

Foot veins peculiar anatomical, hemodynamic and clinical aspects.  
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The foot is undervalued in terms of hemodynamics. Having decided that the "famous" venous L  jars sole do not exist, the foot has been forgotten in favour of the gastrocnemious-sural system, actually the most important. In reality, the anatomy of the foot veins shows the presence of a pump system cantered on the lateral plantar veins whose drainage is connected to the flattening of the arch during weight bearing and in part to the action of metatarsal muscles. The amount of the ejected blood is not high (20-30ml), but is submitted to a high thrust capable of activating a flow up to femoral vein. A peculiarity is the fact that the blood can be directed to both the posterior tibial (preferably) and, through avalvulated perforators, the saphenous veins in relation to the pressure gradients. This system makes the foot relatively independent from the general leg hemodynamic situation; in fact, the foot is usually not involved in the CVI changings. The "corona flebectatica" is also an independence sign, as may appear also in subjects without CVI.

Another interesting aspect is associated to the appearance of varicose veins of the foot. Although in the more distal site of the leg (the more submitted to hydrostatic pressure), rarely they do appear at first and often they seem avulsed from the context of the limb's varicose veins ("suspended varices"): the hypothesis is that they may be the result of the action of the plantar pump "against" a system submitted to hypertension, particularly the deep veins, involved in the reentry of the refluxing volume. The foot pump would empty in the more compliant superficial network, developing varicose dilatations of the foot, however independent (albeit connected) from the main shunt.

Moreover, the hemodynamic foot autonomy is clear when you run a post-operative bandaging after phlebectomy or sclerotherapy. Provided you use a non-elastic compression, you can leave the foot off the bandage without this causing edema or venous stasis. The foot pump is in fact able to overcome the bandaging obstacle (acting only on superficial veins) employing the thrust toward the deep veins, provided that they are undamaged (situation resembling a Perthes Test).

Finally, in a recent article on EJVES a method displaying spontaneous A-V fistulas between the plantar artery and the dorsal venous arch is suggested. These fistulas are activated when the foot is heated (38-40 ° foot bath for 5 minutes). If this finding was confirmed, another peculiarity could be underlined, with interesting hemodynamic aspects.