**Information Sheet** 

# Varicose Veins

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### VARICOSE VEINS

#### INFORMATION FOR PATIENTS WITH VARICOSE VEINS

Veins in the legs are arranged in two systems. The deep system carries the majority of blood, deep within the muscle. The superficial system is a system of veins just below the skin, and these normally carry only a *small amount* of blood. In the legs there are two systems of superficial veins: *the long saphenous system*, and *the short saphenous system*. Both systems terminate in the deep vein at a T-junction in the groin and behind the knee. At the T-junction there are major one-way valves, which allow blood to flow towards the heart.



Varicose veins, Venous anatomy and Leg ulcers.

Incompetence of the T-junction valve is the cause of varicose veins. Once the valve becomes incompetent, *large volumes* of blood leaks back through the T-junction into the superficial veins under high pressure. This *extra volume of blood* remains in the leg causing congestion, heaviness and other symptoms, and results in dilatation and elongation of the veins, which are then known as **varicose veins** (*see diagram above*). This gradual increase in size and number of veins may take many years. Venous insufficiency occurs when the leg veins do not efficiently return blood back to the heart and may predispose to leg ulceration.

Varicose veins are associated with strong **family history/genetics**, increasing age, obesity, pregnancy, female sex and hormonal changes, smoking, occupations involving prolonged standing, previous deep vein thrombosis, and some other factors

Varicose veins are dysfunctional veins and are not healthy veins; their removal improves symptoms and has no adverse effect on the body.





An incompetent venous valve that allows blood to flow backwards in the vein which then becomes varicose, dilated and tortuous. This is an unhealthy vein that is unsightly and may results in significant symptoms and ulcers.

Venous valve anatomy and valve function.

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#### WHY ARE VARICOSE VEINS IMPORTANT?

Patients with varicose veins are concerned about the *appearance* of veins and their *tendency to get worse*, symptoms may be quite distressing and worsened after prolonged standing, but there are also very important complications of varicose veins that may be considered.

- 1. Aching, Discomfort, Itching, Swelling and Abnormal sensations. Aching, discomfort and swelling are common symptoms in patients with varicose veins. Some patients may also experience swelling and numbress or pins and needles in their legs.
- 2. **Pain, Burning, Throbbing and Muscle Cramps** are major symptoms. If pain is a symptom it may be difficult to tell whether varicose veins are responsible; *wearing a compression stocking may be a valuable diagnostic test*. If symptoms are relived by the stockings then getting rid of the varicose veins may help in the majority of cases, but this is not a guarantee as there may be other causes of pain.
- 3. **Blood clots/Venous thrombosis/ Phlebitis.** Phlebitis is redness, pain and tenderness in the overlying skin due to blood clots in the superficial.
- 4. **Bleeding.** Bleeding usually occurs after minor trauma, because of the increased pressure in the veins. Bleeding from varicose veins may potentially be life threatening.
- 5. **Skin changes.** The pressure of blood in varicose veins affects the circulation in the lower leg, and together with the pooling of venous blood, this can produce *unhealthy skin changes* ranging from *eczema to brownish/black discoloration* of the skin and finally ulceration.
- 6. Ulceration. Leg ulcers usually occur as a result of very minor trauma in an area of diseased skin and changes as a result of varicose veins(*see picture*).

#### TREATMENT OF VARICOSE VEINS - GUIDELINES

Only around 10% of varicose veins consultations actually need hospital treatment. Recently the National Institute of Clinical Excellence (NICE) in the UK, suggested referral guidelines for specialist assessment and treatment (e.g. bleeding, a past history of bleeding, ulcer, skin changes, superficial thrombophlebitis and symptoms which affects the patient's quality of life). *In general treatment is not indicated simply for cosmetic reasons and for spider veins or thread veins.* Treatment depends on patients and their symptoms. Surgery has been the conventional treatment for patient's whose symptoms are attributable to varicose veins, but there are a few other options for treatment.

- 1. No intervention.
- 2. Graduated compression stockings.
- 3. Surgery.
- 4. Endovenous Laser Therapy
- 5. Injection Sclerotherapy

#### STOCKINGS

Stockings function as an external valve.

Therefore all symptoms, apart from cosmetic improvement, can be managed by wearing graduated compression stockings. These are specially made and measured stockings, which compress varicose veins with external pressure, keeping the veins collapsed. Stockings may also be a valuable diagnostic test; if stockings relieve symptoms, then varicose vein surgery would similarly help, but if they do not, then the surgery is also unlikely to help.

Stockings are *not* associated with the risks of surgical surgery.



Stockings compress veins to encourage venous return.

#### SURGERY (ligation, stripping and avulsions).

Surgery for varicose veins is performed in two stages. Surgery is performed with an incision, either in the groin or behind the knee, and the superficial system is **ligated** (disconnected) from the deep veins. The second stage is **stripping** to remove the main vein. Avulsions involve a series of 2-5 mm incisions over the varicosities, where the veins are **pulled out** whilst minimising the amount of scarring in order to reduce the size and number of dilated veins under the skin. It is impossible to remove all the veins visible in the skin as they are part of an infinite network of veins and one or two varicosities may therefore be left after any form of varicose vein surgery. Recovery is usually complete and takes **one to two weeks**.

#### THE RISKS OF VARICOSE VEIN SURGERY

Surgery for varicose veins, like any other operation, carries significant risks, which must be evaluated in weighing up the risks and benefits for treatment of varicose veins.

- 1. **Deep vein thrombosis**. Deep vein thrombosis or DVT is an important complication of any type of surgery. The incidence of DVT after varicose vein surgery is small, but this may be higher if you have had a previous thrombosis or you have a family history of DVT and it is important to let your surgeon know this. DVT causes pain and swelling in the leg and in a small proportion of cases it can result in a clot breaking off and travelling to the lungs, which can be *fatal*.
- 2. Nerve injury. Nerves supplying sensation to the skin in the leg run close to the varicose veins, these can be bruised or damaged during surgery. In the early stages up to 1 in 5 patients will have altered sensation and in most cases this recovers completely after approximately 6 weeks, however a small proportion of these (<5%) will continue to have altered sensation, which may be permanent.
- 3. **Bruising**. Bruising occurs to everyone undergoing venous surgery and is usually self limiting.
- 4. **Scarring**. All patients who have open varicose vein surgery have incisions made and these may have an intense reaction to healing, which may take many months to fade.
- 5. **Infection.** Infection of the incision wounds can sometimes occur and this may need treatment with antibiotics and prolonged dressings.
- 6. **Recurrence**. Recurrence of varicose veins is a late problem that can occur after varicose vein surgery. Over a lifetime about **5-10%** of patients will develop recurrence of varicose veins after surgery. This is because surgery only treats the veins that are present at the time and cannot protect against the development or progression of reflux in the valves of the superficial veins.
- 7. **Pain**. The procedure is associated with pain that lasts for about *one to two weeks* in most cases.
- 8. **General Anaesthetic**. Varicose vein surgery requires a general anaesthetic and this is associated with a low, but definite risk, of anaesthetic complications, including death.

#### ENDOVENOUS LASER THERAPY (EVLT)

EVLT is a relatively new procedure to treat varicose veins using laser energy. This procedure is performed in an **office or clinic setting,** following assessment with **duplex ultrasound** to identify abnormalities of the saphenous vein and to accurately determine vein diameter. EVLT is performed by using ultrasound guidance to access the vein, through a small puncture under **local anaesthetic**. A sterile bare tipped 600-micron diameter, 980-J laser fiber is then positioned into the vein. Confirmation of the position of the laser tip is done using ultrasound. The tissue surrounding the vein is then infiltrated with anaesthetic. After firing the Laser, the vein is compressed to oppose the vein walls, and aid in the obliteration of the lumen. The, the laser energy causes destruction and closure of the faulty veins and valves that cause venous reflux, thereby relieving the symptoms of varicose veins. The use of **EVLT** is a method that *does not require general anesthesia, and avoids the risks* (*including death*).

The procedure is performed on an **outpatient** basis, and requires **only few tiny incisions**. It produces **good clinical and cosmetic results**. EVLT treats the main trunk of the vein does not treat smaller veins in the lower leg, and does **not** treat spider veins, but many of these resolve after EVLT, or can be treated with injection sclerotherapy. EVLT is associated with much **less pain, and less surgical scars** than for conventional surgery. Laser also requires **less analgesia**, and patients have **early recovery, early return to work**, and **normal activity**. Successful treatment of the vein occurs in over 98 % of patients. Most patients have **complete resolution of symptoms** and **improvement in the severity** and **cosmetic appearance of their legs**.

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Compression stockings are worn for 2 week postoperatively, and patients are encouraged to resume normal activity (including driving) as soon as possible after the procedure. The short-term results of EVLT are excellent, and the complications with this therapy are minimal. Anticoagulants are given to minimize the risks of DVT. Precautions are taken to minimize risks, and risks are generally less with Lazer compared to conventional surgery. Laser treatment is safe with fewer risks and acceptable midterm results.

#### Complications

- Some bruising and mild discomfort can be expected and are treatable with simple painkillers.
- Only few patients have pain that lasts longer than 1 week and require painkillers.
- There is a small risk of deep vein thrombosis, but less than for open surgery.
- Nerve injury is uncommon (<1%).

#### INJECTION SCLEROTHERAPY AND ULTRASOUND GUIDED SCLEROTHERAPY

Ultrasound guided injection sclerotherapy is an important adjunctive procedure to EVLT and is performed routinely. Some people have small spider veins or larger veins not associated with major valvular incompetence, these are very common in the general population. These veins do not cause major symptoms and treatment may be for cosmetic reasons. The procedure is performed by first carefully marking the veins that will be injected using ultrasound guidance, and then a small amount of sclerosant will be injected into the veins. The success of injections depend on the application of bandages to your legs, and you may be required to wear bandages continuously for up to two weeks, however, repeat courses of injections may be necessary. If your veins are suitable for injections, a better clinical result may be obtained using ultrasound guidance.

It is important to understand the risks of the procedure. Injection sclerotherapy may cause trapped blood, skin pigmentation, matting, ulceration and scarring that may be worse than the actual veins that are present if done purely for cosmetic reasons'. There is also a small risk of allergic reactions, inflammation and DVT. Finally, injection sclerotherapy may fail to obliterate the vein and may also carry a risk of recurrence; this can occur at any time or place on the leg.

#### WHICH TREATMENT IS BEST?

Most people with varicose veins will need a treatment plan that is individualized based on the specific findings of the scan results. However, a recent study with ultrasound follow-up demonstrated success rate for treatment of varicose veins was highest for Endovenous Laser treatment (94%), compared to 78% for surgery, and much lower for injections alone. (Van den Bos, 2009)

#### VARICOSE VEIN SURGERY

#### WHAT TO EXPECT

The majority of varicose vein surgery can be done as a day case or overnight stay. Patients visit the hospital in the morning of their surgery and they are ready to go home in the evening or next morning. *Pain* is sometimes an issue after surgery for up to one to two weeks, and analgesia is often prescribed. Mobilisation and activity is important after surgery to maintain venous flow in the deep veins and therefore minimise the chances of **DVT**.

In general for single leg first time surgery, most patients would be **able to return to work within one to two week** of surgery, although it is probably often sensible to advise your employer that you will be away for 2 weeks, so that early return is a benefit rather than a necessity. Surgery on both legs or re-do surgery may require more time off work, but all types of surgery *despite surgical site pain* require increased **physical activity** in order to minimise the risk of a DVT. After surgery you will need to wear compression stockings for a few weeks and there will be a tendency to ankle swelling for a time. Most patients would be normally functioning and happy with the appearance of the legs after about **6-12 weeks**. Surgery is performed with absorbable sutures and therefore there are no stitches to be removed. Surgery will cause **visible scars** but the wounds continue to mature for many months after surgery and in most cases become flat, pale scars, which may be difficult to see.

#### EVLT

After EVLT and injection sclerotherapy patients are required to wear a compression stocking to encourage venous closure and minimize the risks of DVT. *Pain* is not usually an issue, but regular simple analgesia for a day or so (e.g. paracetamol or ibuprofen) is usually sufficient. Patients are also encouraged to return to normal routine as soon as possible, but heavy lifting is discouraged. As a general anaesthetic is not involved, after EVLT patients are encouraged to return to and drink as normal, and are allowed home the same day and advised to return to normal activity at their convenience.

#### INFORMATION FOR PATIENTS FOLLOWING VARICOSE VEIN SURGERY

The nursing staff is dedicated to ensuring your comfort after your operation. Although your individual operation may differ from other patients, the basic principle is the same.

#### AFTER YOUR OPERATION

#### Stockings

-When you wake up from your operation you will have a padded bandage on your leg.

- -On the day following your operation, or prior to discharge this bandage will be removed and a compression stocking applied.
- -The stockings need to be worn day and night for the first 7 to10 days, and then during the day only for the next 4 weeks. Always wear your stockings when standing for long periods.

-These stockings are easily washed in soapy water.

-You may have a bath or shower 6 days after the operation, but don't forget to reapply your stockings.

#### Wounds, Dressings and Stitches

You may have stitches on the back of your knee or in your groin, which may dissolve. The Nurse discharging you will discuss what type of stitches you have. Occasionally a small spike may appear either side of the wound; this will come away by itself. Do not pull them out. The wound may be left undressed after 6 days (following your bath or shower).

You will have tiny wounds on your legs closed with steristrips (butterfly stitches). These come away gradually and sometimes leave a tiny hole - do not worry, they can be left unless they bleed, in which case apply a Band Aid or elastoplast dressing. You may remove the remaining bits of paper after 10 days.

#### Rest, Exercise and Activity

Try to walk around short distances on several occasions during the day. You must not drive post operatively after a general anaesthetic. To ensure you are fit to drive safely you must be able to perform an emergency stop without pain. (This is a requirement for insurance purposes, phone your insurance company for advice).

It will be necessary for you to have a minimum of 1-2 weeks off work depending on your surgery. You can discuss this with the doctor on the day of your operation.

#### Air Travel

The available evidence suggests an association between long distance travel and the development of venous thromboembolism. It is therefore generally advisable to avoid flying or any other risk of thrombosis for over 4 to 6 weeks after surgery (including EVLT). Those undertaking air travel are at greater risk for journeys greater than 8 hours long, and for patients with a previous history of deep vein thrombosis (DVT). Inactivity plays a major role in its causation.

Keeping well hydrated with fluids and avoiding excessive alcohol is important. Ensure movement of toes, ankles knees and hips and deep breathing. Aspirin and support stockings provide some prophylaxis to deep vein thrombosis and should be encouraged. A form of injectable Heparin is also useful for high-risk patients.

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