

Chronic Venous

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Chronic Venous insufficiency (CVI) is a common disease with significant morbidity that results from venous hypertension of the extremities. Increased perfusion pressure probably traps excessive numbers of white blood cells in the capillaries.

Activated leukocytes subsequently damage capillary endothelium, increase capillary permeability, and cause ischemia of overlying skin as a result of leakage of fibrinogen and formation of a fibrin cuff. Diagnosis of CVI is not difficult because its clinical manifestations are usually evident.

In addition to poor cosmetic appearance, CVI can lead to chronic life-threatening infections of the lower extremities. Pain, especially after ambulating, is a hallmark of the disease. CVI causes characteristic changes, called Lipodermatosclerosis, to the skin of the lower extremities, which lead to eventual ulceration.

Epidemiology

Peak incidence occurs in women aged 40-49 years and in men aged 79-79 years.¹ A high percentage of Maltese population has symptoms due to CVI, which can lead to skin changes and venous stasis ulcers.

Clinical manifestations include the following:

- **Varicose veins:** In addition to poor cosmetic appearance, varicose veins serve as indicators of venous hypertension. Most women with superficial varicose veins complain of their unsightly appearance;
- **Leg discomfort:** Venous hypertension in muscles of the lower leg from exercise and prolonged standing is the characteristic ache of CVI. The discomfort is described as pain, pressure, burning, itching, dull ache, or heaviness in affected calves or legs;
- **Ulcers:** Typically, these lesions occur around the *medial malleolus*, where venous pressure is maximal due to the presence of large perforating veins;
- **Edema of the lower extremities** caused by venous insufficiency is one of the most frequent symptoms of this pathology;
- **Lipodermatosclerosis:** These characteristic skin changes in the lower extremities include capillary proliferation, fat necrosis, and fibrosis of skin subcutaneous tissues. Skin becomes reddish or brown because of the deposition of hemosiderin from red blood cells.

Risk factors associated with chronic venous insufficiency

- **Age:** Incidence of CVI rises substantially with age;
- **Family history:** History of deep vein thrombosis (DVT), which renders venous valves incompetent, causing backflow and increased venous pressure, is a risk factor;
- **Pregnancy:** 8-40% of the pregnant women encounter it for the first time during pregnancy;²

- **Lifestyle:** A sedentary lifestyle minimizes the pump action of calf muscles on venous return, causing higher venous pressure. CVI occurs more frequently in women who are obese. Vocations that involve standing for long periods predispose individuals to increased venous pressure in dependant lower extremities. A higher incidence of CVI is observed in men who smoke.

Medical Approach

Surgery – Surgical treatment consists of removing the varicosities and the incompetent perforating veins, but is limited to persons with patent deep veins. Before 1985, surgery on incompetent perforator veins in patients with severe, chronic, venous insufficiency and venous ulcerations was generally performed utilizing long skin incisions through diseased skin and subcutaneous tissues. Known as “the Linton operation”, wound infections and poor healing complicated this procedure. Today a new surgical technique for identifying and ligating incompetent perforator veins is being utilized using an endoscopic approach in the limbs’ subfascial space.³

Injection Sclerotherapy – Although the main treatment for varicose veins with proximal venous reflux is surgery, it is not possible to do the same for the small veins that run into the skin. The aim of treatment is to obliterate them by not letting blood run through them. Sclerosant agents such as sodium tetradecyl sulphate (FibroVein®) is injected into the collapsed superficial vein where the chemical exerts its effect on the endothelium, causing swelling of its lining cells, with formation of red thrombus inside the lumen. The thrombus is gradually absorbed, but scar tissue forms, which occludes the lumen and the vein segment becomes obliterated (usually in 3-4 weeks).^{4,5}

Lasers – Laser and Pulsed Light treatments are being used as an alternative to or to complement sclerotherapy for small veins. They all work on the same basic principle: a light beam is pulsed onto the veins in order to seal them off. Successful light-based treatment requires adequate heating of the veins. Several treatments are usually needed for optimal results.

Other approaches

Pharmaceuticals – Phlebotropic agents like diosmin act by reducing the recapture of noradrenalin by the nerve muscles cells. There is therefore more of the mediator, Noradrenalin, which can act on the receptors. The concentration of myocytes is therefore extended.

Insufficiency

Diosmin's mechanisms of action include improvement of venous tone, increased lymphatic drainage, protection of capillary bed microcirculation, inhibition of inflammatory reactions and reduced capillary permeability.^{6,7}

Compression stocking – When correctly fitted, elastic support stockings compress the superficial veins and prevent distention. The most precise control is afforded by prescription stockings, measured to fit properly.⁸ These stockings should be worn before one gets into a standing position at a time when the leg veins are empty.

Leg Elevation – By keeping the legs elevated, venous flow is augmented by gravity, lowering venous pressures and ameliorating edema. ☑

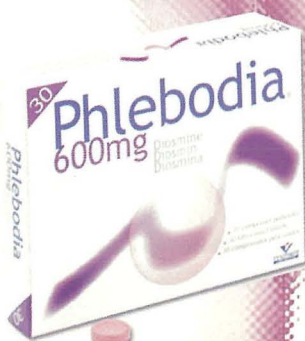
References

1. The Epidemiology of chronic venous insufficiency and varicose veins. *Ann Epidemiol* 2005; 15(3):175-84.
2. Makarov OV, Ozolinja LA, Parkhomenko TV, Kerchelayeva SB. Prevention treatment of Thrombembolic Complications in Obstetric Practice. *Med Magazine* 1998; 1:28-32.
3. Endoscopic subfascial perforator vein surgery for patients with severe, chronic venous insufficiency. *Vas Endovascular*



Surg 2004; 38(5): 439-42.

4. Venous disorders: treatment with sclerosant foam. *J Cardiovasc Surg (Torino)*. 2006; 47(1):9-18.
5. The effect of ultrasound-guided sclerotherapy of incompetent perforator veins on venous clinical severity and disability scores. *J Vasc Surg* 2006; 43(3):551-6.
6. Derivatives of semi-synthetic diosmine in the treatment of patients with chronic venous insufficiency. The results of a prospective study-using Phlebodia 600. *Angiol Sosud Khir* 2005; 11(4):73-9.
7. Bergan JJ. Chronic venous insufficiency and the therapeutic effects of Daflon 500 mg. *Angiology* 2005; 56 Suppl 1:S21-4.
8. Vanschiedt W, Kohnen R, Achhammer I. Tubulcus® compression therapy of venous ulcers leg ulcers. Results of a large prospective post-marketing observeillance study. *Phlebologie* 2004; 33:12-6.



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