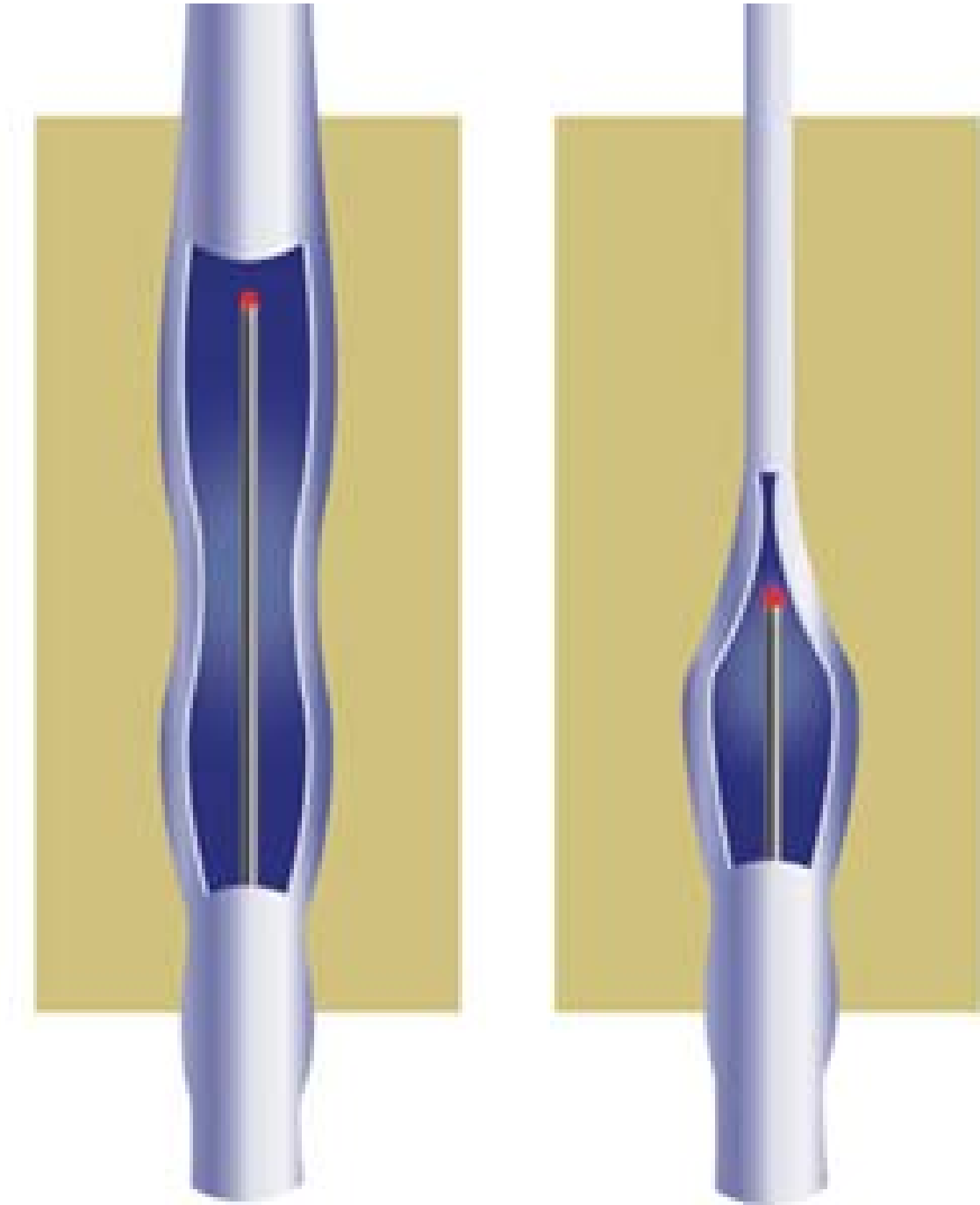


Minimally Invasive Laser Treatment of Varicose Veins



Mr. Matthew Claydon
Vascular and Endovascular Surgeon

M.B., B.S.(Hons), B.Med.Sci.(Hons)
F.R.A.S.C.S.(General), F.R.A.C.S.(Vascular)

Website: arteryandvein.com.au
Email: info@arteryandvein.com.au
Phone: 9576 1491
Pager: 8508 9000

The Disease

There are two systems of **veins** which drain the blood out of your leg – the *deep system* and the *superficial system*. The **superficial system** has two main veins (called the long saphenous and the short saphenous vein), and these have multiple branches. See figure 1. The two main systems are connected to each other at the groin and behind the knee at the **sapheno-femoral** and **sapheno-popliteal** junctions respectively. There are a number of **valves** in the veins and at the junctions to prevent blood running back into the leg. These valves are very thin and quite fragile.

Varicose veins usually occur when the valves in the superficial system fail (becoming *incompetent*), allowing blood to flow backwards (*reflux*) into the leg. This creates higher pressures, causing the veins become wider and longer - **varicose veins**.

There are occasionally rarer causes of varicose veins.

The increased venous pressures can force blood cells out into the subcutaneous fat under the skin, causing colour change, inflammation, pain, thickening and ultimately ulcers.

Symptoms and Complications of Varicose Veins

- **Ache** after prolonged periods of standing.
- **Bleeding** when the skin over the large varicosities is broken with minor trauma.
- **Cosmetic** – multiple varicosities, spider veins and reticular veins have a cosmetic impact.
- **Superficial Thrombophlebitis** – a condition where a blood clot forms in a varicose vein, resulting in inflammation and pain.
- **Deep Vein Thrombosis (DVT)** – can occur if the clot from the superficial thrombophlebitis spreads into the deep system.
- **Lipodermatosclerosis** – a permanent staining of the skin, associated with thickening.
- **Ulceration** – can result in infection and limb loss in rare cases.

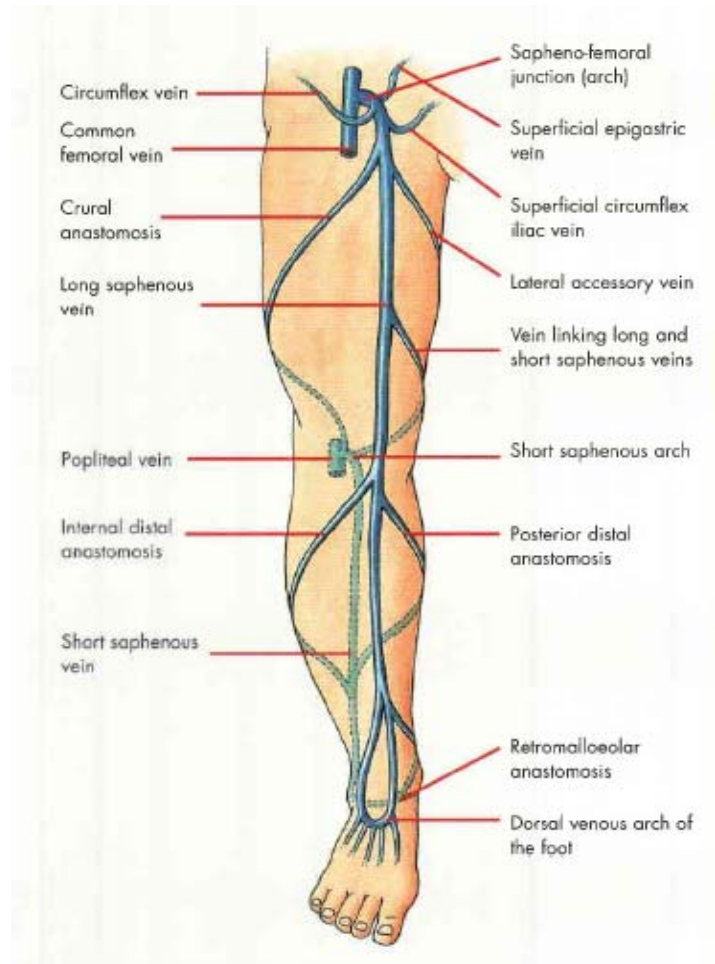


Figure 1. The Venous System



Figure 2. Minimally Invasive Laser Treatment



Treatment Options

The required treatment depends on the system/s affected, the exact nature and anatomy of the problem, previous treatments and your preference.

Treatment options include:-

- **Compression Stockings**
- **Surgery.**
- **Injection Sclerotherapy.**
- **Ultrasound guided Injection Sclerotherapy**
- **Endovenous laser or Radiofrequency Ablation**
- **Combinations** of the above.

Endovenous Laser (EVLT)

Endovenous Laser allows for the **minimally invasive walk-in walk-out** treatment of many cases of varicose veins **without surgery** or a general anaesthetic. It is usually combined with ultrasound guided injection sclerotherapy.

The treatment has 2 main parts:-

- The Laser treatment
- Compression

EVLT involves the application of a laser to the interior of the saphenous vein via a thin probe introduced via a needle puncture into the vein under **ultrasound** guidance under local anaesthetic. See *Figure 2*. The laser applies focal heat to the blood and the vein wall, causing the vein to close. This prevents any reflux feeding the varicosities.

Local anaesthetic is injected at the initial puncture site, and also along the length of the vein. **Ultrasound** is used to precisely puncture the vein and position the laser probe in the vein.

External **compression** (bandages and stockings) is then used to push the walls together and allow the vein to occlude. The compression stockings are required for several weeks.

Walking is commenced soon after the procedure to prevent complications.

Expectations

After EVLT, the treated veins will feel hard, with some associated redness and tenderness. There is often some minor bruising around the injection site, as well as a 'pulling' sensation along the length of the vein. These symptoms may take 3 - 6 weeks to resolve and are controlled with simple analgesia.

Residual varicose veins and spider veins may require injection sclerotherapy at subsequent visits.

Good results at least equivalent to surgery are reported after at least 15 years of experience with EVLT world wide.

Contra-Indications

Not all cases of varicose veins are suitable to EVLT. Relative contra-indications to the procedure are:-

- Large or extensive varicosities (multiple treatments required)
- Inability to perform regular walking.
- Pregnancy or lactation.

Possible Side Effects

The procedure is usually very well tolerated and safe. Occasionally complications occur, the more common or important side effects of the treatment include:

- **Unusual taste** during the procedure – transient.
- **Allergic Reaction** to medications given - very uncommon. Very rarely this is life threatening. The facilities in which EVLT is performed are attached to a major hospital for safety.
- **Pigmentation** - Brown pigmentation occasionally occurs along the line of the vein and usually fades over time (up to 2 years) but occasionally is permanent. Some skin types are more prone to this.
- **Burns** - along the line of the treated vein have been reported - Rare.
- **Deep Vein Thrombosis (DVT)** - The small risk of this complication is reduced by the use of procedural clexane (blood thinner), application of **compression stockings** and regular **walking**.
- **Pulmonary Embolus (PE)** – Part of a DVT can detach and traveling to the lungs. Estimated to occur in 1 in 10 people with a **DVT**. Can be life threatening.
- **Recurrence** - The recurrence of varicose veins is ubiquitous for all forms of treatment. Treatment of recurrent veins after EVLT is easier than after surgery.

