INTRODUCTION

Varicose veins is one of the most common conditions seen in a vascular surgery practice, with the resultant venous hypertension and venous hypertensive microangiopathy, phleboedema, induration of the vessels in the distal leg, thrombophelibitis, and ulceration in untreated varicosity (Vanhoutte PM, et al.1997). Epidemiologic prevalence estimates of varicose veins vary widely depending on the population studied, but are highest in western populations with 20% to 25% of women and 7% to 15% of men having visible varicosities (Sisto T, et al. 1995) (Callman MJ.1994). Acute manifestations, such as deep venous thrombosis and pulmonary embolism are serious complications (Dalen JE, et al. 1975). And the chronic form of the disease results in high socioeconomic costs due to long hospitalization and work disability (Callman MJ. 1992). Incompetence of the great saphenous vein (GSV) is the most common cause of varicose veins; however, the small saphenous vein (SSV) has valvular insufficiency in up to 20% of affected limbs (Englehorn CA, et al. 2005).

Until the past decade, truncal saphenous incompetence was most commonly treated with high ligation and stripping. Although an effective treatment, surgical ligation and stripping requires general or spinal anaesthesia. Postoperatively patients often have significant discomfort and bruising and routinely require narcotic analgesia. A desire to offer patients who have varicose veins a less painful treatment alternative to stripping, with a faster return to work and

normal activites, led to the development of endovenous thermal ablation techniques.

In 1999 Radiofrequency (RF) was the first endovenous technique that gained Fedral Drug Administration (FDA) approval for treatment of the GSV (Goldman MP.2000).

Endovenous laser therapy of the GSV has been proven to be safe, with long-term results comparable or superior to traditional high ligation and stripping(Min RJ, et al.2003) (Ravi R, et al.2006) (de Mederios CA, et al.2005). Closure of the GSV by duplex ultrasound was 93% in a study of 499 limbs 2 years post-EVLT(Min RJ, et al.2003), and in a series of 990 limbs followed for 3 years only 3.3% of limbs showed recanalization of the great GSV saphenous vein.

Most published studies focus on EVLT of the GSV, although some centers have confirmed the efficacy of EVLT of the SSV and the paucity of serious complications(Ravi R, et al.2006) (Proebstle TM, et al.2003).

Multiple studies have demonstrated that both endothermal techniques, RF and EVLT, are safe and effective. Each procedure has its own proponents, with supporters of EVLT citing higher recanalization rates with RF, and proponents of RF citing greater patient discomfort than with EVLT. Both procedures offer significantly decreased pain and bruising compared with stripping,

with an earlier return to normal activites (de Metrios CA, et al.2005)(Lurie F, et al.2003).

A newer application of endovenous therapy for venous disease is the treatment of incompetent perforator veins (IPV). Alternatives for perforator treatment include open surgical ligation, subfascial endoscopic perforator ligation (SEPS) and the ultrasound guided foam sclerotherapy. The SEPS procedure requires a general anaesthetic and multiple incisions. Given the rapid evolution in the treatment of venous insufficiency, the next step in perforator ligation is the development of a safe and durable procedure that can be performed in an office setting. "Stab and hook" phlebectomy can be performed in the office under local anaesthesia with ultrasound guidance, but is most difficult in areas such as lipodermatosclerotic skin. Recently, ablation of IPV_S with RF has been described (Peden E, et al.2007). Because the laser fiber has a smaller diameter than the RF device, it seems logical that it should also be effective in ablating IPV_S.A case report describing EVLT of IPV_S has been published(Uchino IJ.2007). Further clinical study is necessary to determine if widespread application of EVLT for treatment of IPV_S is feasible, safe, and effective.

Sclerotherapy has been in use for nearly a century to treat both telangectasias and varicose veins. Injection sclerotherapy is typically reserved for patients with small primary varicose veins, without evidence of proximal venous incompetence and for residual or

recurrent varicosities following surgery (Galland, et al.1998) (Tisi, et al.2002). The sclerosant agent causes endothelial damage and subsequent thrombosis such that the vein can no longer fill with blood. Often serial injections are needed. A systematic review of randomized controlled trials of injection sclerotherapy found no evidence to support one particular sclerosant (Tisi, et al.2002). The widespread use of foam sclerotherapy has evolved over the past decade. foam sclerotherapy(FST)offers a number of advantages over traditional "liquid" sclerotherapy, and allows a skilled practitioner to treat veins of a larger diameter, including saphenous trunks. the ease of use, low complication rate, the high rate of efficacy make sclerotherapy an important tool in the treatment of varicose veins. it is readily performed in an outpatient clinic setting, requires no procedural sedation, and the patient returns to normal activity levels very quickly with minimal discomfort. It is an emerging minimally invasive alternative to endovenous laser (EVLT)or radiofrequency ablation(RFA)of saphenous veins, and recent data demonstrate that in experienced hands, FST is a viable alternative treatment to traditional ligation and stripping of saphenous trunks (Wright D, et al. 2006).

Foam sclerotherapy has a number of applications. It can be used to treat reticular veins, varicose vein side branches in conjunction with EVLT or RFA, recurrent or residual varicosities after saphenous vein treatment, or as a "stand alone" treatment to ablate saphenous veins.