

**PREVENTION OF VEINUS THROMBOSES AND OF CUTANEOUS NECROSES  
USING PHYSICAL METHODS AND PRESSOTHERAPY IN SURGERY OF CHRONIC  
VEINUS DEFICIENCY OF THE LOWER LIMBS**

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The position of surgical treatment in chronic veinous deficiency of the lower limbs, is not clearly defined. In our opinion, it is worthy of greater credit than that with which it is usually attributed. For a long time it has been confined to the resection of pathological saphenous networks (stripping SI and SE) which is not always justifiable, particularly in the case of post phlebitic illness [1].

The position delegated to Perforative surgery, either with "essential" varicose, or above all with post-phlebitic illness, is worthy of reappraisal, if one is to judge by the long and medium term results obtained [2, 3].

One of the reasons which explains these reservations is the risk of cutaneous necrosis or of cicatricial detachment. Tlu's risk is significant in Lindon and Felder type operations, where numerous leg incisions are made. They have been evaluated at between 5 and 45 % [4], depending upon the series. This complication, we feel, could be brought down to an acceptable level, providing that careful preparation is carried out when one is confronted with chronic hypodermic lesions.

Restorative surgery of the deep veinous network in a post phlebitic patient, gives less results. The valve repair, the intervention of a valvulated veinous section, at the femoral or-popliteal vein, have been the subject of publications, showing promising results [5, 6, 7].

Here also, the preparation and post-operative care play a major role in the prevention of postoperative thromboses.

The almost systematic protocole which we employ in the preparation and post-operative follow-up care has become established as follows :

## **I - Methodology**

### **1 - Pre-operative Phase**

#### ***a) As an "out-patient"***

The patient is taken into care one month prior to the operation, for 3 or 4 sessions per week. The treatment comprises :

- permanent retention
- manual lymph drainage
- intermittent pneumatic pressotherapy in stages
- physical and respiratory exercises
- oedema prevention

#### ***b) The permanent retention***

Is carried out with elastic stockings, Sigvaris type (medium retention 503). The stockings increase the tissue pressure, stop the filtration and ease the interstitial liquid resorption by the capillary blood vessels.

#### ***c) The manual lymph drainage***

Is carried out in accordance with the method codified by : A. Leduc (Uriage Universiteit - Brussels) [8,9].

It comprises : drawing manoeuvres on the ganglionic areas and on the teguments down stream from the stasis.

The oedematic area is treated by resorption manoeuvres.

#### ***d) The intermittent pneumatic pressotherapy in stages***

Is carried out by a EUREDUC machine type TP35 equipped with leggings with 5 compartments. The machine is designed with a double pressure gradient, which allows :

- the draining of all liquids, whether venous, lymphatic or interstitial, by successive pressures towards the heart, of the different compartments of the sleeve. This means dynamic pressure gradients,

- counter balance the anti-physiological effects of the opposing gradient, resulting from the conical shape of the sleeve, by pressure in the compartments decreasing from the extremity to the root.

The machine then gives a second pressure gradient, a static pressure gradient.

The pressure intensity is always less than 80 mm Hg. The length of treatment is approximately **40 minutes**.

## *e) The physical and respiratory exercises*

- Are earned out with the patient in a reclining position
- These are the classical toe-claw movements: bending and stretching, ankle rotation, etc... (Van der Molen cutaneo-veinous pump).
- Applying pressure to the thoracic duct and to the cistern of Pecquet, the respiratory exercises favour the lymph circulation. The respiratory exercises also improve the veinous return.

## *f) Oedema prevention [10]*

Daily hygiene advice :

- avoid sun-bathing
- avoid hot baths
- do not injure the limb
- rest in a reclining position
- take appropriate physical exercise
- wear the prescribed elastic retention.

## **2 - During the pre-hospitalisation phase (4-5 days) :**

The patient is taken into care twice a day.

- for manual lymph drainage, followed by pressotherapy and,
- physical and respiratory exercises

Treatment will be given on the morning of the operation.

## **3 - Post-operative phase.**

Pressotherapy is undertaken as soon as the patient leaves the operating theatre for a period of 24 hours.

Then, the same procedure is adopted as for the pre-operative phase : Elastic retention with bands, lymph drainage, pressotherapy, physical and respiratory exercises.

After leaving the clinic the patient will be seen, twice a week, for a further month.



## **II - RESULTS AND DISCUSSIONS**

The systematic setting-up of this procedure has allowed us to reduce the cutaneous necrosis of the leg considerably, in perforative surgery, in patients with hypodermic lesions.

Out of 96 operations : (81 pin-point ligatures, 15 extensive Felder type subaponeurotic operations), we had only two late cicatrisation incidents requiring further surgery.

In the restorative surgery of the deep veinous network (insertion of a valvulated section, valve repair) at the femoral or popliteal vein (32 operations), pressotherapy also seems to reduce the risk of post-operative thrombosis [5].

It appears to us that well conducted kinesitherapy, allows surgery to be carried out on patients, until then excluded, with a minimal risk of post-operative complications, and long-term satisfactory results.