Foot sparing post operative compression bandage: a possible alternative to traditional bandage

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Introduction: Compression of the treated limb after surgical procedures on varicose veins may be performed by stockings or bandages for an average 7 days .There is no evidence that one type of compression is better than another; choice is based on personal preference and economic consideration (1,2,3)

Of special interest is the effectiveness of the foot sparing bandage, covering the upper half of the leg and leaving out ankle and foot.

Material and Methods: This bandage, previously tested and proved effective and well tolerated in purely "cosmetic" cases, was used for cases with foot and distal leg not involved in varicose pathology. The ideal candidate is the C_2 (of CEAP) patient with normal deep venous system, without tendency to oedema, and actively walking (the most of authors' patients). Being weakly elastic, the compression acts strongly during muscle activity and is relatively low at rest. The compression area must involve the gastrocnemious area, giving to the gastrocnemious/sural calf pump a sustained support . Indeed, such a bandage do not require special shoes and is better tolerated. (Fig 1)

Results: We used the foot sparing bandage in 90 out of 183 phlebectomies in 129 patients. In no case we had to change the bandaging option during the post operative week, before the programmed end of treatment. Four out of first 20 patients experienced a limited swelling at first day bed rising. Thus, in the remaining patients we covered the foot and distal limb with a custom short tubular shaped "sock" providing 10 mm of Hg compression, to be worn during the first 24 ours, with the

purpose of eliminating any anxiety source for both patient and doctor. This measure could prevent any swelling in the 70 lower legs. Patients satisfaction was very high or high in all cases.

Discussion: This finding conflicts with the traditional view of compression as intended to provide a degressive gradient (4) proximally oriented, so that flow will proceed from distal to proximal. Theoretically, applying a proximal compression without a distal compression is expected to create an inverse gradient slowing the venous return (4). However, during walking the muscle contraction activates the muscle/venous pumps, then intravenous pressure peaks and transiently reverts the pressure gradients at every step (4). Thus, an external segmental compression limited to the calf may simply assist this physiological gastrocnemious pump mechanism without conditioning the independent, yet coordinated, actions of more distal pumps (foot pump and distal calf pump)**.** Being weakly elastic, during relaxation phase (40% of the action) the external compression is low enough (24 mm Hg after 6 hours) to allow for the reconstitution of a degressive gradient. Indeed, an inelastic bandage, similar to the one we use in our post operative phase, has been demonstrated to be the most effective for improving the pump function, with nearly no effect on resting phase *(*5). . The post operative foot sparing bandaging has many strengths if compared to conventional "foot in" bandaging: it allows wearing normal shoes, conceals the surgical procedure and allows washing the foot, besides being more comfortable. Compared to post operative thigh-high elastic stockings*(*3***)**, an alternative compression method, bandages seem better adaptable to every limb shape, may be reinforced on demand in the sites needing a stronger haemostatic effect, may be corrected during the walking test in the event of bleeding, are comfortably worn at night and are very cheap (about 10 €), with nearly no effect on resting phase *(*5).

Conclusion: The foot sparing or suspended bandage qualifies as an effective, comfortable and cheap compressive technique for patients undergone varicose vein surgery, being in the C2 class, having normal deep venous system and actively walking.

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Fig 1: Foot Free compression bandage after a phlebectomy non involving the distal limb.