

PHYSIOTHERAPY OF TRAUMATIC AND SURGICAL WOUNDS

BY F. SOUYRIS, J.M. HEBTING, L. MONTES de OCA, P. JAMMET

In his book *Plaies, nécroses et brûlures* (Wounds, necroses and burns), Professor Vilain asserts that the importance of massage-pétrissage practised by a skilled physiotherapist is such that «a quarter of the wounds that are referred for further surgery no longer require the surgery after 5 or 6 months of treatment».

Physiology of healing

The normal development of the healing process takes approximately 8 months. The beginning of healing is marked by inflammatory phenomena which reach their maximum extent towards the 40th to the 50th day. After this period, the wound becomes less congestive and a sclerous reaction of the neighbouring tissue takes place. This retraction continues until approximately the 6th month when, on the contrary, the tissues become more supple and relaxed. The process is only completed by the 8th month. The succession of therapeutic processes employed will depend on this succession of physiological phases.

Objectives of physical Treatment

Functional.

Avoiding retractions both of the wound and of the surrounding tissue. Seeking to recover normal free mobility of the muscles underneath the wound.

Circulatory

By improving active circulation; by increasing capillary permeability; by favouring lymph flow; and by assisting the passage of polynuclear cells.

Aesthetic.

By favouring harmonious healing; by avoiding the formation of unsightly residual scarring.

Technique

To be complete, the technique is more complex than simple massage-petrissage, as it involves:

Massage

Sedative and decongestant loco-regional effleurage.

Stroking pressure through slow movements, leading to correct drainage and reducing cutaneous resistance to electric currents.

Jacquet-Leroy pinching, i.e. mobilisation between thumb and forefinger comprising pinching along the edges of the wound or of the wound itself.

Morice's orthodermic stretching which combines pressure and stretching in all directions, both in the direction of the wound and perpendicular to it.

Vacuotherapy

Which consists in mobilising the integuments by aspiration using a cupping glass. It associates stretching in all directions of the wound and peripheral zones with detachment of the sub-cutaneous conjunctive tissue vertically towards the surface. It combines stretching, stroking and pinching. It causes significant hyperaemia of the zone treated.

Muscle retraining

Voluntary contraction of the muscles in the zone treated improves circulation within them and restores satisfactory tone. It also aims to prevent amyotrophy subsequent to resting or non-functioning of the muscles concerned.

Physiotherapy

This is a useful form of treatment in the form of medicinal ionisation, i.e. the unidirectional passage of a continuous, stable-intensity electric current. It allows percutaneous penetration of selected ions depending on the desired effect. For example: ions, calcium, anti-fibrosis agents or decongestant Thiomucase (a mucopolysaccharide drug). It combines this action with a sedative, trophic or anti-inflammatory effect.

Ultrasounds which have above all an anti-inflammatory effect. They are appropriate from the 20th to the 40th day, but the risk to the eyes of using them in the facial region limits their therapeutic indications.

Magnetic fields provide neither an improvement in the healing process nor a reduction in the formation of residual scar tissue.

Hydrotherapy

Using multiple micro-jets, as described by P. Hardy de St-Gervais. While it requires careful handling, it shortens the duration of the treatment and significantly improves the prognosis.

A particular case : Keloid

The «wound», for a plastic surgeon, is without doubt the keloid wound. Red in appearance, pruriginous, it presents extensions into healthy skin. They are evolutive and tend to relapse after exeresis for various reasons, among which factors of race or endocrine factors, as well as the patient's youth are essential. It differs from hypertrophic wounds through its painfulness. Unlike hypertrophic wounds which regress after 15 to 24 months and develop into depressed wounds, they do not regress.

Physical treatment of such wounds consists in compression. This should be constant and continuous, i.e. 18 to 20 hours per day for more than one month. It is the only treatment of this indication with a favourable prognosis, but it requires total patient compliance.

The use of clothing specific to each region facilitates compression of keloid or hypertrophic wounds and avoids ulcerations when this compression is poorly adapted.

Thus whatever the location or the nature of the wound, its treatment requires patient compliance, because the treatment is long and demanding. If carried out intelligently, it can be limited to two months, but in this case requires the implementation of a more complete and more exacting technique than simple massage-petrissage. With a good prognosis, it can avoid scars or at least significantly reduce the incidence of residual scarring.

Summary

Physiotherapy of traumatic and surgical wounds

After reviewing the physiology of healing, the authors consider the various aims of physiotherapy of wounds. From the technical point of view, they stress the need for more than simple massage. Patient compliance is fundamental; treatment is often long, but the results are significant.