

# Modern varicose veins treatments

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## ➔ VARICOSE VEINS SURGERY

was the traditional way of removing varicose veins. Treatment was performed under general anaesthesia and led to significant post-operative pain and a recovery period of about one month. The long-term outcome of treatment was satisfactory.

In the last 20 years several new methods of treatment have been introduced which can be accomplished under local anaesthetic. These include thermal ablation methods where a tube is passed along the diseased vein for a distance of 20-50 cm. The tube is used to contain a heating method which may be a laser fibre optic, an electrically heated catheter or a tube delivering super-heated steam. The vein is anaesthetised by injecting local anaesthetic around the vein and heat applied to destroy it without removing the vein.

An improved method of injecting varicose veins known as 'ultrasound guided foam sclerotherapy' has been popularised. In this method, injections of foam created from a sclerosant drug are made into the diseased saphenous veins and associated varices under ultrasound guidance. Local anaesthesia is not required for this treatment except at the site of injection.

## Adverse events after minimally invasive treatment

In general, the frequency of adverse events arising from treatment are substantially reduced compared to those which were caused by surgical techniques. Since large incisions in the leg are usually avoided, wound healing problems are minimised but a number of additional problems may arise.

### Thermal injuries

The veins on the surface of the leg may lie close to the skin and to cutaneous nerves. Both of these structures may be damaged by heating the adjacent vein leading to undesirable outcomes. One of the methods used to abolish pain during treatment is to inject a large volume of dilute local anaesthetic around the varicose vein. This allows the vein to be heated painlessly if the anaesthetic is injected correctly under ultrasound guidance. The anaesthetic fluid thermally insulates



*Combined treatment for varicose veins by laser ablation and ultrasound guided foam sclerotherapy*

the surrounding tissues from the heat applied to the vein and affords a degree of protection against skin burns.

Care must be taken to separate the skin and the nearby vein. Failure to observe good practice may lead to a linear burn in the leg 10 or 20 cm in length. I have advised in a case where such a burn arose necessitating excision of affected skin, leaving a long scar in the leg. The claimant settled a claim against the surgeon following my advice.

Sensory nerves lie close to the saphenous veins, especially below the knee in the lower two-thirds of the calf. Inadvertent heating of a sensory nerve may lead to loss of sensation in the affected region of the leg but may also produce neuropathic pain. The nerve regenerates to some extent but then causes pain or unpleasant sensations in the innervated region that are very troublesome and long-lasting.

The medical literature on this complication is very limited but patients should be made aware that heating treatments for varicose veins may lead to loss of nerve function or neuropathic pain. Failure to warn of this complication could comprise substandard management.

### Problems with 'phlebectomies'

Thermal methods of treatment only destroy the main longitudinal veins on the surface of the leg, whereas the varicose veins usually arise in tributaries of these veins. Additional treatment can be provided by sclerotherapy or foam sclerotherapy in order to destroy the varicose veins themselves. Some surgeons like to use 'phlebectomy' to treat residual varicose veins after thermal ablation. This treatment involves making a small incision in the skin and using a vein hook to pull out the troublesome veins. Wound healing problems are uncommon since the incisions are small but damage may also arise to nerves and lymphatic vessels lying close to the veins.

I have advised in one case where a long section of cutaneous nerve was removed at the ankle leading to a large area of loss of sensation on the top of the foot combined with neuropathic pain in the leg. In a further case, damage to lymphatic vessels arose in the calf leading to the accumulation of lymphatic fluid in a cyst. This reached about 5 cm in diameter at one stage, much to the dismay of the patient. The cyst was successfully managed by ultrasound guided sclerotherapy.

The use of phlebectomies is still regarded as acceptable medical practice despite the alternative of sclerotherapy being just as effective. Patients should be made aware of the possible complications of phlebectomy as part of the consent process. Failure to complete this step may comprise substandard medical practice.

The injection of local anaesthetic during the thermal ablation methods usually causes only minor bruising or no bruising. However, on rare occasions more severe bleeding may occur from small arteries lying



*The results of inadvertent injection of a small volume of liquid sclerosant into a tiny skin artery. The inflammatory process resolved without leaving any visible damage to the skin*

near the veins. I have advised in one case where a patient receiving warfarin anticoagulation developed a large haematoma after laser ablation of varicose veins which required surgical drainage. The local anaesthetic solution normally contains adrenaline which minimises any bleeding but on this occasion the warfarin levels in the blood had not been checked preoperatively. An expert in haematology advised that this was substandard practice.

#### **Foam sclerotherapy**

The modern vein treatment of ultrasound guided foam sclerotherapy, in which the main surface vein is injected with a sclerosant foam that immediately destroys the vein, has become standard practice. This is a very effective treatment in skilled hands and requires no surgical incision to complete. The main structure which should be avoided in such treatment is any artery in the leg. Ultrasound imaging is used to guide the injections and vascular surgeons should be able to identify and avoid the arteries. Inadvertent intra-arterial injection can cause severe damage to the skin and subcutaneous tissues.

I have advised in one case where a major artery at the ankle was injected, leading to a below-knee amputation. The defendants admitted liability having reviewed my report. Lesser damage may be done to skin by injecting excessively strong solutions or excessive volumes. The consent process should include mention of these potential problems which only occur on rare occasions.

#### **Conclusions**

In the UK there has been a change in practice towards minimally invasive methods of treatment for varicose veins as advocated by NICE. These treatments lead to more rapid recovery with equivalent efficacy to surgical treatment. The complications seen following surgical treatments are usually avoided, but a new selection of adverse events may arise. Surgeons undertaking the newer treatment should be aware of the potential post-operative problems and discuss these with their patients.

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**19 years**

Defendant instructions

Claimant instructions

Single joint expert

Court experience

**Areas of experience:**

- Surgery of veins and arteries
- Sclerotherapy & laser ablation of varicose veins
- Varicose veins
- Deep vein thrombosis
- Pulmonary embolism
- Leg ulcer
- Lymphoedema
- Peripheral ischaemia
- Injury to blood vessels
- Medical negligence and personal injury

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