



Varicose Veins: More than Simply an Esthetic Problem

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Varicose veins are a relatively common disorder, affecting 10–15% of men and 20–25% of women [1] and represent one of the most frequent vascular medical problems. Varices are the consequence of superficial venous insufficiency and can lead to esthetic problems and frequent symptoms, such as aching, discomfort, pruritus and muscle cramps. Complications include edema, eczema, lipodermatosclerosis, ulceration, phlebitis and bleeding. In some cases their presence results in cellulites and bacterial infection. Varicosities can be classified as primary or secondary [2]. In the first case a definite cause is usually not identified, although age, female gender, pregnancy, obesity and prolonged standing are predisposing factors for this condition. Patients with congenital incompetence of the saphenofemoral junction could develop large saphenous varicosities. Secondary varicosities develop after deep venous thrombosis or as a result of trauma, tumor or congenital or acquired arteriovenous fistulas [2]. Anatomically and depending on their size, varices can affect small superficial veins (spider veins or telangiectasias), or larger main veins (greater saphenous vein or short saphenous vein).

Classification regarding the severity of this problem has changed and a new classification called CEAP has been developed during recent years. The CEAP classification was adopted worldwide to facilitate meaningful communication about chronic venous disease and serves as a basis for more scientific analysis of management alternatives. It is based on **clinical** condition, **etiologic** basis of the venous dysfunction, **anatomic** distribution of the disease, and the **pathophysiologic** mechanisms of development such as reflux, obstruction or both [3]. The clinical stages range from C0 (no findings) to C6 (venous ulceration) [4]. For the practicing physician, CEAP can be a valuable instrument for making the correct diagnosis, to guide treatment and to assess prognosis. Nevertheless, it is recognized that the merits of using the advanced CEAP classification system hold primarily for the researcher and for standardized reporting in scientific journals [4]. Today most published clinical papers on chronic venous disease use all or portions of CEAP.

The post-thrombotic syndrome defines the vascular and skin changes in a lower limb after the occurrence of deep vein

thrombosis. The post-thrombotic syndrome is a frequent medical problem occurring in 20–50% of the population and is associated with extremely high morbidity [5]. The syndrome is characterized initially by dull pain on standing and by edema. Later, more severe manifestations of this complication may emerge, including stasis dermatitis and ulceration, which parallels the stages of the CEAP classification. Although venous reflux occurs early after an episode of venous thrombosis [6], the development of the severe manifestations of the post-thrombotic syndrome is a late event [7]. The frequency of this syndrome is variable as reflected by different studies, occurring in about 20–50% of the population at risk, and is associated with high morbidity [8].

Contrary to what was believed in the past, superficial venous insufficiency plays a cardinal role in the development of signs of post-thrombotic syndrome. Studies published during the last 20 years have shown that incompetence of superficial veins is significantly related to the appearance of leg ulceration. A strong correlation seems to exist between severe manifestations of post-thrombotic syndrome and the occurrence of reflux in the superficial veins of the legs and even to the presence of varicosities in the lower limbs [7,9,10]. Van Bemmelen et al. [11] noted a high incidence of reflux in superficial veins in a group of patients with leg venous ulcers. Shami and colleagues [10] found isolated deep venous reflux in only 12 (15%) of 59 limbs with venous ulceration, a combination of deep and superficial venous reflux in 25 limbs (32%), and isolated superficial venous reflux in 42 limbs (53%). The researchers' conclusion was that in over half the patients with venous ulceration, the disease was confined to the superficial venous system, and that this group of patients may benefit from surgical treatment [10]. Labropoulos et al. [12] reported similar findings on the importance of superficial veins in the genesis of post-thrombotic syndrome, especially when associated with deep distal reflux, and concluded, "as far as the skin changes and ulceration are concerned, distal reflux and reflux in the superficial veins are more harmful than reflux confined to the deep veins, even when such reflux extends throughout the deep venous system." Similar results were described by others, emphasizing

the importance of superficial vein reflux in the pathogenesis of post-thrombotic syndrome.

Classically, varicose veins have been treated with surgery or other methods, such as sclerotherapy. Surgery for varicose veins has been performed since ancient times, as early as the 4th century BCE. Hippocrates recommended multiple punctures and cautioned against cutting directly into the varicosity and engorged tissues [13]. Nevertheless, surgery, although successful in removing varicosities and improving the clinical appearance, has resulted in several complications, mainly vein rupture and hemorrhage [2]. Recurrence may be expected in 25–50% of patients after 5 years. The procedure can result in scars and damage to adjacent structures including nerves, lymphatics, major arteries and veins. Deep vein thrombosis and pulmonary embolism may occur [14].

To overcome these problems, techniques not involving surgery have been developed in the course of the years. These include physical and chemical procedures. Physical methods, such as electrocoagulation, laser, intense pulsed light, endovascular cryosclerosis, ultrasound and microwave, were tried first in the early 1950s and were later improved. Despite their use, these techniques are not widely available and their role in clinical practice to treat varicose veins has not been satisfactory and still needs to be defined [15]. The use of laser was received with great enthusiasm in 1975, but due to several adverse effects, high costs and relative ineffectiveness for treating telangiectasias and spider veins of the lower extremity, this procedure is considered of limited value for this type of pathology [15]. On the other hand, endovenous laser therapy has proven useful for the treatment of saphenous varices [14], sometimes in association with radiofrequency ablation [16]. Endovenous laser therapy is a local anesthetic procedure with impressive rates of long saphenous vein ablation at 5 year follow-up. The results of this method are similar to surgery, with better patient well-being during the early postoperative period [17].

Chemical sclerotherapy was first introduced in the United States in 1927 by McPheeters and Dixon of the Mayo Clinic, using a solution of quinine and urethane [18]. Later, new, less toxic sclerosing agents were introduced and proved effective. Although complications such as pigmentation, transient edema, pain, bleeding, thrombophlebitis and skin necrosis may occur, they are usually transient and not serious. Complete disappearance of the varicosities may be observed as early as a month after a single treatment [18]. Different chemical substances have been developed for sclerotherapy of varicosities.

In this issue of *IMAJ*, Nitecki and Bass [19] describe the use of ultrasound-guided foam sclerotherapy in the treatment of varicose veins in Klippel-Trenaunay syndrome, a congenital disorder characterized by capillary malformation, varicosities and bony or soft tissue hypertrophy. Cabrera et al. [20] were the first in 1995 to report the successful application of foam created by the combination of polidocanol (a detergent sclerosant) and “physiological gases” in the management of truncal saphenous incompetence. Injection into the saphenous trunk was guided using ultrasound. As observed by Nitecki and Bass in their article

[19], the foam greatly increases the volume and surface area of the liquid sclerosant and therefore can treat even large caliber veins. Large clinical series reports on this type of treatment have been published [14,21]. Cavezzi et al. [21] reported the successful outcome in 93% of 194 patients treated with this technique. Recently, Coleridge Smith [14] described his experience with this technique. A total of 459 limbs were available for assessment at a follow-up interval of 6 months or more. In his experience, the greater saphenous vein had remained obliterated in 88% of limbs and the short saphenous vein in 82% of limbs. Recurrent venous incompetence following previous surgery was as effectively treated by UGFS as primary incompetence. He concluded that the technique is useful in the management of chronic venous disease as an alternative to surgery [14]. This technique has become widely used in southern Europe, Australia, New Zealand, South America and the USA.

The report of Nitecki and Bass, although based on a small group of selected patients, is the first description of this method in Israel. They achieved excellent short-term results for the treatment of patients with Klippel-Trenaunay syndrome. A recent paper by the Cabrera group [22] describes their experience in the treatment of venous malformations, including 15 patients with Klippel-Trenaunay, and a success rate of 92% with the use of sclerosant foam.

Although longer follow-up and more randomized controlled studies comparing this technique with other procedures and with surgery should be available for a firmer conclusion, this method seems effective for the treatment of varicose veins. It is possible that with more extensive application of UGFS and other methods available today, varicose veins could be treated earlier and the esthetic manifestations and other serious medical complications related to this problem, such as severe post-thrombotic syndrome, could be avoided or reduced.

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UGFS = ultrasound-guided foam sclerotherapy

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The end of the human race will be that it will eventually die of civilization
 Ralph Waldo Emerson (1803-1882), U.S. writer and philosopher

Capsule



Flu vaccine for staff protects care-home residents

Vaccinating care-home staff against influenza in times of moderate influenza activity can reduce deaths, health service use, and hospital admissions in residents, say Hayward and colleagues. The authors randomized 44 care-homes in the United Kingdom to offer their staff influenza vaccine or not for two consecutive winters. In the first

winter, when influenza activity was high, vaccination had a significant positive impact on residents' health, but this was not seen the next winter when influenza rates were lower than usual.

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Capsule



HIV and malaria – a deadly duo

Human immunodeficiency virus (HIV) and malaria are two of the greatest infectious disease concerns that occur together in tropical regions. The interaction between these pathogens during co-infection is poorly understood, but it seems that infection with one predisposes to infection by the other. Abu-Raddad and co-workers examined the human population consequences of HIV and malaria parasite co-infection in a

high risk region of Africa. The authors tested their model on data gathered from Kisumu, Kenya, and found that a synergy operates between the pathogens that explains the propagation of many thousands of HIV infections and almost a million malaria episodes since 1980.

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