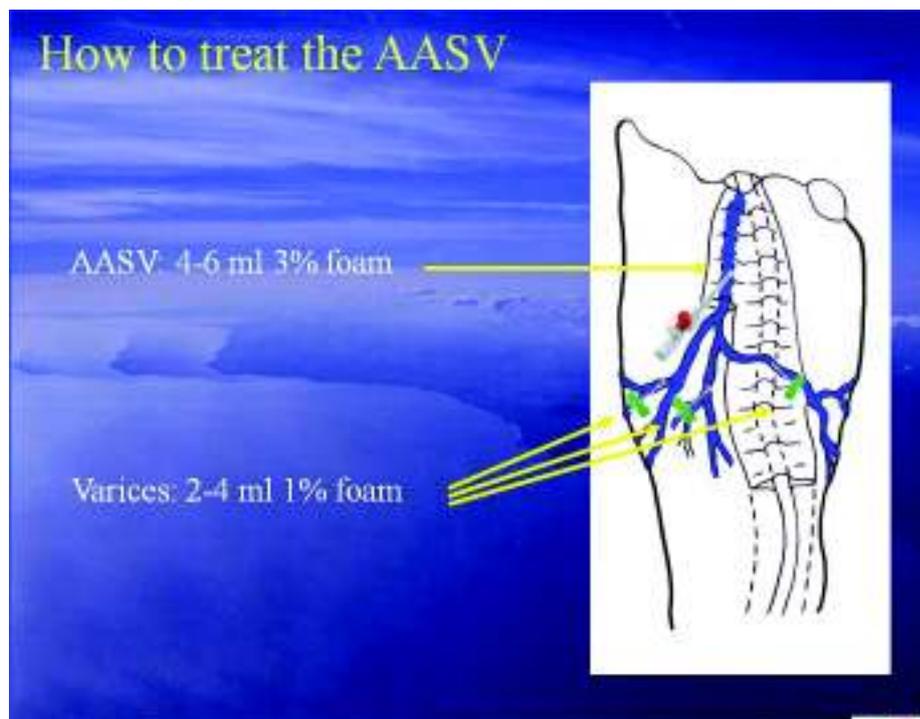


Figure 32. Suggested location of Butterflies and canulas for treatment of the anterior accessory saphenous vein

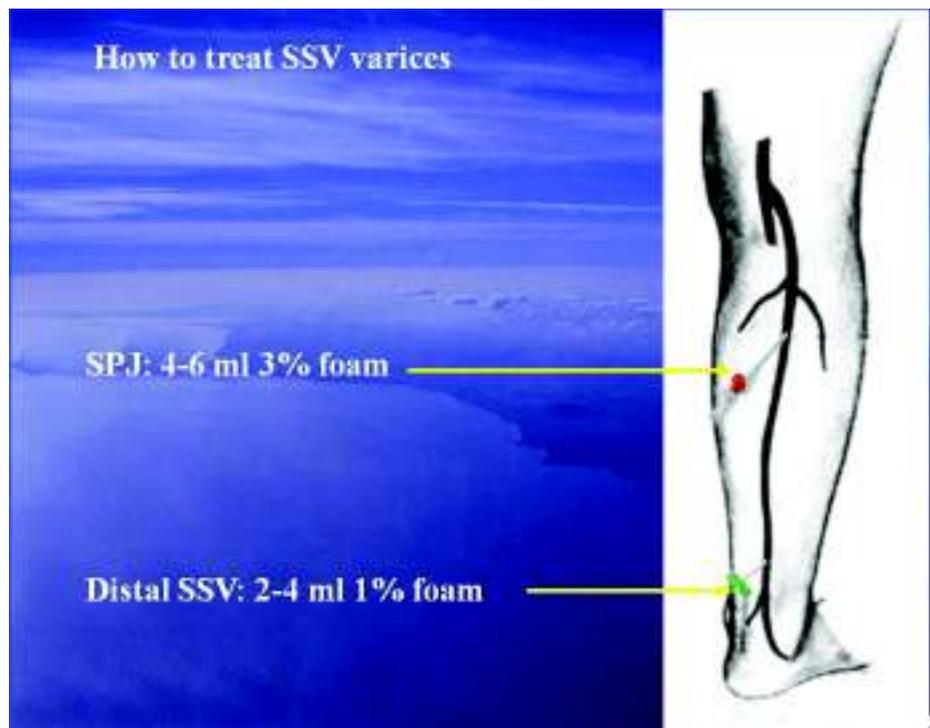


Figure 33. Suggested location of Butterflies and canulas for treatment of the GSV

Foam for injection.

Make the foam using 3% STS (for large saphenous trunks) or 1% STS or 1% polidocanol (for accessory saphenous veins or superficial varices). Use a ratio of 0.5 ml of STS to 2 ml of air or CO₂/ O₂ if you have decided to use this.

Treatment – injecting the foam.



Figure 34. Direct needle injection of superficial varices under ultrasound guidance.



Figure 35. Injection of varices under visual guidance.

Start by injecting any superficial varices with 1% sclerosant foam using a syringe and 30 or 25g needle. Use 1 ml per injection and distribute the foam to varices near the point of injection by massaging the leg with the ultrasound probe or your hand.



Figure 36. The leg is elevated before foam injection commences.

Next it is the turn of all the previously placed Butterflies and canulae. Elevate the leg well above the heart to minimise the diameter of the veins – this achieves Fegan's 'empty vein' requirement. .

Inject not more than 2 ml of foam at a time, even into the largest veins. In small veins in the calf consider injection of 1 ml only at a time. Start with the most distally placed injection site and slowly inject 1% sclerosant foam.

Ask the patient to perform a series of ankle dorsiflexions to clear any foam which has reached the deep veins. **This MUST be done after every injection!** Foam always reaches the deep veins within a few moments of injection, whatever you do!

Make further injections of 1 – 2 ml of foam into each needle and canula to reinforce the treatment already given. This strategy results in the veins being treated and then re-treated. This has been found by French and Italian phlebologists to achieve more effective sclerosis of veins than a single injection. The first injection produces spasm of the treated vein and facilitates the passage of foam to more proximal veins with the subsequent injections.

Move to the next more proximal injection site and inject some foam. Ask the patient to dorsiflex at the ankle. Treat the GSV in the thigh last of all with 2ml of 3% STS foam, repeating this twice more making sure the patient dorsiflexes between each one. It has often become very small in response to previous injections more distally in the limb.