Endolaser Ablation Versus Embolization in Management of Lower Limb Varicose Veins

Essay

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LIST OF ABBREVIATIONS

Abbrev.	Full Term
CVI	Chronic venous insuffecieny
DVT	Deep venous thrombosis
ELA	Endolaser ablation
EVLT	Endovenous laser therapy
GSV	Great saphenous vein
LSV	Long saphenous vein
MF	Muscular fasia
MDCT	Multi slice detector computed tomography
PA	Popliteal artery
PER A	Peroneal artery
PER V	Peroneal vein
PTA	Posterior tibial artery
PTV	Posterior tibial vein
PV	Popliteal vein
PV	Perforator vein
RFA	Radio frequency ablation
Saph c	Saphenous compartment
SF	Saphenous fascia
SFJ	Sapheno-femoral junction
SSV	Short sapehenous vein
UGFS	Ultra-sound guided foamed sclerotherapy
US	Ultra-sound
VCSS	Venous clinical severity scores
3D	Three dimensioned

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Introduction

Chronic venous insufficiency of the lower limbs is a common condition affecting about 25% of women and 15% men with the venous reflux at the sapheno-femoral junction (SFJ) being the most common cause leading to varicose veins and represents a significant health care problem all over the world ***(Kapoor et al., 2010).***

Varicose veins are any dilated, elongated and tortuous vein irrespective of size. The term commonly refers to the veins on the leg, although varicose veins occur elsewhere. Veins have leaflet valves to prevent blood from flowing backwards (retrograde). Leg muscles pump the veins to return blood to the heart. When veins become enlarged, the leaflets of the valves no longer meet properly, and the valves don't work ***(Golan et al., 2007).***

Varicose veins and spider veins are simply a cosmetic concern. For other people, varicose veins can cause aching pain, swelling, skin irritation or sores (ulcers), discoloration, inflammation (phlebitis) and discomfort. Sometimes varicose veins lead to more serious problems and may also signal a higher risk of other circulatory problems ***(Leopardi et al., 2009).***

The traditional treatment of this condition is surgical ligation and division of the saphenous trunk and all proximal

tributaries are followed either by stripping of the vein or by avulsion phlebectomy. These procedures lead to a painful and prolonged post operative recovery with high incidence of hematoma formation, nerve injury and infection as well as high recurrence rate ***(Golan et al., 2007).***

Endovenous techniques clearly are less invasive and are associated with fewer complications compared with more invasive surgical procedures, with comparable or greater efficacy .Recent advances is directed towards minimally invasive endovenous techniques which has gained an increasing acceptance in clinical practice ***(Nijsten et al., 2009).***

Endovenous foam sclerotherapy is relatively not a recent technique which uses an injection of a special chemical (sclerosant) into a varicose vein to damage and scar the inside lining of the vein. The catheter and sclerosant are guided to the affected vein with the help of Doppler ultrasound. This process allows sclerotherapy treatment to be used on larger varicose veins that previously could only be treated surgically with ligation and stripping ***(Sadick, 2005).***

EndovenousLaser ablation for varicose veins is an attractive alternative minimally invasive technique to treat such patients. The technique is used for elimination of saphenous vein reflux by means of destruction of venous tissues using laser to cauterize

(burn) and close abnormally enlarged veins in the legs diverting blood flow immediately to nearby healthy veins. This shown a high success rate with low rates of complications ***(Van den Bos et al., 2009).***

Aim of the Work

The aim of this study is to evaluate the feasibility of management of varicose veins of lower limbs by endovenous laser ablation and foam sclerotherapy.

Anatomy of the Lower Extremity Veins

Developmental Anatomy:

By the fourth week of the intrauterine fetal life, a swelling of the lateral embryonic body wall forms the limb buds. They are richly vascularized, where the arteries are axial, while the veins are marginal. There are a couple of veins present on each side. The anterior marginal vein is the pre-axial and the posterior marginal vein is the post-axial, both drain separately into the posterior cardinal vein ***(Williams et al., 1989)***

In the adult life the pre-axial vein of the lower limb become the great or long saphenous vein, which more proximally gives rise to the proximal femoral and the external iliac veins. The post-axial vein become the lesser or the short saphenous vein, which more proximally gives rise to the popliteal, inferior gluteal and the internal iliac veins as a portion of the posterior cardinal vein ***(Williams et al., 1989)***

Gross Anatomy of the Veins of the Lower Limb:

The veins of the lower limb can be divided into superficial and deep group. The superficial veins are subcutaneous and lie in the superficial fascia, the deep veins (beneath the deep fascia)

accompany the major arteries. Venous blood normally flows from distal to proximal and from superficial group to deep group through sapheno-femoral junction, sapheno-popliteal junction& perforator veins **(Fig.1).** The lower extremity veins rely on one-way valves located at intervals along the main veins. Both groups have valves, which are more numerous in the deep veins. Venous plexuses occur within and between some of the lower limb muscles ***(Gray's, 2005*)**.

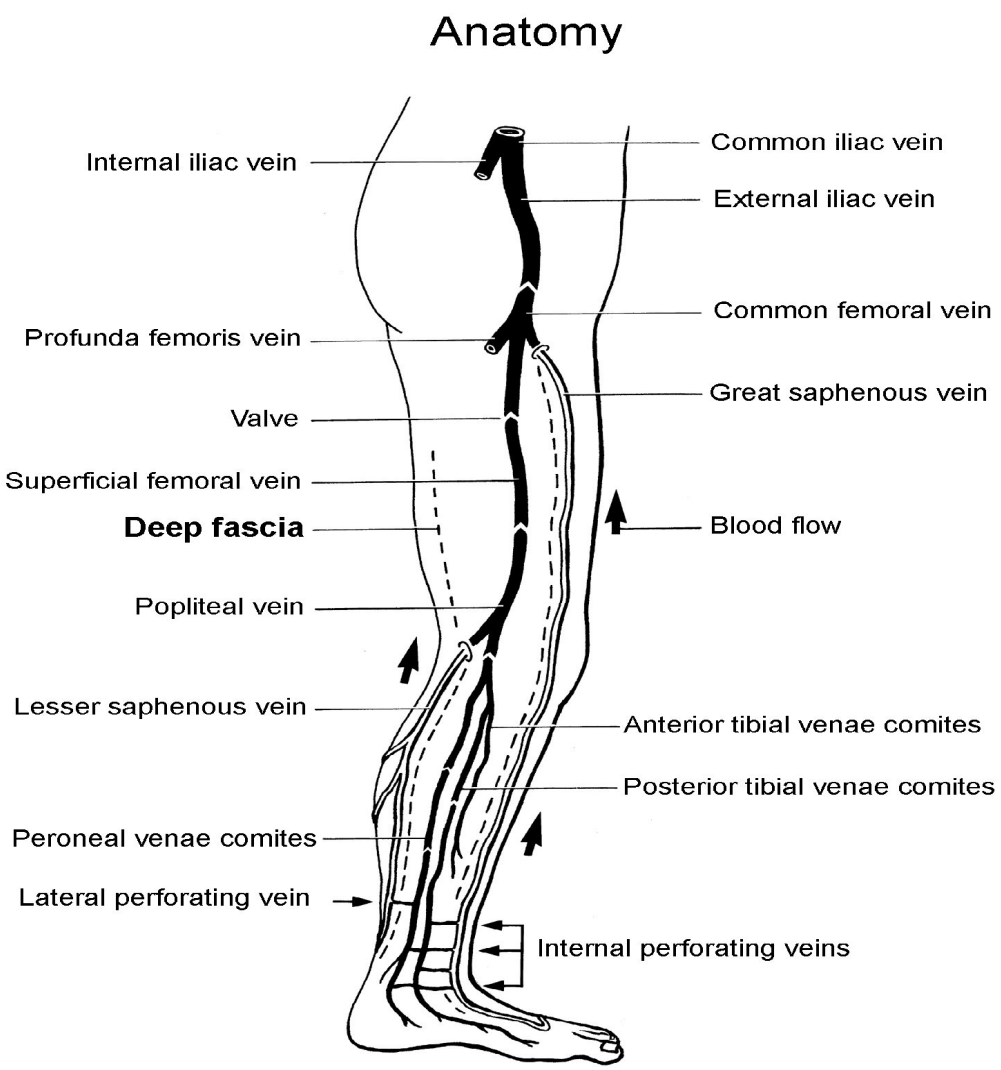

Figure (1): Deep and superficial veins of the lower limbs ***(Quoted from Allan et al., 2002).***

Deep Veins of the Lower Limb (Fig.2)

From distal to proximal areSolealveins,Gastrocnemial veins,Posterior tibial veins, Peroneal veins, Anterior tibial veins, Popliteal vein, Femoral vein, External iliac vein, Internal iliac vein and Common iliac vein ***(Allan et al., 2002).***

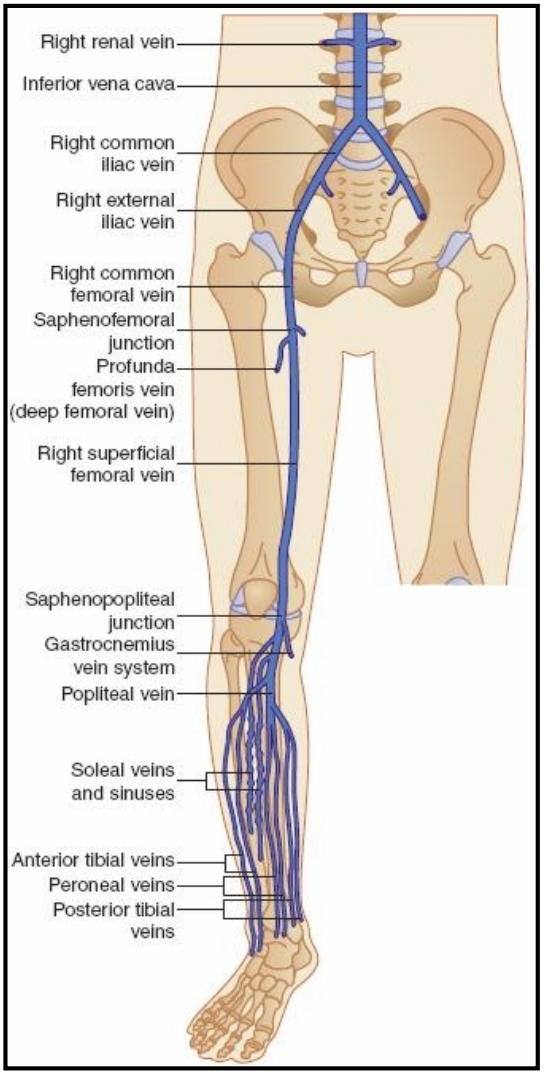

Figure (2): The deep venous system of the lower limb ***(Hartshorne, 2005).***