



INJECTION THERAPY OF DILATED BLOOD VESSELS (Sclerotherapy)

Dilated blood vessels – also called varicose or spider veins – have a red or bluish colour and appear on the surface of the body, particularly the legs and occasionally the face or elsewhere. These vessels can become unsightly and can produce a dull aching of the legs after prolonged standing.

They may be visible as short, unconnected lines each about the size of a large hair, they may be connected in a scraggly, “sunburst” pattern, or they may resemble a spider web or tree with branches. In some people they occur in a small area and are not particularly noticeable. In others, they may cover a large area and be quite unsightly.

Larger dilated vessels may be serpentine and raised above the skin surface. These large veins are called varicose veins and frequently occur in association with poorly working valves in main superficial veins. They often occur in association with spider veins.

A characteristic of dilated blood vessels in many sufferers is pain ranging from a dull throbbing ache to a burning sensation, especially with prolonged standing, menstruation and warmer weather. Though dilated blood vessels do carry blood, often the flow is in the wrong direction, and a great majority are not necessary to the circulatory system. Thus, if their presence is distressing, they can be treated by an injection of a solution that will cause them to disappear, or at least become much smaller. The chance of a greatly improved appearance is about 80%, particularly if the physician is experienced in their treatment. Treatment will also relieve any discomfort caused by the veins.

What Causes These Blood Vessels To Become Visible?

The cause is not known, except that in many cases they seem to run in families.

Varicose veins occur in both men and women, but more frequently in women. The hormone oestrogen may play a role in their development because puberty and pregnancy often seem to bring them on. During pregnancy the enlarged uterus may restrict blood flow contributing to their development. They also appear to be associated with obesity and occupations involving prolonged standing. Invariably spider veins occur in association with underlying varicose veins which are often not obvious to the patient due to their deeper location under the skin. Some may also occur after an injury to a certain area.

When they occur on the face, spider veins may be related to chronic sun exposure, and exposure to extremes of temperature. They tend to occur on either the nose or the cheeks of fair-skinned persons.

Can They Be Prevented?

There is no known method of prevention. Wearing specialised venous support stockings may prevent some dilated blood vessels from developing in some people. Maintaining a normal weight and regular exercise, especially walking, may be helpful; also avoiding the wearing of high heeled shoes as these affect the proper functioning of the larger veins by restricting ankle movement.

How Are Dilated Blood Vessels On The Leg Treated?

In the majority of cases, a procedure called sclerotherapy is used. In this a solution, called a sclerosing agent, is injected with a very fine needle directly into the blood vessel. This procedure has been used for spider veins since the 1930s and long before that for larger veins. The solution irritates the lining of the vessel, causing it to swell and stick together. Over a period of weeks the vessel fades from view, eventually becoming barely visible or not visible at all.

Depending on its size a single blood vessel may have to be injected more than once some weeks apart. But in any one treatment session a number of blood vessels can be injected. This may involve up to 50 injections in one session (usually less for knotty varicose veins). The solutions vary somewhat with the size of the vessel to be injected. Your doctor will decide the solution that is best for your case.

As mentioned before, larger varicose veins often underlie spider veins. In such cases we believe these vessels should be treated before the spider veins either by sclerotherapy followed by compression or by a surgical procedure carried out by a vascular surgeon (the latter are becoming obsolete with recent new developments in foams). The type of treatment necessary is determined by the vascular ultrasound examination which gives a precise diagnosis of any major veins abnormalities. I tend to do an ultrasound examination with all my patients as experience has shown me how often other means of evaluation for underlying problems can miss important problems that will result in a breakdown of a good treatment.

Compression

Following each treatment session with sclerotherapy you will be required to wear a special venous compression stocking to assist in sealing off the dilated veins. The average length of time that the stocking will be required to be worn continuously varies from one day to one week (usually three days) and will be determined by the size of the veins injected and the abnormalities detected on the ultrasound scan. It is important to adhere strictly to the duration of compression advised by your doctor in order to obtain the best result. Compression minimises formation of blood trapping and pigmentation, reduces the number of treatments necessary, reduces the risk of deep venous thrombosis and reduces possibility of recurrence. Tape dressings instead of support stockings are sometimes used over very fine veins.

How Successful Is Sclerotherapy?

After several treatments, most patients can expect a 50 to 80% improvement in treated vessels. The fading process is gradual with treated veins slowly fading up to 3 months after the last treatment. However perfection is seldom achieved.

How Much Does Treatment Cost?

Charges to patients vary with the condition and the number of treatments necessary. Two or possibly more treatment sessions are usually needed for each leg. Southern Cross provides cover for more severe problems that varies in value according to your policy. They fund a brief initial assessment which will allow you to determine if you fit the "more severe criteria". You will need to check with your policy to see whether and for how much you are covered. Please ask your doctor prior to commencement of treatment the approximate cost of the proposed treatment.

Are There Side Effects To Sclerotherapy?

Even when a highly experienced physician is performing the treatment there are a number of possible side effects including the following:

- Aching in the legs for the first day or two following treatment. This is usually relieved by walking. You may also take Panadol or Aspirin to relieve this aching.
- Red, raised areas at the site of injection. These should disappear within a day or so.
- Brown lines or spots on the skin at the sites of treated blood vessels. Mainly composed of haemosiderin, a form of iron stored in the body, these pigmented areas may result when blood escapes from treated veins, often in patients who have larger veins. In most cases they disappear within a year, but in a few they may persist for two years. Persistent pigmentation may respond to laser treatment. In order to prevent this side effect we advise that you do not take any iron supplements (eg multivitamins) during the course of treatment and keep follow up appointments with your doctor.
- Development of “mats” - networks of fine red blood vessels near the sites of injection of larger vessels, especially on the thighs. About 16% of patients develop these. Most resolve spontaneously, some resolve with injection treatment, and a few persist. Matting is more common in patients with extensive surface veins and in obese patients who have poor muscle tone. It is important to walk 4km per day during the treatment to improve leg muscle tone and associated improved venous blood flow. Other exercises such as cycling and low impact aerobics may be substituted.
- Rarely, formation of small painful ulcers at treatment sites within two weeks of injection. Sometimes these occur because some of the solution has escaped into the surrounding skin. Generally they occur due to an underlying small artery association with the treated vein. They appear to occur more frequently in patients who smoke cigarettes. These ulcers can be effectively treated but it is necessary to inform the physician of them immediately. These ulcers will heal slowly and may leave a small scar.
- Bruises at the injected site. These will disappear in a few weeks and are probably related to the fragility of the blood vessel walls. Blood trapped in the sclerosed vein may cause the vein to be more noticeable in the first few weeks following treatment, and is an early sign that the treatment has been successful.
- Allergic reactions to a certain sclerosing solution. Although in rare occasions such reactions may be serious, they can be treated by immediate injections of adrenaline. Less serious reactions are treated with antihistamines. Minor rashes require no specific treatment but you should inform your physician if they occur. If this occurs, a different solution can be used for subsequent treatments.
- Inflammation of treated blood vessels (phlebitis). This is due to the reaction of the sclerosant in the blood vessel. When it occurs it is treated with anti-inflammatory medications, compression and daily walking.
- Tender lumps in injected vessels, particularly larger ones, may develop. These actually are areas where blood has been trapped in the sclerosed veins. The doctor may drain the blood out of these lumps a few weeks after the initial treatments. This will hasten the resolution of the tenderness and help prevent the pigmentation that occurs due to haemosiderin.
- Migraine – some people who have a history of migraine headaches may develop symptoms of migraine within minutes of the injection session. These symptoms generally will include visual disturbances lasting about twenty minutes, occasionally followed by a throbbing headache which can be treated by taking Panadol or Panadeine.
- Deep vein thrombosis (clot in the deep vein). This can occur but is rare (approximately 1 in 5000) if compression and regular daily walking are adhered to.
- A flu like feeling with higher doses (usually over 8mls) of the undiluted STS sclerosant when used in ultrasound guided treatments. About 2 to 4 hours after a treatment some people (more commonly men than women) will experience a chilled feeling and aching associated with possibly dark urine. This passes completely after a few hours with no ill effects. It is caused by the breaking down of some of the red cells in the blood. With the newer microfoam, this effect is much less likely due to the smaller doses used.

There are no known long term side effects of sclerosants.

Will Treated Veins Recur?

The veins treated adequately by sclerotherapy will not recur. However the underlying weakness in your vein walls is not corrected by sclerotherapy and therefore new vessels may appear with time. It is important to maintain normal body weight, exercise regularly and avoid prolonged wearing of high heeled shoes to minimise the development of dilated veins. You can have a check yearly, if you wish, to pick up any early changes that could be treated.

Ultrasound treated vessels can recur in 25% of cases within the first year, but readily respond to another treatment – usually offered at no cost. If they have not recurred by one year, they will not return later.

Are There Other Treatment Methods?

Lasers have been less successful in treating problem leg veins in the past. The new Cool Glide laser can quite successfully treat blue reticular up to a certain size and red spider veins. Larger veins and underlying problems still require sclerotherapy treatment.

Surgical stripping of veins, EVLT (endovenous laser therapy) treating a few deeper straight veins with laser, then either surgery or injection, and ambulatory phlebectomy (surgically excising veins through small incisions) are all other treatments still employed by some. But even the largest vein problems can now be treated by injection only (with the right technique).

How Are Spider Veins On The Face Treated?

These are able to be treated with injection and by laser. We usually use the latter.

What Should I Do Before My Appointment?

Read this information sheet again.

- Do not apply moisturiser to your legs on the day of your appointment.
- You may prefer to wear slacks to your appointment as they will conceal the stocking and underlying compression pads. Some people like to bring a pair of shorts to wear during the treatment session.
- Always bring your compression stocking for each appointment. You may not like the stocking but its use is vitally important to achieve good results.

What Do I Do After Treatments?

Maintain normal daytime activities. Walk at least half an hour (about 3km) a day – the more the better as this works the calf muscles and pumps the blood through the other vessels back to the heart. Walking reduces the pressure on the superficial veins. **STANDING FOR PROLONGED PERIODS MUST BE AVOIDED FOR TWO WEEKS FOLLOWING INJECTION SESSIONS**, unless you are wearing your compression stockings.

Avoid strenuous physical activity (high impact aerobics, squash and weightlifting) for the first 72 hours. However walking in the first two days is important as it will relieve most of the aching from the injections.

Do not remove the stocking until your physician has instructed. The compression following the injection is essential to obtaining a good result. If you wish you may cover the stocking with a plastic bag when showering.

Between treatments the use of support stockings and socks that are correctly fitted is recommended especially for people who must be on their feet a lot. If you feel you may benefit from these please ask for the range that is available. Special requirements and sizes can readily be ordered.

LASER TREATMENT OF VEINS

There are now available treatments for vein problems by laser. In the past this was quite limited, but now a wide range of conditions can be treated.

Surface Treatment of Veins by Laser

There was a lot of publicity about laser treatment of surface veins by laser and IPL (Intense Pulsed Light) over the recent years. While people were excited at the idea of this, the reality of the results was very disappointing. In the face the techniques worked quite well. But not in the legs. The reason for this was the greater skin thickness in the leg and the consequent greater depth that the light had to penetrate to have an effect. Often the top part of the vein closest to the skin would be affected, but not the deeper surface. This resulted in a partial closure (the aim being the same as sclerotherapy with the damaged vein wall closing the vein as it healed).

From about 2001 there has been an effective laser for surface treatment of varicose and reticular (blue surface) veins. This was by the Xeo Cool Glide laser. It worked because its infra-red spectrum light, being of a longer wavelength than previous vein treatment lasers, could penetrate deeper. Also it had a massive power supply enabling it to generate enough energy to close the veins. And it had a very effective cooling system, meaning that adequate power could be delivered comfortably and without damaging the skin. There is a limitation in treating surface veins this way. Those over 3mm in diameter will not respond as again the depth the laser needs to penetrate is too great.

What Does It Feel Like?

There is a sensation associated with the treatment. Like a short, sharp, hot sting. Most people find this quite bearable. The odd person cannot tolerate it. But it can be made very comfortable by good cooling with the hand-piece. Anaesthetics for such large areas as the legs are not a possibility. The amount required would be toxic to the body. Also the discomfort is generated quite deeply and will not be blocked perfectly by an anaesthetic agent.

What Are The After Effects?

As with sclerotherapy, there tends to be a little trapping of blood at times. This is often small in amount and resolves spontaneously. At times it may need to be released. It can result in some brown staining that will fade over time.

There can be a visible, slightly pink line along the vein line after the treatment for up to six weeks. This is associated with the healing of the vein. It resolves completely.

Some people with recent tan might notice a temporary lightening of colour at the points where the laser was fired. This will resolve completely.

What Else Needs To Be Done?

Usually wearing a support compression stocking (as with sclerotherapy) for the first two or three days will help the legs feel comfortable. They can otherwise feel a little achey.

How Many Treatments Are Required?

Usually two, or, at times three, sessions are needed six or more weeks apart each time. This gives the treated tissues time to completely recover.

What About Cost?

Laser treatment does cost more than sclerotherapy due to the time involved and the cost of the lasers.

Deeper Treatment of Veins by Laser (Endovenous Laser Therapy)

Since about 2000 doctors have been treating deeper vein problems with lasers too. Initially this was performed by a few pioneers only. But it is becoming more widespread. The idea was to close the damaged segments of the veins that are not visible on the surface in much the same way as with ultrasound guided sclerotherapy. As with that technique, the ultrasound imaging machine is employed to visualise the vein while it is treated. The feeling was that the laser should cause an even more thorough closure of the vein by causing a deeper local injury. Initially people thought it would be close to 100% of the treated veins without reopening. As with all biological systems, nothing is 100%.

How Does It Work?

Laser energy is introduced inside the vein to get the energy directly into the vein walls. This is done by introducing a fibre-optic cable along the vein. As the cable is withdrawn the laser is fired continuously. The laser energy, which is in the infra-red end of the spectrum absorbs into the local blood, is converted to heat energy and creates the local vein wall damage. This damage is then healed by the body. Because the opposing surfaces are both damaged, the vein tends to fuse together. Over time this healed tissue shrinks on itself to create a fine line of scar tissue, no longer visible.

What Is The Process?

The skin is prepared with antiseptic wipes. The point where the laser fibre is introduced is treated at the skin surface with some local anaesthetic. A small nick incision is made in the skin and a needle introduced from there into the vein, guided by the ultrasound image. A guide wire is passed down the needle and a hollow tube placed over this. The guide wire is then withdrawn and the laser fibre introduced through the tube. Because the laser firing generates heat there is a need for some local anaesthetic to numb the area about the vein. The water in which the anaesthetic is carried also acts as a heat sink to absorb excess heat. The anaesthetic is introduced about the length of the vein by a series of injections or in a long continuous one (the latter beginning from somewhere near the point the laser fibre is inserted). A support stocking is worn for a time afterwards for comfort as the healing takes place.

What Else Needs to be Done?

Usually a few injections are later required for closing the surface veins and any small segments not suited to the laser technique.

What Are The Side Effects?

Most commonly a few bruises will be noted along the length of the vein. These settle quickly and spontaneously. Some aching and a sense of stiffness can occur in the area of the treated vein. This settles with the recommended regular exercise. Anti-inflammatory medication can be taken to ease any discomfort. In the early days of the procedure occasionally some people got some mild burns at shallow points of the vein. Better anaesthetic application and laser firing techniques have made this practically non-existent.

Is It Safe?

Taking care to ensure the laser energy is dispersed within the treated vein it is a very safe procedure. Infra-red laser energy has been used in surgical and gynaecological applications for many years.

Can They Recur?

There has been some incidence of recanalisation of treated veins. The incidence is lower than for the ultrasound guided sclerotherapy technique. But it can be retreated with either another laser session or sclerotherapy, more usually the latter.

What is the Cost Like?

The introduced laser treatment is more than regular ultrasound guided sclerotherapy. This is due to the disposable fibre costs, the longer treatment time involved and laser costs.