



# New treatments for varicose veins

New technologies are constantly emerging that successfully treat varicose veins, banishing them for good. Here, Professor Mark Whiteley provides an overview of the options available.



Visible varicose veins affect approximately 15% of the adult population. They are usually caused by venous reflux (blood travelling backwards) in the veins of the legs and pelvis. This reflux is primarily due to the failure of valves in the veins. A further 15% of adults have reflux in these same veins, but no visible varicose veins. This has several medical names including 'superficial venous reflux' (SVR). In 2011 I introduced the term 'hidden varicose veins' in my book *Understanding Venous Reflux: The Cause of Varicose Veins and Venous Leg Ulcers*.

It is now recognised that venous reflux deteriorates to cause leg symptoms (aching, heavy or tired legs)

Many people still regard 'varicose veins' as a cosmetic problem. In the UK this is compounded by the fact that we do not train vein specialists – venous surgeons or phlebologists. Varicose vein treatments are left to 'vascular' surgeons (arterial specialists), general surgeons, radiologists or other doctors who want to 'have a go'.



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or signs (venous eczema, hemosiderin, lipodermatosclerosis, bleeding, phlebitis or leg ulcers).

The principle of treatment is to stop the venous reflux. Before 1999 this entailed surgical ligation and stripping the incompetent veins. However, our research from 2007 and 2015 has shown the veins grow back without valves, and so the reflux recurs.

In March 1999 I introduced Endovenous Thermoablation (EVTA) into the UK. A catheter is passed up the target vein under ultrasound control. Local anaesthetic 'tumescence' is injected liberally around the vein which is then destroyed by heat. Our research has shown this to be achieved by both contraction of the protein and death of the cells in the vein wall.

The commonest methods of EVTA are Radiofrequency Ablation (RFA) and Endovenous Laser Ablation (EVLA). Steam Vein Sclerosis (SVS) has been around for some years. This year we introduced Endovenous Microwave Ablation (EMWA) to the UK. There are different devices for RFA and EVLA and it is beyond the scope of this article to go through the pros and cons of each device.

EVTA is used to close truncal saphenous veins, and in more specialised vein units to close incompetent perforator veins by TRansLuminal Occlusion of Perforators (TRLOP).

Incompetent pelvic veins that can cause leg varicose veins (our research

shows 17% of women and 3% of men presenting with leg varicose veins) are usually treated by coil embolisation using metal coils, often with foam sclerotherapy. There are intravascular 'plugs' and cyanoacrylate glue, but coils are by far the most popular devices.

More recently, Companies have been trying to achieve endovenous ablation but without heat to save giving tumescence. Foam sclerotherapy is used widely, although both laboratory and clinical research shows poor results in larger thick-walled veins. It is best reserved for small thin walled veins rather than truncal saphenous veins.

Mechanochemical ablation (MOCA) combines mechanical damage to the truncal saphenous vein wall with sclerotherapy, both performed simultaneously through one catheter. The mechanical damage allows the sclerosant deeper into the vein wall, giving better results than foam sclerotherapy alone. The most recognised MOCA device is Clarivein.

Cyanoacrylate glue (super glue) can be applied by ultrasound guided catheter. the glue immediately closes the vein and destroy it by a foreign body reaction.

The latest treatment for varicose veins is totally non-invasive and called Sonovein. High intensity focused ultrasound (HIFU) is beamed across the skin and focused on the target vein, causing thermoablation. I performed the first Sonovein treatment in the UK in May 2019. 

