



Peter Y.
Milne

F.R.A.C.S., F.R.C.S. (Eng),
F.A.C.S.

**Vascular &
Endovascular Surgeon**

www.laservein.co

VARICOSE VEINS

The expression VARICOSE VEINS is the medical terminology for describing dilated and tortuous veins. Most varicose veins are visible on the surface of the body the most common site being the lower limb although they can also occur anywhere on the surface of the body or within the body itself.

Varicose veins, affecting the lower limbs, are essentially a phenomenon that tends to run in families but are also aggravated by pregnancy, hormones and other environmental factors. They are not particularly dangerous although they can be painful, unsightly and cause damage to tissues.

Varicose veins can be primary, in other words the inherited variety, or they can be secondary to a previous episode of deep vein thrombosis (blood clot formation in a central vein). They are very occasionally associated with abnormal vessels inside the limb or body. They appear as large bulges under the skin of the body and are ropey and tortuous in appearance. When the limb is elevated they generally collapse leaving grooves in the skin but refill on standing.

Varicose veins are not to be confused with small superficial blood vessels called **starburst veins, burst capillaries, venules or flares**. These have the appearance of a fine tracery of blood vessels and look like bruises or wavy blue lines. They are a separate entity to varicose veins although they often coexist with varicose veins.

LOWER LIMB COMPLICATIONS OF VARICOSE VEINS:

Problems from varicose veins are generally associated with periods of standing, when the pressure in the veins is highest, but activities such as walking and sitting are also aggravating but less uncomfortable. Pregnancy makes varicose veins much more noticeable and uncomfortable.

Problems associated with varicose veins are:

Unsightly appearance from lumps and distended veins with discolouration.

Swelling of the limbs from fluid accumulation, generally around the ankles.

Aching of the limbs from pressure and fluid accumulation in the limbs.

Easy bruising after minor knocks or bumps.

Surface vein formation (spider veins) is more pronounced with varicose veins but harmless.

Discolouration of the limbs with brown staining, from iron deposition, secondary to leakage of blood cells into the skin. Aggravation of surface veins (blue-purple discolouration) can occur .

Dermatitis & itch in the form of an uncomfortable itchy rash (normally around the ankles).

Inflammation occurs from pressure in the veins making them tender and bruised. Also damage to the tissues under the skin leads to inflammation.

Damage to the tissue under the skin of the leg causing **scarring** of the tissue around the ankles. This occurs from damage to the subcutaneous fat (fat necrosis) causing inflammation (**cellulitis**) and thus hardening of the tissues in the calf. This often looks like infection in the calf but is usually only inflammation from tissue damage and fat liquefaction.

Ulcer formation can occur, especially around the ankles. Any abrasion in the presence of varicose veins will take a longer time to heal. Sores and ulcers can occur without injury and just appear spontaneously

Bleeding from veins can occur especially from the lower third of the leg or foot where venous blebs can form. Bleeding can be life threatening unless treated. A bandage and leg elevation prevents catastrophic blood loss.

Superficial Thrombosis: Surface clot formation in the veins themselves, causing lumps and inflammation under the skin, is common but usually harmless. Thigh clots, however, need review promptly if it occurs. Most episodes of surface thrombosis are managed with anti-inflammatories. Although Deep Vein Thrombosis can occur subsequent to surface thrombosis, varicose veins represent only a minimal predisposition to deep vein clots. Thrombosis close to the groin (10 cm) can result in serious complications and needs prompt management with ligation.

Death Bleeding from veins can be life threatening but only if neglected and not managed by pressure and elevation of the leg. The veins that tend to bleed are the purple lumpy veins at the ankles. Thrombosis close to the groin can result in clots breaking off and traveling to the lungs (pulmonary embolism) causing death. Thrombosis in very large leg veins can also propagate and be dangerous.

QUESTIONS PATIENTS ASK:

HOW DO VEINS FORM?

The essential defect is a weakness in the valves or walls of the veins that allows blood to flow in the wrong direction. Veins are supposed to carry the blood from the limb back towards the heart, upwards against gravity. This feat is managed by the presence of valves within the veins themselves, which shut to prevent backwards flow of blood towards the feet. If the valves are defective, faulty or weak then there tends to be backwards flow through the valves in the wrong direction down the vein. This places extra strain on other valves in the vein, which may then also fail. The common area of initial leakage is in the groin, where the large surface vein joins the main deep vein inside the leg. The valve behind the knee is the second most common site of failure followed by smaller veins in the thigh or calf. Failure of valves at these junctions results in excess strain on the vein below, which tends to blow out and also become leaky. This is the reason veins tend to become progressively worse with time. Aggravation is also caused by pregnancy or obesity, which throws additional strain on the valves

in the veins of the lower limbs. As the veins stretch under the additional pressure they tend to dilate, become longer and thus tortuous appearing like a bunch of worms.

WHAT CAUSES VARICOSE VEINS?

The inherited predisposition to valve weakness or vein weakness is the most common cause of varicose veins in the lower limbs. Other causes can be a previous deep vein thrombosis in the leg or a malformation in the blood vessels of the limb, usually the result of a birth defect in the blood vessels. This latter group of varices are called secondary varicose veins.

HOW ARE VARICOSE VEINS TREATED?

Initially management of the symptoms of varicose veins can be by intermittent elevation of the leg, which reduces the pressure in the veins allowing reduction in swelling discomfort. The normal horizontal position of the body in bed at night provides relief from the symptoms of varicose veins.

Elastic stockings can assist with the symptoms of varicose veins by providing external support (compression) to the limb. Unfortunately the stockings are sometimes unpleasant to wear because of tightness and warmth. They are only useful for alleviation of symptoms but they do not prevent varicose veins. The use of elastic stockings may, in fact, make the leg feel less uncomfortable and therefore is of no benefit for the patient. The exception is when they are being used to treat complications like ulcers and acceptance of discomfort is necessary.

Injection treatment of varicose veins is possible for minor superficial varicose veins and for discoloured areas. Injections under ultrasound guidance are also useful for bigger varicose veins or recurrent varicose veins after previous surgery. Injection treatment with coil occlusion of leaky veins is a technology that helps and good results over 5 years. Injection treatment does not require hospitalization. A few hours off work following treatment is all that is required.

Laser, Coiling, Ultrasound Sclerosis or Surgery are still the major means of controlling large varicose veins. The aim of these treatments is to remove refluxing veins (veins flowing backwards) from the limb leaving normal veins untouched.

Various investigations into the use of **laser, electro coagulation, coil occlusion and valve repair** have all been undertaken and treatment decisions are now made after anatomical mapping of veins with Duplex Ultrasound. Non-surgical methods for the control of varicose veins now have a major role in venous disease.

Laser and electrocoagulation combined with injection treatment are effective and enable outpatient treatment but complications are similar to surgery.

Comfort is now much better after treatment for varicose veins.

AIM OF SURGERY AND OTHER TREATMENTS:

The treatments for varicose veins are designed to ligate or occlude points of venous valve failure and extract or obliterate the varicose veins in the limb(s), by surgical and/or minimally surgical technologies (Sclerotherapy or Laser). The techniques are known as "ligation, puncture and extraction", "laser and

sclerosis", "ultrasound guided sclerotherapy" or "coiling (clips). Surgical removal of the surface thigh vein or calf vein, when done, is performed by invaginating the vein rather than "stripping" the vein. This technique allows for reduced trauma and a faster recovery than the old technique of "stripping". The Laser and Sclerosis methods allow more prompt return to normal activity. The preoperative ultrasound (duplex scan) is to identify all the points of valve failure so as a few as possible valve leaks are missed at surgery. At present these techniques have resulted in a 95% rate of "cure" for high-pressure varicose veins over 5 years. Follow up ultrasound and/or injection therapy is sometimes required

When you have an operation, you can expect an incision, approximately one to three centimeters long, over the site of leaking valves. These are generally at each groin and less frequently behind the knee. Some of the incisions for extraction of the varicose veins themselves will be approximately 1/2 to 1 millimeters in length and will be closed by single suture or adhesive tape. Most extraction sites are small punctures (less than 1 mm) and will not require any suture or closure at all. Firm compression bandages are applied at completion of surgery for 2 days. Only minimal blood loss occurs with this surgery so transfusion is not considered a possibility. The hospital time for surgery is in the range of one to two days, depending on comfort. Stockings are used for up to 2 weeks or as little as two days.

Laser treatment can be carried out in or out of hospital and only takes 2-4 hours out of your day. A shorter period of bandaging (overnight) and minimal changes to your mobility makes this method appealing. The lumpy veins however take longer to absorb. No Incisions are required just needle punctures.

All treatments are 99.9% safe there being a less than 1:3000 chance of further hospital admission for thrombosis or infection. All treatment modalities are of similar risk. The risk of loss of life or limb from complications of surgery is extremely small (<1:100,000).

ARE VARICOSE VEINS DANGEROUS?

Rarely. The only dangerous complications of varicose veins are clot (surface thrombosis) ascending up the thigh towards the groin in the main surface vein and bleeding from bubble like varicose veins around the foot and ankle. Thrombosis is rare and easy to notice because of pain and a firm lump in the thigh. This complication requires urgent surgery. Bleeding can occur if a small vein gets injured usually towelling dry after a shower. This can open a small vein and lead to substantial blood loss. First aid is leg elevation and immediate compression with the thumb followed by a firm bandage. Either of these complications can be lethal. You will be advised if either of these complications is likely at the time of your consultation.

ARE VARICOSE VEINS CURABLE?

Not really. Large varicose veins are usually curable with surgery for a 10 year interval. Injection treatment alone is not normally able to cure large varicose veins. With ultrasound mapping, surgery is now able to cure large varicose veins in 95% of patients for at least 5 years. Varicose veins do tend to recur with pregnancy, obesity, other illnesses and with time. Recurrences are often manageable by sclerotherapy. The smaller "spider veins" (venules) and surface varices recur throughout life and are only manageable by repeated treatment

with injections. One can liken this management to regular "haircuts" but less frequent as the injections are usually good at clearing veins for a couple of years at a time.

SHOULD I HAVE MY VEINS FIXED ?

The indication for varicose vein surgery is **patient request**, except for dangerous circumstances like thigh thrombosis or bleeding. The main purpose of treatment is to manage the complications and symptoms mentioned on page one. It is essentially **100%** safe to keep ones varicose veins unless thigh thrombosis or bleeding occurs. These two complications are (very rare).

Varicose veins are associated with a extremely small risk of thrombosis of the deep veins (**Deep Vein Thrombosis**) under normal conditions. Air travel, long bus or car trips may predispose to deep vein thrombosis but this is not a reason to have one's varicose veins treated. Surface thrombosis in the varicose veins is not uncommon but is usually harmless but painful.

It is never too late to request treatment, as age is not a contraindication to treatment. Recurring ulceration, pain or bleeding often drives people to surgery but most operations are elective.

WILL I HAVE ENOUGH VEINS LEFT AFTER SURGERY?

The deep veins inside the leg are the main system for blood transport back to the heart and these are not involved in varicose vein surgery. These deep veins however, are put under additional strain by the leaky surface varicose veins so removal of the abnormal surface veins actually lessens the load on the deep system inside the leg. Therefore varicose vein surgery reduces the strain on other leg veins.

WILL I NEED MY VEINS LATER IN LIFE?

You may! The use of the leg vein, for leg bypass, remains the best way of saving legs from gangrene secondary to blocked arteries. People that can expect to have this problem are **smokers** and **diabetics**. The use of leg vein for heart bypass is no longer common, as other vessels are now used for this type of bypass. For diabetic patients valve repair may be a preferable option. For smokers cessation of this poison is always advised not only to make surgery safer but also to reduce the likelihood of death or limb artery disease.

WHICH TREATMENT IS BEST FOR ME?

Your initial consultation with your vascular surgeon is the time to ask about the best option for treatment. For very large, complicated varicose veins surgery is still the quickest and most comfortable method of treatment. For most people with varicose veins without complex problems Laser ablation and other interventions are more attractive options as they do not involve significant hospitalization times or no hospital requirement at all.

The different treatment options, their side effects and advantages are discussed at the time of your consultation.

All therapies are of equal safety (99.9%) but side effects are different. Laser and sclerotherapy are usually less uncomfortable than surgery.