Updates in the Management of primary varicose veins of the lower limbs

Essay
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Abbreviation

- ASVAL: Ambulatory Selective Varices Ablation under Local Anesthesia.
- AVP: Ambulatory Venous Pressure.
- CDS: Catheter directed sclerotherapy.
- CEAP: Clinical, Etiology, Anatomy, Pathology.
- CFV: Common Femoral Vein.
- CHIVA: Ambulatory conservative hemodynamic correction of venous insufficiency.
- CVD: Chronic Venous Disease.
- CVI: Chronic Venous Insufficiency.
- DUS: Duplex ultrasonography.
- DVT: Deep venous thrombosis.
- EHIT: Endovenous Heat-induced Thrombus.
- EVLA: Endo-Venous Laser Ablation.
- GSV: Great Saphenous Vein.
- IVC: Inferior Vena Cava.
- LDS: Lipodermatosclerosis.
- MPFF: Micronized purified flavonoid fraction.
- POL: Polidocanol.
- PPG: Photoplethysmography.
- QoL: Quality of life.
- RCT: Randomized controlled trials.
- REVAS: Recurrent varicose veins after surgery.
- RFA: Radio-frequency Ablation.
- SFJ: Sapheno-femoral Junction.
- SFV: Superficial femoral vein.
- SPJ: Sapheno-Politeal Junction.
- SSV: Short Saphenous Vein.
- STS: Sodium tetradecyl sulphate.
- UGFS: Ultrasound-guided foam sclerotherapy.
- VADs: Venoactive drugs.
- VVs: Varicose veins.

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Keywords

Chronic venous disease, Venous ulcer, Varicose veins, CEAP, Duplex ultrasound, Compression, Stripping, High ligation, Phlebectomy, Sclerotherapy, Thermal ablation, Laser, Radiofrequency ablation.

Abstract

The prevalence of varicose have been may reach up to 60% in the adult population, with 2% have more advanced chronic venous disease per year, including skin changes and healed or active venous ulcers.

Varicose veins have long been considered a cosmetic problem, however, they are frequently the cause of discomfort, pain, loss of working days, disability, and deterioration of health-related quality of life. Severe chronic venous disease may also lead to loss of limb or loss of life.

Evaluation of varicose veins has greatly progressed with the widespread availability of duplex ultrasonography. The treatment of varicose veins has also undergone dramatic changes with the introduction of percutaneous endovenous ablation techniques, including endovenous laser therapy (EVLA), radiofrequency ablation (RFA), and liquid or foam sclerotherapy.

Open surgical treatment with stripping of the varicose veins performed under general anesthesia, with the associated pain and potential for wound complications, has been largely replaced by percutaneous office-based procedures that can be performed under local or tumescent anesthesia with similar early and midterm results but with less discomfort to the patient, , and earlier return to work.

Introduction

Introduction

The most common estimates of the prevalence of varicose veins in the United States have been between 5% and 60% in the adult population. **(Robertson et al, 2008)**

The prevalence of varicose veins was higher in developed, industrial countries than in underdeveloped countries. Most studies have found a greater prevalence of varicose veins in women, with an approximate twofold predominance, although this has not been universal. The findings of the San Diego Population Study supported this concept, with varicose veins being observed in 28% of women and 15% of men. **(Raffetto and Eberhardt, 2014)**

Primary varicose veins occur in the absence of any known underlying cause. Risk factors for developing primary varicose veins include age, parity, weight, posture and bowel habit. The majority of patients with varicose veins are asymptomatic. Many seek medical attention for cosmetic reasons. Common symptoms related to varicose veins seen by the vascular specialist are pain, swelling, and ulceration of the legs. The pain or discomfort of the leg aggravated by prolonged standing and relieved by elevation. **(Cleanthis and Lees, 2010)**

Duplex Ultrasound Examination shows venous reflux flows in the veins away from the heart and toward the periphery which is the opposite direction of the normal venous blood flow. It is a noninvasive test that can accurately assess all of the variables relevant to patients being evaluated for varicose veins. **(Heller, 2012)**

Introduction

The era of vascular intervention for varicose veins was ushered in by Friedrich Trendelenburg, in the 1860s, who performed great saphenous vein (GSV) ligation by making a transverse upper thigh incision to ligate and divide the proximal GSV. Ligation of the saphenofemoral junction as it is practiced today was first described by John Homans in his seminar paper in 1916. **(Iafrati and O'Donnell, 2012)**

The Mayo Brothers, postulating that there would be additional benefit in removing the saphenous vein, pursued excision of the GSV through an incision extending from the groin to below the knee which had many complication. The final technologic leap was introduction of the intraluminal stripper by Babcock. **(Iafrati and O'Donnell, 2012)**

An advancement in the treatment of varicose veins is the use of thermal energy in the form of radiofrequency or laser treatment to obliterate veins. This technique is frequently used for saphenous vein reflux as an alternative to stripping and for its tributaries as an alternative to phlebectomy. These catheters generate heat, which causes thermal injury to the vein wall and leads to thrombosis and eventually fibrosis. Laser ablation with an 810-, a 940-, or a 980-nm diode has provided excellent results, with saphenous vein obliteration of more than 90% at 1 and 2 years, and fewer deep venous thrombi**. (Kabnick, 2006)**

Introduction

Since 2001, endovenous laser ablation procedures have been reported to be safe and effective methods of eliminating the proximal portion of the great saphenous vein (GSV), the small saphenous vein (SSV), and even tributary and perforator veins from the venous circulation, with faster recovery and better cosmetic results than traditional surgical ligation and stripping. The indication and contraindication for endovenous ablation procedures are essentially the same for any superficial venous ablative procedure. Indications should include: symptoms and physical signs of venous insufficiency; duplex scan showing a patent proximal vein with reflux greater than 0.5 sec, patent deep venous system; vein conductive to instrumentation; and a fully mobile patient. Contraindication may include: patients with arteriovenous malformations, restricted ambulation, and deep venous obstruction. **(Morrison, 2014)**

A duplex scan of entire deep and superficial system, performed by a qualified sonographer, is mandatory prior to any intervention. **(Morrison, 2014)**

Radiofrequency Ablation is a minimally invasive technology that provides efficacious treatment of venous reflux with minimal discomfort for patients. One of the primary advantages of RFA is that the current procedure can be performed in an outpatient office setting with use of local tumescent anesthesia. The latest RFA technique includes several improvements over the original technology and features a “segmental ablation” method

using the Covidien (formerly VNUS) Closure FAST catheter 26 (Covidien, Mansfield, Mass) that is designed for treating both the GSV and SSV. RFA is indicated for superficial vein reflux of the lower extremity; contraindications include superficial venous thrombosis, deep venous thrombosis (DVT), aneurysm, and an ankle-brachial index of less than 0.9. **(Kabnick, 2013).**

Sclerotherapy can be used to treat a myriad of vein types and sizes, although it is most commonly used to treat smaller vessels such as the reticular veins and telangiectasias. Sclerotherapy is best defined as the introduction of a chemical into the lumen of a vein to induce endothelial damage that results in thrombosis and eventually fibrosis. For smaller veins such as telangiectasias, venulectases, and small reticular veins, liquid sclerotherapy is used to deliver injections directly into the target vein. Larger reticular veins and other varicose veins may also be treated by liquid sclerotherapy with a higher concentration of sclerosing agent or by foam sclerotherapy**. (Mikel, 2013)**

Aim of the work