

*Patient Information Booklet*

**VARICOSE VEINS**

What are varicose veins?

Varicose veins are enlarged tortuous veins in the leg and are extremely common. A study in Edinburgh in the 1990s found that 40% of men and 32% of women had significant varicose veins. Minor varicose veins and 'thread veins' were found in 80% of people. Clearly, not everyone will need treatment for their varicose veins.

Veins work by carrying blood back to the heart. There are two main systems of veins in the legs, the deep veins and the superficial veins. The muscles in the calf around the deep veins act as a pump, forcing blood up the leg towards the heart. This is helped by a series of one-way valves which prevent blood falling back down the leg with gravity, such as standing or sitting. The superficial veins lie under the skin and have a number of branches feeding them. Blood from these veins again passes through a series of one-way valves to join the deep veins, usually in the groin and behind the knee. If these valves fail then blood may flow the wrong way down the veins. With superficial veins, these become stretched and twisted over time becoming varicose veins.

What are the causes of varicose veins?

There may be an in-built weakness in the valves, which explains why varicose veins can run in families. This is the most common cause. Pregnancy often makes the situation worse because the baby's head can press on veins inside the abdomen causing further leaking of the valves in the legs. The veins often improve after the baby is born but are unlikely to disappear completely. Occupations that involve long periods of standing as well as obesity may also make the situation

worse. A previous deep vein thrombosis (clot) may have caused valve damage. Thrombosis may happen after a fractured leg, during pregnancy or after admission to hospital, particularly with any abdominal or lower limb surgery. Long-haul flights might also (rarely) cause this problem. Very rarely, clots form due to an inherited problem in the blood clotting mechanism.

### Symptoms

In many people, varicose veins cause no symptoms whatsoever, except for their appearance, which may be embarrassing. Cosmetic appearance alone is not usually a good reason for undergoing treatment and is not funded under the NHS. Common symptoms include aching over the veins, general discomfort in the leg, pins and needles and a feeling of heaviness that is usually worse at the end of a day. Leaking valves in deep veins may also cause lower limb swelling. Longstanding varicose veins may cause changes in the skin colour around the ankles, with thickened brown and white areas and venous eczema (red rash). If these changes persist, then the leg may be at risk of developing an ulcer, which is often caused by a seemingly minor injury. Varicose veins may at times become hard, red and tender i.e. thrombophlebitis. Phlebitis is treated by resting the leg, using a compression stocking and anti-inflammatory creams such as Hirudoid or painkillers, such as ibuprofen. Very rarely varicose veins bleed after knocking them. Elevating the leg and firm pressure over the bleeding area should stop this; you should however call your GP or attend the A&E Department if the bleeding is severe.

### Outpatient clinic and investigations

An ultrasound probe (hand-held Doppler) may be used to 'listen' to blood flow through your veins. You will then have a detailed ultrasound scan of your veins (Duplex scan); this will either be undertaken in the clinic or a further appointment made for this. This will clearly show all the superficial and deep veins and will enable a decision to be made about the best treatment. Further tests may rarely be needed but these would be discussed with you.

### Treatment

The National Institute of Health and Care Excellence (NICE) has provided updated guidance on treatment of varicose veins ([www.nice.org.uk/guidance/CG168/ifp/chapter/varicose-veins-in-the-legs](http://www.nice.org.uk/guidance/CG168/ifp/chapter/varicose-veins-in-the-legs)). An important point to note about treatment is that sometimes more than one procedure is needed to deal with residual veins. Further varicose veins can also develop months or sometimes many years later.

#### **1. Conservative treatment**

You might be advised that no treatment is needed for your varicose veins. If your symptoms are not typical, removing your veins may make no difference to the pain or discomfort you are getting.

You may be asked to lose weight and take more regular exercise. Avoiding prolonged standing and avoiding hot baths may improve your symptoms. Support stockings bought from a high street chemist will be unlikely to improve the symptoms from varicose veins. A stronger 'graduated compression stocking' is sometimes recommended from your GP. There is very little evidence that it will help prevent long-term problems from varicose veins and therefore is not recommended unless there are no other treatments possible. Stockings do have some benefit in pregnancy and after some varicose vein procedures (see below). Stockings will not be suitable for every person, particularly if there is any problem with the blood supply (arteries) to the legs.

## 2. Sclerotherapy

Your doctor may have mentioned injection treatment for varicose veins. The procedure is performed as an outpatient and involves injecting a detergent or other irritant solution into the veins to cause the walls of the vein to stick together. This is only useful for small varicose veins, such as those left after surgery and for thread veins (see below). Ultrasound-guided foam sclerotherapy is a newer modification of this technique and can be used to treat larger veins (see below)

## 3. Radiofrequency ablation (ClosureFast™)

This is one of the newer endothermal ablation techniques (which NICE recommends as first line treatment for varicose veins) and was previously known as VNUS Closure and later Venefit. The technique is similar to endovenous laser although uses a different heat source. It is not suitable for every patient and will depend on the ultrasound findings.

### *Pre-operative assessment*

At your pre-operative assessment you will be measured for a class 2 Sigvaris stocking which you will then need to order (around £77). There will be a discount if you quote reference PRVGEN when ordering. This stocking needs to be brought with you on admission to hospital.

### *Procedure*

I will discuss the procedure with you before the operation and mark the veins that need to be treated. You will be asked to sign a consent form. The procedure is carried out in the operating theatre under sterile conditions and is normally performed under local anaesthetic, although for some patients a general anaesthetic may be needed e.g. if further veins need to be removed. Local anaesthetic cream is used to numb the skin before the operation. Ultrasound imaging is used to confirm the location of the vein to be treated. After injecting local anaesthetic a needle is then placed into the vein and the heating catheter passed through this. A dilute solution of local anaesthetic is then injected around the vein to absorb any heat; a number of injections are

needed for this. Radiofrequency energy is then applied to seal the vein. You will experience no heat sensation during the procedure.

#### *After your procedure*

You will need to wear your Sigvaris compression stocking on the affected leg for 1 week, day and night apart from showering, and then for a further 2 weeks during the day when you are up and about. You will be able to mobilise immediately if under local anaesthetic and can go home within an hour of the procedure. Patients having an operation under general anaesthetic in the evening will need to stay overnight. Simple painkillers such as paracetamol or ibuprofen can be taken although will seldom be needed for more than 24 hours. Some tenderness, bruising and skin discolouration may occur for up to 10 weeks after the procedure. This is normal and will resolve. As with conventional varicose vein surgery, there is a very small risk of a deep vein thrombosis and pulmonary embolus (a clot in the lung). If the leg becomes excessively painful, then you should contact your GP immediately for advice. There is also a risk of bruising to a superficial nerve (see Surgery section below) although this is minimized by the use of local anaesthetic around the vein. Depending on the extent of the varicose veins, some patients may have some residual visible veins; if necessary these could be treated at a later date with injections. You should avoid flying for 4 weeks after the procedure.

#### *Follow-up*

You will be seen in the outpatient clinic around 6 weeks after the procedure at which time you will have a follow-up ultrasound scan. Further information on ClosureFast is available from Medtronic at <http://medtronicendovenous.com/patients/7-1-closurefast-procedure/>.

#### **4. Ultrasound-guided foam sclerotherapy**

NICE recommends this a treatment option if endothermal ablation (heat treatment) is not suitable.

#### *Background*

Injections have been used to treat varicose veins since the mid 19<sup>th</sup> century, usually using a detergent solution. This treatment became very popular in the 1960s and 1970s, but has declined over the last 20 years because of research showing that surgery was better than injections in most patients with larger varicose veins. However, a number of trials over the last 15 years have studied a newer type of injection using a foam solution. The main advantage is that no general anaesthetic is needed and you can resume your normal activities very rapidly. Not all varicose veins can be treated in this way but I will advise which method is best for you. Only one leg can be treated at a time so you may need to come back to have the other leg dealt with if you have problems on both sides.

### *Procedure*

You will be asked to attend the ultrasound department where I will go through the procedure with you and mark the veins that need to be treated. You will be asked to sign a consent form. Local anaesthetic is sometimes used to numb the main injection sites although often this is not needed. The procedure is not painful although some patients do experience some aching in the leg for a few minutes. After the foam has been injected, the leg will be bandaged and an elastic stocking fitted. This is important as it helps to keep the vein closed to prevent it refilling with blood. After the treatment is finished, please walk for about 15 minutes when you leave the treatment room. It is preferable for a relative or friend to drive you home after the procedure. Smaller varicose veins can sometimes be treated in the outpatient clinic without ultrasound imaging.

### *After the procedure*

You will be able to resume your normal activity such as work or driving the following day, although you should avoid strenuous exercise for 72 hours. Some discomfort is expected after the third day or so. Simple painkillers such as paracetamol or ibuprofen can be taken, or you could use an anti-inflammatory gel. The bandages should be removed at 5 days; after this you should wear the elastic stocking for a further 2 weeks during the day when you are up and about. Around one third of patients may need a second treatment to deal with any remaining veins. You will be given a follow-up outpatient appointment. You should avoid flying for 4 weeks after the procedure.

### *Are there any side effects or complications from this treatment?*

Some tenderness, bruising and lumpiness may occur for up to 3 months after the procedure. This is normal and will resolve- it means that the treatment has worked! 30% of patients will have some darkening of the skin over the injection site and in 5-10% of cases this might be permanent. Many thousands of patients have been treated with this technique. There is a very small risk of a deep vein thrombosis (5:1000), although this is less than with surgery. If the leg becomes excessively painful, then you should contact me or your GP for advice. Some people have experienced temporary chest tightness, headache, dry cough and visual disturbances. Very rarely patients might suffer a heart attack, stroke (including mini-strokes) or a fit. Further information from NICE can be found at <http://www.nice.org.uk/guidance/IPG440>.

## **5. Surgery**

This is now generally reserved for those patients who are not suitable for other treatments.

### *Before your operation*

You will be contacted with specific details about your admission time. If your operation is planned as a day case, you will be able to go home later that afternoon. If your operation is scheduled for late afternoon or evening, then you will be able to go home the following morning. You should stop the oral contraceptive pill at least 4 weeks before your operation. This will be discussed at your outpatient appointment. On admission, the anaesthetist will explain the general anaesthetic to you. The groin area (for operations to deal with this valve) and any hair in the affected leg will need to be shaved. I will see you and mark your veins with an indelible pen. This helps us find your veins while you are asleep. You will need to sign a consent form. You will be given a single injection under the skin (tinzaparin) to help prevent deep vein thrombosis.

### *The operation*

The operation is in two parts (in some patients only the second part of the procedure may apply). Firstly, the cause of the varicose veins is dealt with by making an incision in the groin and/or behind the knee to tie off the vein containing the leaking valve as well as its branches. The vein is then stripped by inserting a fine metal rod into the vein at the groin which is brought out through a small skin incision (3 to 8 mm long) just above or below the inside of the knee. The vein is tied to the rod and removed by turning it inside out. In the case of a leaking valve behind the knee, we do not usually strip the vein out. The incision is closed with an absorbable stitch, which does not need removing. Local anaesthetic is injected into the wound to reduce post-operative pain. The aim of the procedure is to prevent varicose veins recurring by dealing with the underlying cause.

Secondly, the marked veins in the thigh and calf are then removed through tiny incisions about 2 to 7 mm in length, depending on the size of the veins. If your varicose veins are extensive, there may be quite a lot of incisions. These incisions will be closed with paper tape (Steri-Strips). It is quite normal for a little bleeding to occur through these incisions. The legs will then be bandaged tightly.

### *After your operation*

You will be prescribed painkillers, although often the pain is not bad enough to need these regularly. The nursing staff will remove the bandages the following morning and fit a compression stocking. This should be worn day and night (except for washing) for the first week, after which it should be used during the day only for a further 2 weeks.

You can walk as soon as you are able and should aim for frequent walks. You should avoid driving until there is no discomfort in the leg i.e. until you are safe to do an emergency stop. Otherwise, you may return to normal activity when you are ready. This will depend on your

occupation and lifestyle. If your job involves prolonged standing or driving, then it would be sensible to have 2 weeks off work. You should avoid flying for 4 weeks after the procedure.

There is often quite a large amount of bruising in the thigh after the operation (from stripping of the vein), which may take 3 to 4 weeks to resolve. Most people find the leg uncomfortable, rather than painful and this usually lasts for no more than 2 to 3 weeks. No matter how carefully the operation is performed, there is a small risk of skin nerve damage during the operation (about 5%). This can lead to tingling or numbness in part of the leg or foot and rarely can be persistent and distressing. Usually, the sensation gradually improves though it may not return completely to normal. If you have any concerns about this issue, please do not hesitate to ask me.

#### *Follow-up*

You will normally be seen in the outpatient clinic at 6 weeks. At 3 months, the bruising and lumpiness will have gone and you will be left with tiny red lines at the site of the incisions. These may take a further 9 months to completely disappear. Any problems can usually be resolved with your GP. If he or she is at all concerned, then I will be contacted and will arrange to see you.

## **6. New treatments**

### *Mechanochemical ablation (ClariVein)*

This is a newer procedure which is similar in terms of technique to radiofrequency ablation. However instead of a heating catheter being passed up the vein a rotating catheter is used which mechanically destroys the cells that line the vein. At the same time a detergent solution is injected (the same solution that is used for sclerotherapy- sodium tetradecyl sulphate) which chemically destroys the cells. NICE have evaluated this and issued recent guidance approving its use ([www.nice.org.uk/guidance/ipg557](http://www.nice.org.uk/guidance/ipg557)). One of the clear benefits of this technique is that it does not need multiple injections of local anaesthetic along the leg. Bruising is minimal and there is no risk of nerve injury due to heat damage. Side-effects are similar to those described with foam sclerotherapy (see above). Not all insurers will cover this procedure. Further information can be found on the ClariVein at [www.clarivein.co.uk/how-clarivein-works.html](http://www.clarivein.co.uk/how-clarivein-works.html) and <https://www.bmihealthcare.co.uk/treatments/vascular-surgery/clarivein>.

### *VenaSeal*

This is a new procedure which has recently been evaluated by NICE ([www.nice.org.uk/guidance/ipg526/ifp/chapter/What-has-NICE-said](http://www.nice.org.uk/guidance/ipg526/ifp/chapter/What-has-NICE-said)). It uses a similar technique to radiofrequency ablation to get into the main vein to be treated. However instead of heat it uses 'superglue' (cyanoacrylate glue) to destroy the cells that line the vein. Again, there is no need for

multiple local anaesthetic injections around the vein with this technique and patients do not need to use elastic stockings after the procedure. Patients can return rapidly to normal activity. There are risks associated which can include phlebitis (inflammation of the vein), bruising, deep vein thrombosis, pulmonary embolism, skin pigmentation or rash and numbness. Further information on the procedure and risks are available at [www.bmihealthcare.co.uk/treatments/vascular-surgery/venaseal-closure-system](http://www.bmihealthcare.co.uk/treatments/vascular-surgery/venaseal-closure-system) and <http://medtronicendovenous.com/patients/7-2-venaseal-closure-procedure/>.

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