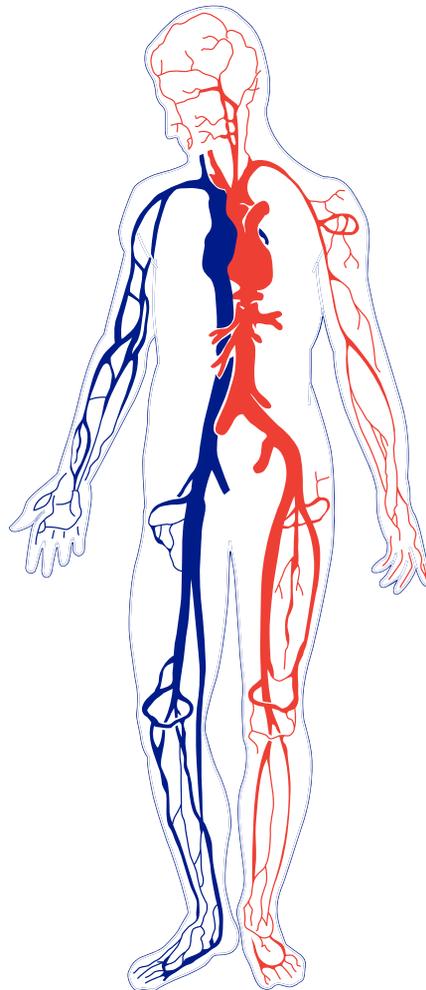




*Varicose Vein Centre of WA*  
*WA Vascular Centre*

*Management of Varicose Veins*



**WAVC**

**PLEASE READ THIS BOOKLET BEFORE YOUR CONSULTATION AND  
BRING IT WITH YOU FOR ALL APPOINTMENTS.**

**Important: Read Pages 11-14.**

**IF YOUR APPOINTMENT IS FOR A CONSULTATION,  
YOU MAY NOT BE ABLE TO HAVE INJECTIONS ON THE SAME DAY.**

Perth(Bassendean), Fremantle, Joondalup, Mandurah & Northam  
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## **IMPORTANT INFORMATION FOR ALL PATIENTS**

**DUE TO THE SOMETIMES UNFORESEEABLE AND COMPLEX NATURE OF THIS INDIVIDUAL PROCEDURE, APPOINTMENT TIMES MAY RUN LATE FOR SOME CLIENTS.**

**YOUR PATIENCE IN THIS MATTER IS APPRECIATED. WAITING TIME THEREFORE CAN VARY BUT THE PRACTICE DOES TAKE DUE AND REASONABLE CARE TO ENSURE THIS DOES NOT HAPPEN.**

**IF YOU ARE HAVING TREATMENT, CHILDREN, FAMILY MEMBERS OR FRIENDS ARE NOT PERMITTED IN THE TREATMENT ROOMS UNLESS UNDER EXCEPTIONAL CIRCUMSTANCES.**

**IN KEEPING WITH BEST PRACTICE PRINCIPLES, IT IS MANDATORY TO READ (OR HAVE READ TO YOU) THIS BOOKLET BEFORE YOUR CONSULTATION WITH THE SPECIALIST. FAILURE TO DO SO MAY RESULT IN A RESCHEDULE OF YOUR SESSION AND INCUR A \$55.00 FEE.**

**IF YOU DO NOT SPEAK OR UNDERSTAND ENGLISH, IT IS YOUR RESPONSIBILITY TO BRING SOMEONE WITH YOU AT THE TIME OF YOUR SPECIALIST CONSULTATION.**

**PLEASE ORGANISE CHILD MINDING IF YOUR CHILDREN ARE TOO YOUNG TO SIT UNACCOMPANIED IN THE WAITING ROOM.**

**THANK YOU**

## WA VASCULAR CENTRE (WAVC)

### VARICOSE VEINS

Varicose veins are dilated blood vessels which are abnormally prominent, often tortuous and bulging. They have a red or bluish colour and vary in size from barely visible surface veins, to large varicose veins. These veins can become unsightly and may produce a dull aching or burning sensation of the legs after prolonged standing, which can, in many cases be quite severe.

The leg veins normally have one-way valves in them so that when the muscles contract and squeeze the veins, the blood can only go one way, and that is up the leg, in normal veins. In varicose veins the valves are not functioning properly (which is usually inherited [familial], and much less frequently following damage to the valves by trauma), so that, in these veins, in the upright position, gravity causes blood to reflux and accumulate in the legs.

This causes increased pressure within the varicose veins, which causes further stretching of the walls of the veins, (as well as fluid to collect in the lower leg,) which produces pain, and causes nearby normal valves to also stretch and not function, which, in turn, causes the varicose veins to continually worsen.

This incompetence of the valves in the veins commonly affects the superficial or saphenous veins (just deep to the skin) which are not essential for the blood to circulate properly in the legs, much more frequently than the deep veins (which are the most important), within the muscles in the legs.

As these varicose veins are abnormal and in fact allow the blood to flow in the wrong direction down the leg (instead of directing blood flow up the leg), the swelling and aching of the legs is worse at the end of the day and in fact is found in at least half of the adult female population (and 20% of men), who have this common problem.

### Generally varicose veins are not dangerous but may cause the following problems.

The cosmetic appearance may cause embarrassment when the legs are exposed.

Painful symptoms such as dull throbbing, heaviness and tiredness, aching pain, cramping, burning, itching or restless leg syndrome may occur. However, these symptoms may also be due to other conditions, and not necessarily associated to the varicose veins.

Skin changes of bluish discolouration, discomfort of warmth, itchiness and varicose eczema, and pigmentation (due to haemosiderin from extravasated red blood cells) may occur. In severe cases the tissues underlying the skin can become damaged, pigmented and woody (lipodermatosclerosis). In a small number of cases, the skin may break down causing long standing, difficult to heal varicose ulcers.

Bleeding may occur not uncommonly, especially from very superficial varicose veins and can occur unexpectedly as this may be painless and just due to minor trauma. Blood loss can be considerable unless direct pressure is applied and maintained.

Blood clotting may occasionally occur, in the superficial varicose veins themselves, or quite rarely, in the deep veins of the leg, which can cause the potentially serious complications of a deep vein thrombosis.

## **HOW ARE VARICOSE VEINS IN THE LEGS TREATED?**

Varicose veins are large surface veins that bulge above the skin surface, whereas reticular veins are smaller bluish veins, usually occurring in patches which are usually flat. Spider veins or telangiectasiae are spidery branched vessels. (Medicare will not pay a rebate for varicose veins which are less than 2.5 mm in diameter and regard this as treatment for cosmetic reasons.) This can be discussed with you at your appointment.

*In general varicose veins are not life threatening and conservative management or no treatment may be considered adequate if they are not symptomatic.* Conservative management does not involve sclerotherapy or surgery but rather the continual wearing of compression stockings which tends to slow down worsening of varicose veins rather than causing significant improvement of existing varicose veins.

## **INJECTION THERAPY FOR VARICOSE VEINS SCLEROTHERAPY - UGS/VGS.**

If their presence is distressing they can be treated (according to their size) by ultrasound guided injection (UGS) {of a foam (UFGS) &/or a solution} or under vision (VGS). which usually causes them to disappear, or at least become much smaller, relieving symptoms of pain and swelling, as well as improving appearance of the leg.

The degree of significant improvement is around 80% even for larger diameter veins.

The solution we usually use is Polidocanol (Aethoxysclerol) (which we have been using for many years) and is usually injected with a very fine needle directly into the vein. The solution irritates the lining of the vein and causes the vein walls to swell and stick together. Compression with a stocking improves the result of treatment which is why the treatment is sometimes referred to as compression sclerotherapy. Local redness of the skin over the treated varicose vein often occurs and tender lumps may occur either immediately after the sclerotherapy session or up to several weeks later but always settles with time. Depending on its size, a single varicose vein may have to be injected more than once, some weeks apart, but in any one treatment session a number of veins can be injected. The solution and concentration used may vary somewhat, however, **the safe total amount injected is limited per session.** Your doctor will decide the solution that is best for your particular case.

Larger, not necessarily visible, varicose veins underlie small surface veins in 20% of cases. These, deeper veins, require Duplex scans to be accurately located, prior to sclerotherapy. In such cases, these larger veins must be treated first, before, (or at the same time as) the smaller ones. If the smaller varicose veins visible on the skin surface, are treated before the underlying larger vein, sclerotherapy is very unlikely to be successful, and may even worsen the appearance.

## **HOW SUCCESSFUL IS SCLEROTHERAPY?**

**YOU SHOULD BE AWARE THAT THE PROCEDURE TREATS ONLY THOSE VEINS THAT ARE CURRENTLY VISIBLE AND THOSE DETECTED DURING THE ULTRASOUND SCAN; IT DOES NOT PREVENT NEW VEINS FROM APPEARING IN THE FUTURE.**

Before you decide to have sclerotherapy, think carefully about your expectations and discuss them during the education session. **After successful treatment, most patients can expect an approximate 80% improvement in their treated varicose veins.** However, the fading process is gradual, staining can persist and perfection is seldom achieved.

## **WILL TREATED VEINS RECUR?**

No matter what treatment is used, varicose veins have a very high rate of recurrence, especially in women, as female hormones relax the walls of the veins. The success rate for Duplex Ultrasound guided foam sclerotherapy (UFGS) &/or Under vision((VGS) and the recurrence rate is comparable (if not superior in many cases) to surgery, Thermal Ablation - Laser or Radioablation- (at least 30% of patients will develop recurrent varicose veins in about four (4) years following surgery or ultrasound guided foam sclerotherapy. The visible veins adequately treated by sclerotherapy do not usually recur, but may do so. The underlying tendency to develop varicose veins is not corrected by sclerotherapy (or surgery) and therefore, new varicose veins may appear with time. These, of course, can be treated as they occur. To minimise the development of new varicose veins it is important to avoid standing for long periods of time. Aqua-aerobics, swimming and walking in water up to the waist or higher are good forms of exercise to help minimise development of new varicose veins. High impact aerobics, weight lifting and activities where the abdominal (stomach) muscles are felt to really tighten, increasing pressure within the abdomen (stomach) for any length of time, should be avoided.

## **ARE THERE OTHER TREATMENT METHODS?**

Conservative treatment: elastic stockings, exercise: regular walking each day and elevation of the leg when resting and, where possible, avoid standing for any length of time.

Laser (applied at the skin surface) is generally not as effective on superficial leg varicose veins (as it does not penetrate deeply enough) without injection treatment – injection treatment by itself is just as effective. Such laser, when treating leg veins can also cause pigment changes. It may be used for fine facial veins, which are very superficial.

A new method of treatment – Endovenous Thermal Ablation with Laser or Radiofrequency- utilises a probe which is introduced through the skin to inside the main (larger) varicose veins and inflames (thermally ablates –or “cooks”) the varicose vein. However, the disposable Laser or Radioablation equipment and therefore the procedure, is correspondingly very much more expensive. It invariably requires further treatment with UGS injections and has not been shown to be more effective than UGS alone.

Strong saline injections have been claimed to produce less staining, but never the less do cause staining in some people. They are very painful, and are not effective in blocking branches of veins and are less effective for treating large varicose veins.

Surgical ligation or stripping may be done for very large varicose veins, however public hospitals do not perform this operation on uncomplicated cases, and results are no better than UGS, but are more invasive with an appreciably higher complication rate. These alternatives may be discussed during the education session.

## **HOW ARE SPIDER VEINS ON THE FACE TREATED?**

Laser treatment gives the best results with these vessels, we do not do this. Your GP can refer you to a suitable clinic.

## **WHERE TO FROM HERE?**

You will have received this booklet following your initial ultrasound duplex scan at which time an education session may have been arranged for you. It is imperative you read this booklet carefully **BEFORE THE EDUCATION SESSION AND BRING IT WITH YOU**. At this stage you are still receiving information regarding treatment.

## **PREPARING AND PLANNING FOR YOUR TREATMENT**

Prior to your injections (treatment) a consultant / nurse educator knowledgeable in the procedure of sclerotherapy will review the material in this booklet with you. It is important that you read and understand the information in this booklet before your appointment with the injecting doctor.

It is important to discuss your medical history at the consultation / the nurse attendance. In particular, the medications that you are taking including the contraceptive pill. Individuals with a history of superficial venous thrombosis or deep venous thrombosis (in the family or personal) may be required to have a blood test to determine their susceptibility to thrombosis prior to treatment.

*If you are going to fly\* internationally within eight (8) weeks or domestically within four (4) weeks of your injections or are breast feeding, pregnant or are intending to become pregnant you may not be a candidate for sclerotherapy. Please discuss your intentions. It is preferable to defer your sclerotherapy until after your pregnancy and you have stopped breast feeding. However, well fitting support hosiery is now available to fit pregnant women, and if your varicose veins are causing a lot of discomfort at this time, you would be strongly advised to be fitted for them. Your phlebologist (injecting doctor or nurse) at WA Vascular Centre would be very happy to arrange this for you.*

You will be able to drive following the treatment. However if you are from a regional country town and anticipate a long drive (greater than 1.5 hours) following treatment please advise the nurse prior to treatment as you need to stop and exercise (if possible walk) for five minutes every (1) hour of your journey. # Carry out calf exercises (see page 7) whilst sitting, by moving your foot up and down at the ankle, and/or if possible carry out calf exercises with the leg raised to a height above the heart.

(#The injecting doctor can demonstrate this.)

If standing, alternatively stand up on tip toe and then on your heels.

*\*However, if you have the need to fly or travel long distances several hours after your session of UGS and it is not possible to adequately carry out the above exercises, let the nurse know at the time of your education session as clotting can be prevented with a course of small daily injections of Clexane — a blood thinning agent, before and after your treatment.*

Following treatment if the need for unexpected air travel arises within the timeframe outlined above, please contact our clinic nurse for specific instructions.

Please bring your compression stocking for each visit following the initial treatment. For the initial treatment stockings may be purchased from the clinic or you may be advised to have compressive stockings fitted elsewhere before the first treatment.

**Do not apply moisturiser, sun tan lotion or other creams to your legs prior to treatment. Please also remove toe rings / anklets.**

## **THE PROCEDURE**

A typical sclerotherapy session is relatively quick, lasting only about 15 to 30 minutes. Usually only one leg at a time is treated. A nurse assists the injecting doctor during the procedure. You may be asked to remove your skirt or trousers (not underclothing), **but you may feel more comfortable bringing a pair of shorts or a short sarong to wear during the procedure. You will be asked to sit or** lie down on the examination table. Using one hand to stretch the skin taut, your doctor will begin injecting the sclerosing agent into the affected veins. Ultrasound may be used to help guide the doctor to the vein. The injecting doctor will use the initial ultrasound scan as a 'road map' to plan the most appropriate injecting sites. Since the small cosmetic spider veins do not show up on the scan you may need to point these out to the doctor. On some occasions a cotton ball and tape is applied to each site of injection and when the injections are finished a snug fitting compression stocking is applied.

**The treated veins are compressed by wearing a support stocking, this helps seal the treated vessels, minimises trapped blood and pigmentation, reduces the number of treatments necessary, and reduces the possibility of recurrences. It also helps prevent blood clots. KEEP STOCKING ON FOR 48 HOURS WITHOUT REMOVING.**

During the procedure you may talk to your injecting doctor. You may be asked to shift positions a few times during the process. As the procedure continues, you may feel small needle pricks and possibly a mild burning sensation. However, the needle used is so thin and the sclerosing solution is so mild that pain is usually minimal. If you feel an intense burning sensation, inform the doctor and he can stop treatment.

## **WHAT DO I DO IMMEDIATELY AFTER TREATMENT?**

**YOU WILL BE REQUIRED TO DO A 15-20 MINUTE WALK STRAIGHT AFTER TREATMENT SO PLEASE MAKE SURE YOU WEAR/BRING SOME COMFORTABLE WALKING SHOES WITH YOU FOR EACH APPOINTMENT.**

**Maintain normal daytime activities, except standing for prolonged periods. Walk at a brisk steady pace for a minimum of two half hour sessions per day (about 1-2 km) and calf exercises. If you are not able to walk you may be advised to exercise the foot with the leg raised to a height above the heart instead of walking. The injecting doctor can demonstrate how this is to be done #.**

**During the first 48 hours you may feel general discomfort due to the compression stocking, this is to be expected. The stocking and leg is best kept dry for the first 48 hours so cover with plastic for showering.**

**Avoid strenuous physical activity (high impact aerobics, tennis, cycling, weight lifting etc) for at least a week commencing immediately following treatment. Avoid any activity that produces prolonged tension in your "tummy muscles".**

**FOR THE FIRST WEEK, walk for 30 minutes twice a day at a steady brisk rate and exercise your calf muscles. # Carry out calf exercises whilst sitting, by moving your foot up and down at the ankle, and if possible carry out calf exercises with the leg raised to a height above the heart. (The injecting doctor will demonstrate this.) If standing, alternatively stand up on tip toe and then on your heels.**

**If multiple treatments are needed wearing support stockings that are correctly fitted is recommended, particularly for individuals who must be on their feet for long periods of time. Please discuss this at the consultation / nurse session.**

**WALK FOR 30 MINUTES TWICE A DAY AT A STEADY BRISK RATE FOR A MINIMUM OF ONE WEEK (2 WEEKS IF POSSIBLE); HOWEVER, AFTER THAT, WALK 1/2 AN HOUR DAILY FOR 5-6 WEEKS. WHEN NOT WALKING IT IS GOOD PRACTICE TO CARRY OUT CALF EXERCISES AS DESCRIBED # (see page 5).**

**IT IS HIGHLY RECOMMENDED THAT THE COMPRESSION STOCKINGS BE WORN DAY AND NIGHT FOR ONE WEEK AND AT LEAST ANOTHER WEEK DURING THE DAY, HOWEVER, EXTRA BENEFIT CAN BE OBTAINED IF WORN DURING THE DAY FOR A FURTHER TWO OR MORE WEEKS. WEARING THE STOCKING LONGER WILL HELP REDUCE DEVELOPMENT OF LUMPS AND PIGMENTATION.**

**Allow a period of about four to six weeks before the next treatment to check that the veins have been successfully sclerosed (obliterated).**

DURING THAT TIME THE VEINS MAY LOOK WORSE BEFORE THEY BEGIN TO LOOK BETTER.

After each treatment there will usually be a gradual improvement in the appearance of the leg.

An ultrasound scan will be scheduled approximately 6 months following the completion of treatment (and then 12 months) to assess any occurrence of recurrent varicose veins. While these are not compulsory they are highly recommended as any further treatment necessary, is best carried out an early stage before the veins get too large in size. **There is no charge for the 6 month scan.**

## **SIDE EFFECTS & RESULTS OF SCLEROTHERAPY**

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

Before you decide to have sclerotherapy, think carefully about your expectations and discuss them with our clinical staff..

**IF YOU ARE WORRIED BY PAIN OR SWELLING OR OTHER SYMPTOMS, PLEASE DO NOT HESITATE TO CONTACT THE BASSENDEAN ROOMS (08 92794333 between 9.00AM – 3.30 PM) WHERE WE WILL ARRANGE FOR ONE OF OUR NURSES TO DISCUSS THE PROBLEM WITH YOU.**

## COMMON SIDE EFFECTS

The following features can be expected and do not need to be reported:

- **Red raised tender areas along the sites of injection.** This is due to inflammation of the treated blood vessels due to the reaction of the sclerosant on the blood vessel wall. This should disappear within several days.
- **Tender/Painful lumps (Which may be red)** along the varicose veins, particularly large ones, may develop (even up to several weeks after injection). These are actually areas where blood has been trapped in the sclerosed vein. Sometimes the doctor may have to drain the blood out of these lumps a few weeks after injection. This will hasten the resolution of the tenderness, and help reduce any pigmentation. Pigmentation is mainly composed of haemosiderin, a form of iron in the blood and is not the same as a blood clot. The application of Voltarin Emulgel gently massaged in to the tender areas several times a day may provide pain relief. Maintain support with your compression stocking. **ANTIBIOTICS ARE RARELY NECESSARY TO TREAT THESE LUMPS.**
- **Staining/Pigmentation** Brown lines or spots on the skin at sites of treated veins due to trapped blood and haemosiderin. In 90% of cases these can fade within a year but sometimes it can take up to 3-4 years to fade.
- **Development of “mats” or spider veins** — networks of fine red blood vessels near the sites of injection of larger vessels, especially on the thighs. About a third of patients develop these, some disappear spontaneously, some disappear with injection treatment, and a few persist.
- **Bruises at the injection site.** In a few cases, this can be quite extensive. They usually disappear in a few weeks and are probably related to the fragility of blood vessel walls.
- **Swelling of lower limb/foot.** Is common, so check that the compression stocking is correctly fitted over the foot to the bases of the toes, and elevate the leg whenever possible.

## **UNCOMMON SIDE EFFECTS**

1. There may be areas of numbness due to bruising of the nerves supplying the skin and this may take some months to settle, rarely more than six to twelve months.
2. In some cases, small painful ulcers form at injection sites immediately following or within a few days of treatment. Generally they occur due to the solution entering a small artery closely associated with the injected vein. These can be effectively treated but it is necessary to inform the clinic of them as soon as possible. These ulcers will heal and leave a small scar.
3. Allergic reactions to certain sclerosing solutions. Although on rare occasions such reactions may be serious, they can be treated by immediate use of adrenalin. Less serious reactions are treated with anti-histamines, minor rashes require no specific treatment
4. DEEP VEIN THROMBOSIS (DVT) IS RARE, AND OCCURS IN WELL UNDER 0.5% OF PEOPLE TREATED WITH SCLEROTHERAPY. WALKING OR DOING THE FOOT EXERCISE IS VERY IMPORTANT TO MINIMISE THE RISKS OF DVT. SIGNS OF DVT INCLUDE PAINFUL SWELLING OF THE ENTIRE LEG OR PAINFUL SWELLING OF THE LEG BELOW THE KNEE CAUSING DIFFICULTY WALKING.

If the pain is related only to the injection site and the varicose vein then it is highly unlikely to be a DVT, however, IF IN DOUBT, TELEPHONE OUR CLINIC.

***SOME PAIN AND DISCOMFORT IS TO BE EXPECTED; HOWEVER, IF YOU HAVE SYMPTOMS OF PAINFUL SWELLING OF THE LEG (ABOVE AND/OR BELOW THE KNEE) RELATING TO PARAGRAPH 4 (ABOVE), OR ARE DISTRESSED BY PAIN, PLEASE CALL THE CLINIC AND A NURSE EDUCATOR WILL DISCUSS THE SYMPTOMS WITH YOU.***

If it is after hours and we are unavailable, please contact your general practitioner or attend the Emergency Department of a Hospital in your locality.

(Note: Out of Hours Emergency Centres unfamiliar with sclerotherapy, may on occasion, incorrectly diagnose a successfully sclerosed varicose vein as being “thrombosed or clotted”.)

## **RECURRENT VARICOSE VEINS**

Please note that with all treatment for varicose veins at least one third of patients will develop recurrent varicose veins in about the first four (4) years following the treatment.

Further treatment using UGFS (ultrasound guided foam injections) is the treatment of choice for these recurrent varicose veins, and is best carried out before they get too large.

It is therefore preferable that patients have venous duplex scans after treatment to detect the development of recurrent varicose veins: Firstly at 6 months and then 12 monthly, to allow for early eradication of recurrent varicose veins. The scan will not incur a cost to you.

## **WA VASCULAR CENTRE**

### **1. Duplex Guided (UGS) &/or Visual Sclerotherapy (VGS)**

**Endovenous Chemical Ablation (ECA)** utilises a medication that is directly injected into the diseased vein. ECA is used at WA Vascular Centre as the primary treatment of the great and small saphenous veins, as well as other networks of superficial varicose veins. Venous disease management begins with the treatment of the larger superficial veins contributing to your venous disease symptoms and ends with treatment of the smaller veins and tiny spider-like veins on the skin's surface.

There are two types of chemical ablation procedures: **Ultrasound-guided Sclerotherapy (UGS)** and **Visually Guided Sclerotherapy (VGS)**.

**Ultrasound-guided Sclerotherapy** is a procedure that is used to treat veins that are not visible at the skin's surface (and/or veins that may be tortuous and unsuitable for laser or radio ablation in any case.) . Ultrasound-guided sclerotherapy is performed by the Physician using ultrasound imaging to visualize the affected vein(s). Ultrasound allows the Physician to guide placement of a small needle directly into the diseased vein and inject a sclerosing agent, or sclerosant, into that vein. The sclerosant, which can be a foam and/or a liquid, produces an inflammatory reaction in the vein wall, causing fibrosis (scarring) and closing of the vein. Over time the vein shrinks to an imperceptible size and is absorbed by the body. The sclerosant most often used is Polidocanol (aethoxysclerol) which is approved by the Australian Therapeutic Goods Act (TGA) as a 3% liquid, but not as a foam, (or even in a diluted solution). The use of foamed Polidocanol is considered to be "off label." As such, it has been used, around the world, for many years. Foamed Polidocanol is considered to be the standard of care, worldwide, in current national and international medical literature for its ability to close certain veins more effectively than its liquid form.

**Visually Guided Sclerotherapy** involves the injection of a foamed or non-foamed sclerosant, Polidocanol into the affected veins that are closer to the surface of the skin. As such, these veins are readily visible without the use of ultrasound guidance. Depending on the location of the veins being treated, either the Physician or a specially trained registered nurse, working in accordance with orders issued by the Physician, may perform the visually guided sclerotherapy treatments.

It is important to remember that varicose veins and spider veins are part of a chronic, recurrent and progressive condition. Although there are a variety of treatments available for vein disease, no single treatment offers a cure. The goal is to manage the vein disease process by gaining control of the condition. However, it is important to remember that it can be possible to develop new visible veins or an abnormality in existing veins. This can occur in treated and untreated areas and your tendency for this to occur is not relieved by this or any other form of treatment.

**Potential Risks and Side Effects** Below are *possible* risks and side effects that relate to Ultrasound-guided Sclerotherapy, and/or Visually Guided Sclerotherapy (with and without foam). Not all risks are significant; not all risks can be foreseen. This is not meant to be an exhaustive listing.

#### **Most Common**

- Bruising: This is common to all treatment approaches and is expected. It is always temporary and generally resolves over several weeks.
- Nodularity: A hardness or firmness at the sites of vein treatment that can persist for up to a year or longer. With time, the body will generally soften and absorb these areas but some can persist for longer periods of time.
- Pain: Patients can experience some level of pain with any needle injections during the procedures. There can be discomfort after the procedure, with the bruising, and the leg can be tender to the touch. An uncomfortable sensation along the vein route is fairly common. Any discomfort is temporary.
- Localized numbness: On rare occasions, a nerve in the treated area can be irritated by the treatment. This can result in a temporary numbness that will resolve on its own with time. In rare instances the localized numbness can be permanent.

## Complications of UFGS (2)

- Visual disturbances/Migraine: In patients with a history of migraine and/or patent foramen ovale, the chance of having a temporary visual disturbance and/or migraine is possible when performing Ultrasound or Visually Guided Sclerotherapy
- **Trapped blood (phlebitis):** A common occurrence associated with treatment and healing. This can cause hard, tender, and sometimes lumpy areas in treated veins that either self-absorb or which can be drained during an office visit.
- **Appearance of new veins:** When a patient has varicose veins, it is an ongoing problem. At some point in time, spider veins or larger veins can appear along the path of the veins treated with laser or sclerotherapy. Generally, a yearly follow-up with ultrasound is recommended so that new vein abnormalities can be detected and treated accordingly, as they arise.

### **Less Common**

- Swelling: Can occur after treating veins. Swelling usually resolves in a few days but can last from a few weeks to a year or more, especially after treatment of large varicose veins. On extremely rare occasion, the swelling can be permanent.
- Bandage or stocking chafing: Depending on the location of the vein treatment, the area may be bandaged or you may be asked to wear compression stockings. Both bandages and compression stockings can dry and/or irritate the skin.
- Hyperpigmentation: After treatment, some skin discoloration over the treated vein can remain. This discoloration is almost always temporary and tends to resolve with time. In some cases, this darkening of the skin can persist up to a year, or longer, or the skin discoloration can become permanent.
- Matting: Refers to the appearance of tiny spider veins that can occur in association with treatment. Although uncommon, its occurrence is unpredictable. These miniscule spider veins tend to resolve spontaneously over the course of months, but can require additional treatment.

### **Rare**

Skin ulceration: A skin ulcer can develop after Ultrasound or Visually Guided Sclerotherapy, but this a rare occurrence. In the very unlikely event of skin ulcer development, it can take months for the area to heal and a scar will likely form.

- **Allergic reaction:** Very rarely, a patient can have an allergic reaction to the local anesthetic and/or the sclerosants used. The allergic reaction can be mild, such as developing a rash with itching, or more significant, with nausea, vomiting, and/or difficulty breathing. Most allergic reactions can be treated in the office; however, on the rare occasion, hospitalisation might be necessary.

### **Very Rare**

- **Deep Vein Thrombosis: Occurrence much less than 0.5% of patients.** A deep vein thrombosis (DVT) is a blood clot that forms in a deep vein and is a very rare complication **of any form** of vein treatment. **In the** Australian polidocanol study (Malouf et al) of 16,804 limbs over 2 years, it was 1 in 7000. A DVT can quite rarely lead to a pulmonary embolus (PE), which is a blood clot that is carried to the lungs. In patients having a diagnosed or undiagnosed heart defect, called a patent foramen ovate (PFO), there is the extremely rare possibility that such a DVT could travel to the brain theoretically causing a stroke but as yet unproven to have occurred in any UFGS patient.
- A DVT may on occasion, also lead to post-thrombotic syndrome, which could result in some residual pain, discoloration, and swelling of the affected leg.

## Complications UFGS (3)- Very Rare

- Intra-arterial injection: Intra-arterial injection occurs when the sclerosing agent is introduced into a artery that might be in close proximity to the vein being treated. This is a very rare complication that can occur with either Ultrasound or Visually Guided Sclerotherapy. Intra-arterial injection can result in a skin ulceration, tissue destruction, and/or loss of limb

- **Infection:** While precautions are taken to provide a clean and/or sterile treatment environment, any puncture of the skin carries the risk of infection.
- **Blood in the urine:** On extremely rare occasion. This is a benign condition and always goes away after treatment is finished. It is never permanent.
- **Venous Air Embolism:** There have been a few cases reported, worldwide, of an air embolism resulting from treatment with foam sclerotherapy. A venous air embolism is an extraordinarily rare complication that occurs when an atmospheric gas (such as oxygen or nitrogen) is introduced into the venous circulation. The occurrence of venous air embolism has been associated with central venous catheterization and several other diagnostic or invasive vascular procedures. Venous air embolism, in small amounts is not known to cause any permanent effect, although a stroke is theoretically possible, but unproven although Duplex Foam Guided Sclerotherapy (DFGS) has been carried out for many years worldwide.

## 2. Endovenous Thermal Ablation

**Endovenous Thermal Ablation (ETA)** includes two types of procedures, both of which are performed by the Physician. **Endovenous Radiofrequency Ablation (ERFA)** and **Endovenous Laser Ablation (ELA)** treat the larger superficial veins in the legs, such as the great and small saphenous veins. Both procedures are performed in a similar manner. After injecting a local anesthetic into the involved area, an intravenous catheter or sheath is inserted into the vein that is to be treated. A laser fiber or radiofrequency catheter is then inserted into the sheath and passed along the target vein under ultrasound guidance. As the laser fiber or radiofrequency catheter is slowly removed, the targeted vein is heated and closed. This, in turn, relieves the backflow and pressure, in the treated vein, which is the cause of your varicose veins and related symptoms. These techniques are generally restricted to straight or varicose veins able to be straightened sufficiently to advance the thermal or laser probe or fibre.

Usually subsequent Duplex or visually guided sclerotherapy is also required to treat the branches unable to be directly treated thermally.

Below are possible risks and side effects that relate to Endovenous Thermal Ablation – these include the above risks related to

Duplex Guided or Visually Guided Sclerotherapy.

**Also the following complications particularly relate to ETA:**

1. **Increased incidence of infection of surgical wound/incision.**
2. **Increased incidence of damage to peripheral nerves, arteries or arterioles or lymphatics.**
3. **Increased incidence of painful inflammation of treated varicose vein, also depending on dose/skill of proceduralist etc.**
4. **Possible increased incidence of DVT.**

**Rare:**

- **Damage to the eyes:** Laser therapy carries an extremely low risk of damage to the unprotected eye. To prevent this from happening, you will be provided with safety goggles to protect your eyes during laser therapy treatment.
- **Skin burns:** Laser therapy carries an extremely small risk of skin burns
- **Fiber breakage:** In rare circumstances, the laser fiber could break during use and require surgical removal to avoid further complications.

**Plus - as for Duplex or Visually Guided Sclerotherapy Most Common**

- **Bruising:** This is common to all treatment approaches and is expected. It is always temporary and generally resolves over several weeks.

- **Nodularity:** A hardness or firmness at the sites of vein treatment that can persist for up to a year or longer. With time, the body will generally soften and absorb these areas but some can persist for longer periods of time.
- **Pain:** Patients can experience some level of pain with any needle injections during the procedures. There can be discomfort after the procedure, with the bruising, and the leg can be tender to the touch. An uncomfortable sensation along the vein route is fairly common. Any discomfort is temporary.
- **Trapped blood (phlebitis):** A common occurrence associated with treatment and healing. This can cause hard, tender, and sometimes lumpy areas in treated veins that either self-absorb or which can be removed during an office visit.
- **Appearance of new veins:** When a patient has varicose veins, it is an ongoing problem. At some point in time, spider veins or larger veins can appear along the path of the veins treated with laser or sclerotherapy. Generally, a yearly follow-up with ultrasound is recommended so that new vein abnormalities can be detected and treated accordingly, as they arise.

#### **Less Common**

- **Swelling:** Can occur after treating veins. Swelling usually resolves in a few days but can last from a few weeks to a year or more, especially after treatment of large varicose veins. On extremely rare occasion, the swelling can be permanent.
- **Bandage or hose chafing:** Depending on the location of the vein treatment, the area may be bandaged or you may be asked to wear compression stockings. Both bandages and compression stockings can dry and/or irritate the skin.
- **Hyperpigmentation:** After treatment, some skin discoloration over the treated vein can remain. This discoloration is almost always temporary and tends to resolve with time. In rare cases, this darkening of the skin can persist up to a year, or longer, or the skin discoloration can become permanent.
- **Matting:** Refers to the appearance of tiny spider veins that can occur in association with treatment. Although uncommon, its occurrence is unpredictable and unavoidable when it happens. These miniscule spider veins tend to resolve spontaneously over the course of months, but can require additional treatment. They are rarely permanent.

#### **Rare**

- **Skin ulceration:** A skin ulcer can develop after Ultrasound or Visually Guided Sclerotherapy, but this a rare occurrence. In the very unlikely event of skin ulcer development, it can take months for the area to heal and a scar will likely form.
- **Allergic reaction:** Very rarely, a patient can have an allergic reaction to the local anesthetic and/or the sclerosants used. The allergic reaction can be mild, such as developing a rash with itching, or more significant, with nausea, vomiting, and/or difficulty breathing. Most allergic reactions can be treated in the office; however, on the rare occasion, hospitalisation might be necessary.

#### **Very Rare**

**Deep Vein Thrombosis:** A deep vein thrombosis (DVT) is a blood clot that forms in a deep vein and is a very rare complication of any form of vein treatment.



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