

**Interest of the LPG® Technique in the treatment of cutaneous fibrosis :
application to chronic hypodermatitis of the lower limbs
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Chronic hypodermatitis of the lower limbs is a fibrosis of the hypoderm resulting from untreated venous stasis. It is accompanied by ochre dermitis, a pigmented lesion of the skin linked to the hemosiderin crossing from the dilated veins to the derm.

With the passing years, it evolves progressively to a skin fibrous retraction of the ankle giving the appearance of an indurated gaiter. Regarding histology, the normal sub cutaneous tissue is replaced by fibrous tissue tight parallel to the skin. Adipocytes are atrophied. Arterioles and venules have thickened walls, often obstructed. Perivenous tissue has high macrophage content in the inflammatory infiltrate. Hypodermatitis is the lesion preceding the last and progressive stage of the varicose disease: the leg ulcer. The treatment must comprise two steps:

- Treatment of the varicose veins by sclerosis, surgery and elastic bandage compression.
- Local treatment of the cutaneous fibrosis.

If the treatment of the varicose veins avoids in most cases the evolution to varicose ulcer, it never treats local fibrosis.

LPG® Technique has been proposed for the treatment of the cutaneous and sub cutaneous fibrosis. Several studies have shown that LPG® Technique induced a direct stimulation of the fibroblasts, thus increasing synthesis of elastic fibers and collagens. In other part, the depression associated with the mechanical rolled and unrolled technique induces a long lasting increase of the arterial and venous microcirculatory flux and also an activation of the adipocytes. The action is extended on derm and hypoderm until the muscular aponevrosis which role in venous hemodynamic is decisive.

Over a period of six weeks, a physiotherapeutic treatment protocol, integrating the use of the LPG® Technique, has been set up. Six patients presenting chronic hypodermatitis of the lower limbs have been included in this protocol. At inclusion, patients had all an increase in the venous capacity as determined by photoplethysmography, with reduction of the venous filling time (< 25 sec). Saphenous veins diameter and valvular functional insufficiency were evaluated by sonography and pulsed Doppler. During the same period, photoplethysmographic measurements and Doppler were performed on a control group of six patients who did not undergo therapeutic protocol. All measurements were performed in a controlled environment with an ambient temperature of 23°C . The patients were treated 45 minutes twice a week with the LPG® Technique. Between each session, all patients wore contention stocking (pressure: 15mmHg).

Results demonstrate that venous filling time measured by photoplethysmography is increased only in the treated group; the venous half-filling time increases from $6.8 \text{ sec} \pm 1$ to $12.5 \text{ sec} \pm 0.9$ ($p < 0.001$), the complete venous filling time changes from $17 \text{ sec} \pm 1.2$ to $26 \text{ sec} \pm 2.5$ ($p < 0.001$). At palpation, cutaneous fibrosis is markedly improved (evaluation with visual analogical scale by the patient himself). This study demonstrates that LPG® Technique allows a local treatment of the cutaneous fibrosis, consecutive to chronic hypodermatitis.