



VEIN SOLUTIONS

MEDICAL CLINIC

INFORMATION DOCUMENT

Minimal Invasive Therapy of Leg Veins

(Injection Microsclerotherapy / Ultrasound Guided Sclerotherapy / Endovenous Laser Therapy-EVLA and Modified Ambulatory Phlebectomy). This document will provide general information about veins and their causes and will outline the minimally invasive treatment options that are provided at Vein Solutions. The relative advantages and disadvantages of each treatment option will be discussed.

Please read this document carefully and clarify any concerns prior to any treatment.

Types of Veins

Abnormal, dilated veins appearing on the legs affect 50% percentage of the population during their lifetime. There are three common types, which are frequently seen in combination. 'Spider veins' are the finest and are usually fed by larger 'reticular veins', which are under the skin. 'Varicose' veins are the largest and bulge above the skin surface and are due to a weakness in the vein wall. Symptoms associated with varicose veins include heaviness, burning, aching, stinging, throbbing, swollen ankles, restless legs and leg cramps. The presence of a skin rash, small blue veins on the feet, skin discolouration, ulcers and scarring is usually due to advancing vein problems. Treating the abnormal veins will significantly improve symptoms for the majority of patients ¹.

Why do abnormal veins develop?

A definitive cause is not known, however a strong family history suggests that some people inherit veins that are more likely to deteriorate. In women, oestrogen may play a role as the onset of puberty and pregnancy and taking the oral contraceptive can give rise to vein abnormalities. In pregnancy, the enlarged uterus can restrict blood flow from the legs and promote the development of varicose veins. Spider veins and varicose veins are also associated with obesity. Occupations involving prolonged standing tend to increase the likelihood of veins to develop. Bone fractures and soft tissue trauma can cause localized vein abnormalities.

What is the mechanism by which veins develop?

Blood in leg veins normally travels upwards to the heart. Due to gravity blood tries to flow back down towards the feet. However, normal veins have valves, which close to prevent abnormal flow towards the feet. It is the breakdown of the valves that leads to abnormal flow, which in turn leads to increased pressure in the vein. The increased pressure eventually causes the vein wall to expand and bulge producing a varicose vein. Varicose veins serve no useful function to the body's circulation. Our body has the ability to establish alternative pathways to bypass the abnormal varicose veins. When varicose veins are closed down the circulatory system improves, as do many of the symptoms.

It is important to understand that varicose veins can be a progressive condition and that totally new veins can develop with time. Maintenance treatment is likely for most patients.

Can vein problems be prevented?

If you are prone to vein problems, it is advisable to pursue a healthy diet and lifestyle, to maintain normal weight and exercise regularly to minimize the likelihood of further problems. Wearing specialized venous support stockings may ease symptoms and slow the progression of abnormal veins, however no specific preventative treatment exists. Crossing your legs does not cause varicose veins.

Non-Surgical Treatment

There are 4 main treatment methods available: -

- (1) **Direct vision microsclerotherapy**-reserved for the treatment of small veins including spider veins.
- (2) **Ultrasound Guided Sclerotherapy**- reserved for the treatment of medium sized veins and bulging varicose veins and some hidden veins.
- (3) **Endovenous Laser Therapy (EVLA)** –for large hidden varicose veins previously treated with surgical stripping.
- (4) **Modified Ambulatory Phlebectomy** –is a ‘modified minor surgical procedure that involves the removal of the abnormal veins through tiny incisions under local anaesthetic.

Many patients will require combinations of the above treatment methods to achieve the best results.

Direct Vision

Microsclerotherapy of surface veins

Surface veins are often numerous, widespread and usually require several treatments. Sclerotherapy is considered the first choice method for the treatment of small reticular and spider veins^{2,5,23}. This involves the injection of a sclerosant detergent solution through a tiny needle into the diseased vein. This causes the vein wall to collapse. The veins dissolve and disappear as the body gradually absorbs them^{2,3}. For most patients with spider veins the underlying blue reticular veins need to be treated first.

Ultrasound Guided Sclerotherapy (UGS) and the treatment of varicose veins

UGS is a safe and effective method for the eradication of varicose veins^{7,8,9,10,11,31,32,33,34,35}. Unlike surgery there is no need for hospitalization or an anaesthetic. There is no surgical scarring and virtually no downtime. Most patients with varicose veins are suitable for UGS. Dr Loizou will determine your individual suitability during the course of the assessment. Some patients will require follow-up treatments to achieve the best results. Prior to treatment a duplex ultrasound scan^{4,3,28} is performed to establish and map out the exact nature of the vein problem. The UGS procedure is performed using ultrasound technology to locate the hidden abnormal veins and allow the doctor to accurately and safely inject sclerosant detergent solution^{34,36} or more recently with sclerosant detergent foam^{36,37,38}. Once injected the veins collapse and the body’s process of absorption begins. Numerous injections may be required and can be

associated with a slight burning sensation that usually only lasts for a few minutes. The sclerosant becomes diluted within a short distance from the injection site and therefore is unlikely to damage normal veins. The appearance of the treated veins rapidly improves over a few weeks with continued improvement still occurring for about three months.

Recent Advances in Sclerotherapy namely the use of “sclerosant foam”.

Detergent sclerosant SOLUTION can be converted into FOAM with the addition of a small amount of air. The use of foam has proved to be advantageous in patients with varicose veins. A meeting of European specialists (2003) concluded “Foam sclerotherapy...is a powerful tool in experienced hands and in general more powerful than conventional sclerosant solution”. It was stated at the 2003 UIP World Congress meeting that the use of foam “marked a new era in treatment of primary venous disease with the advent and universal acceptance of foam sclerotherapy”. Published studies from Australia and New Zealand support the safety and efficacy of foamed sclerosants. The Australasian College of Phlebology in (2004) has developed guidelines for the use of both sclerosant solution and foam. The Therapeutics and Goods Administration (TGA) have approved the use of sclerosant solution for clinical use in Australia several years ago. However, this approval was granted before foam sclerotherapy was introduced and properly evaluated. Applications have been made to the TGA for the use of foam but this approval process takes time. Until then, the use of foam does not have formal TGA approval. However, foam can be used as an “off label “product provided consent has been obtained and if there is a benefit to the patient. Should you have varicose veins then using foam is now considered a more effective option.

Endovenous Laser Therapy (EVLA) for large varicose veins.

EVLA is the latest method for the treatment of major veins previously treated by stripping surgery under general anaesthetic. The procedure involves the placement of a laser fiber with ultrasound guidance into the abnormal vein through a tiny incision. The vein is then numbed with local anaesthetic. The Laser is then activated as the fiber is slowly removed. This produces a reaction in the vein wall along the treated section. The procedure involves minimal discomfort. The published success of EVLA treatment is between 95-98% with far fewer complications as compared to surgery.

With the addition of EVLA to Ultrasound Guided Sclerotherapy it is expected that varicose vein surgery will be performed less frequently.

Modified Ambulatory Phlebectomy

This is a safe and effective outpatient procedure that is used to physically remove bulging varicose veins. Ambulatory phlebectomy treatment may be suggested to you as a part of your proposed treatment protocol. Prior to the procedure the skin overlying the veins to be removed is marked. The veins to be removed are then injected with sclerosant foam which makes the vein contract in size and renders it virtually bloodless. The surrounding tissue is numbed with local anaesthetic solution. Special instruments are then used to remove the varicose veins using minute incisions. These incisions are usually closed with tape and very occasionally a single suture is used. After the procedure is completed, a dressing is applied to your legs then covered by compression stockings.

Compression

Following each treatment you will be required to wear a Class 2 compression stocking^{2,17,19,29} to assist closure of the treated veins and protect against deep vein thrombosis (DVT)⁴⁵. The length of time the stocking needs to be worn varies from three days to three weeks depending on the size of the veins injected and the treatment method provided^{4,28,30}. It is important to follow the provided compression instructions carefully to achieve the best results.

Possible Side Effects of Minimally Invasive Vein Treatments

There are a number of possible side effects seen with minimally invasive vein treatment that are considered a normal consequence of successful treatment

Stinging sensation – some stinging may be experienced at the time of treatment, which settles within minutes. Many patients find the treatment almost painless.

Bruising will disappear over a couple of weeks. Bruising can be extensive following laser treatment or ambulatory phlebectomy.

Darkening of spider veins soon after treatment is common and is a sign of successful therapy. This fades over the next few weeks.

Tender Lumps due to blood trapping along the course of the treated veins. It is harmless but may make the vessels more noticeable in the first few weeks. Trapped blood is usually released at review appointments. This accelerates the healing process. Persistent lumps (even without draining) will usually disappear within six months. Blood trapping is common with treatment of all vein sizes.

Aching in the legs for the first few days can occur after treatment. This more commonly occurs when larger veins are treated and is usually relieved by walking. You may take Panadol or Nurofen to help relieve any aching. Most people do not need any pain relief after treatment.

Phlebitis is the appearance (3:100)¹ of tender, red, swollen areas and is due to inflammation of the treated veins. It may be associated with tender lumps along the line of the treated veins. These lumps are a normal reaction to the vein treatment and are due to trapped blood. Phlebitis can be treated with anti-inflammatory medication (such as Nurofen or Voltaren Rapid 25mg) and improves with walking and the continued wearing of the compression stocking. Please contact Dr Loizou if you suffer excessive tenderness.

Possible Complications of Non-Surgical vein Treatment

There are a number of possible complications that can occur with non-surgical vein treatment even when the greatest of care is taken^{12,13,14,15}.

Pigmentation^{5,16,17,18,19,27} is the appearance (1:10)¹ of brown marks on the skin located over or near the treated veins. This is a common consequence of therapy, particularly when treating spider vein clusters with injection microsclerotherapy. Pigmented areas are composed of haemosiderin (a form of iron) that can become trapped in the skin. In most patients the pigmentation gradually fades, disappearing completely within 3–12 months although faint pigmentation lasting greater than 12 months has been reported in 5% of cases. Close attention to wearing the compression stocking and having trapped blood removed at your follow-up appointments will minimize pigmentation. It is advisable to stop iron supplements before your treatment. Recently, topical laser therapy has proved promising in reducing areas of pigmentation.

Matting¹⁸ is the development of extremely fine networks of spider veins likely to occur on

the outer and inner thighs. Matting usually resolves spontaneously though some will resolve with further injection treatment. Some may persist despite further treatment. Matting is more common in people with extensive surface veins and in overweight people with poor muscle tone. Matting can also follow the surgical removal of varicose veins¹⁸. Matting is not seen with EVLA.

Hair growth at sclerotherapy injection sites can occur but is mild, quite localized, temporary and rare. It resolves spontaneously over several weeks.

Swelling of the leg or ankle occurs occasionally (2:100)¹ and will settle with time. It is due to inflammation of the skin. Wearing the compression stocking, elevating the leg when sitting and regular walking will help.

Numbness^{14,20} of the skin is rare and temporary (3:1000)¹ but can last up to three months. It is usually located down the inner aspect or back of the calf. It is due to irritation of nerves that lie in close proximity to an injected vein. Numbness can be expected for a few hours with EVLA procedures as local anaesthetic is used to numb the vein to be treated.

Migraine sufferers may experience visual disturbances (1:1000)¹ lasting a few minutes and can occur in patients treated with injection sclerotherapy. This may be followed by the onset of a headache (2:1000)¹. Taking a mild analgesic such as Panadol or Panadeine or anti-migraine medication can provide relief. Should you suffer with migraines then it is best to attend with a friend to assist with driving home. Migraine has not been reported with EVLA.

Ulcers^{16,18,21} of the skin are rare and usually appear as small, painful sores within two weeks of injection sclerotherapy treatment (9:1000)¹. They heal slowly and leave a scar, which can be excised if unsightly. They occur due to sclerosant passing from the injected veins into the small associated skin arteries⁴. Ulcers are more common in people who smoke cigarettes or who have certain associated skin conditions. Ulcers are not seen with EVLA.

Allergic reactions^{22,23,24,25} to either the sclerosant used or to the local anaesthetic are rare (3:10,000)¹ but may be serious and life threatening. Some reactions require immediate treatment. Should you feel any abnormal sensations during treatment such as generalized itchiness, nausea or shortness of breath, don't hesitate to tell Dr Loizou who will then provide the appropriate treatment.

Deep Vein Thrombosis is a clot in the deep venous system – not in the treated varicose veins. This potentially serious problem is extremely rare if the compression stocking is worn as directed and regular daily walking is maintained. The approximate risk is less than 1:2000 patients for sclerotherapy and even less in EVLA cases. If your relative risk of DVT is considered increased then prophylactic treatment will be advised. Deep vein thrombosis may lead to clots in the lung (pulmonary embolism), which can be a life threatening condition requiring hospitalization. It is advisable to avoid long distance travel (greater than 4 hours duration) for at least 4 weeks following the treatment of varicose veins. Should you need to travel within 4 weeks of your last treatment please contact Dr Loizou. Symptoms of deep venous thrombosis and pulmonary embolism include a painful swollen calf or leg unrelieved by walking, unusual shortness of breath, cough with or without blood stained sputum and stabbing chest pain. Should you experience any of the above symptoms please contact Dr Loizou immediately.

Intra-arterial injection^{21,16,18,25} is an extremely rare (1:10,000)¹ complication that can result in significant muscle and skin damage. This now rarely occurs due to the use of ultrasound guidance of the needle, which allows for a more accurate placement during the injection procedure.

Precautions

Pregnancy and breastfeeding – sclerotherapy is best avoided when pregnant or breastfeeding. This is advised even though there is no current documented evidence to suggest that sclerotherapy is unsafe during pregnancy or breastfeeding. Vein treatments during pregnancy are not as effective often-producing poor results. It is recommended that sclerotherapy should be avoided if pregnancy is contemplated within the treatment course. Veins that appear during pregnancy should be treated before the next pregnancy to avoid deterioration with subsequent pregnancies.

Oral contraception and hormone replacement therapy – both oestrogen and progestogen have been implicated in increasing the risk of thrombosis whether you have a vein treatment or not. Taking the low dose contraceptive pill or HRT increases the risk of deep vein thrombosis 3 fold as compared to those not taking these products. Total correction of this increased risk requires ceasing hormone treatment for a minimum of 4 weeks. The increased risk seems to lessen the longer you have been on the

medication. There is no current evidence that during sclerotherapy or EVLA treatment the taking of low dose contraceptive pill or HRT actually increases the risk of thrombosis above the already existing risk before treatment. The relative merits of ceasing or continuing hormone therapy prior to sclerotherapy and EVLA treatment will be discussed.

There are no reported long-term side effects from the use of sclerosants or laser treatment.

How Successful are Vein Treatments?

Dr Loizou will explain the treatment course required to produce a significant improvement to your legs. The degree of success from treatment depends on many factors including your age, severity of the disease, your healing rate, whether you have any other concurrent medical conditions and how well you adhere to the post-treatment instructions^{7,39,40,41,42}. It is not possible to guarantee complete clearance. Treatment should restore an even and uniform appearance to the legs and an improvement of 80-90% can be expected within 3-6 months^{39,42,43,44}. Initially the treated legs may look worse, due to bruising and trapped blood, however this will disappear over a number of weeks. Veins treated effectively by sclerotherapy and /or EVLA should not return. However even with the most skilled therapist, there is a small group of people whose veins do not respond adequately to treatment. Totally new veins can appear with time. The treatment is therefore directed at the current problem with future treatments likely for some people.

Preparation before treatment

Do not apply moisturizer to your legs on the day of the treatment. Avoid using fake tan for at least two weeks prior to treatment and if possible, do not expose your legs to the sun for at least one week before treatment. You may prefer to wear trousers to your appointment, as they will help to conceal the compression stocking. Wear comfortable shoes so you can go for a walk after the procedure. Stop iron and vitamin supplements 2 weeks prior to treatment. In males who have hairy legs and who require Laser treatment and/or Modified Ambulatory Phlebectomy it is best to use "Veet for Men" cream (from Supermarket) to remove the hair on the day of treatment. Please ensure you are familiar with the information presented in this document and don't hesitate to ask Dr Loizou questions.

Post-treatment instructions

In order to ensure the success of your treatment it is essential you observe the following instructions.

- You are required to walk at a gentle pace immediately after the treatment and for at least 30 minutes each day for the next 2 weeks. Walking uses the calf muscles, reduces the pressure in the treated veins, and can ease aching. Avoid power walking for 2 weeks after treatment. The combination of compression and walking minimizes the risk of deep vein thrombosis. Do not confine yourself to bed.
- Any cotton balls applied under the stocking can be removed 4 hours after treatment.
- Avoid prolonged standing and elevate your legs when sitting if practical.
- Avoid rigorous activities (e.g. running, squash, high impact aerobics or heavy lifting) for the first 2 weeks after treatment. Mild to moderate exercise such as golf or an easy stationary bike ride is permitted. You can carry on with your normal work or home duties provided they are not strenuous.
- You may experience some pain and heaviness in the legs in the first few days after injection treatment and this may be more noticeable at night. If this troubles you take 2x Nurofen or 2x Voltaren Rapid 25mg tablets and go for a short walk. If EVLA was used then you may experience some discomfort similar to a pulled muscle sensation in the inner thigh around day 3 after treatment, which is due to the healing process. If so take 2x Voltaren Rapid 25mg as per instructions on the packet for the next 5 days. Should you develop indigestion whilst taking the tablets then stop them and take Panadol instead.
- Remove the stocking if it causes any discomfort in your foot or leg when sleeping. The stocking should be put on again after rising from bed however it may be difficult to reapply once taken off. Do not cut the stocking and contact the clinic if problems persist.
- Precise written instructions for wearing the stocking will be given to you following the treatment.
- Review appointments will be organized as necessary. In general sclerotherapy patients are reviewed at two weeks and EVLA patients are reviewed at one week. All appointments are usually made following the initial consultation.
- **Please advise your doctor if you have any travel arrangements that have not already been discussed so that appropriate instructions can be given.**

- Always bring your compression stockings to each appointment.
- Contact Dr Loizou if you have any questions or concerns about your treatment. Should you develop any of the serious symptoms such as soreness or swelling of the calf unrelieved by walking, shortness of breath, chest pain or other chest problems this may be due to deep vein thrombosis. You should contact Dr Loizou immediately. If Dr Loizou cannot be contacted go to hospital for immediate assessment.

Are there alternative treatment methods?

Laser light (not EVLA) applied to the legs for surface veins is not yet at a stage where it is more effective than sclerotherapy. Lasers are best used for treating small veins and capillaries on the face.

Surgery is an option for some patients with large varicose veins. Surgical treatment involves hospitalization and is performed under general or local anaesthesia. The risks associated with surgical stripping when compared to minimally invasive treatment include an increased incidence of infection, scarring, deep vein thrombosis, varicose vein recurrence, lymphatic damage and permanent nerve damage. General anaesthesia has some associated serious risks including the remote possibility of paralysis, brain damage and death.

Fee Structure

The expected cost for treatment will be provided in writing following your assessment. Rebate is claimable through Medicare except for the smallest spider veins. In Australia, Medicare Safety Net reimburses eligible patients to a recently capped maximum amount.

Disclaimer

This document is provided only as a guide to the patient. At the time of writing this document is accurate to the best of my ability. Where possible I have referenced my comments from published reports. Should you wish to see a list of the references they can be obtained from my receptionist.

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VEIN SOLUTIONS MEDICAL CLINIC

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