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LETTER TO THE EDITOR

ON NONOPERATIVE MANAGEMENT OF CHRONIC LYMPHEDEMA

In the June issue of the *Annals of Plastic Surgery*, we described (1) the chaotic situation prevailing in the management of chronic lymphedema at the present time. If the editorial from *Lymphology* by Witte et al (2) had been available to us when preparing our text, we would have included their suggestions in a list of publications demonstrating the deplorable situation that currently prevails in the management of lymphedema. Witte et al. (2) recommend for treatment of lymphedema in the "developed world," the use of "multicompartment pneumatic pumps and massage." Unfortunately, the presumed value of pneumatic pumps needs scrutiny. For example, when this technique is applied indiscriminately to management of whole leg lymphedema often accompanied by ipsilateral edema of the lower trunk, extrinsic pneumatic compression typically results in forcing edema fluid into the genitalia. Alas, the human body is constructed in such a manner that the drainage tributaries of the iliac lymph nodes also includes the trunk quadrants.

At the first meeting of the British Lymphology Group in Oxford on November 19, 1986, one of us (MF) described the case history of a young girl who sustained severe iatrogenic lymphedema of the labia after treatment in a London Hospital using pneumomassage. Although this experience may seem isolated, it is nonetheless a common accompaniment of undisciplined compression treatment as reflected in the experience of the Földi Clinic in Hinterzarten. In the United States where pneumomassage is commonly prescribed for chronic lymphedema, this complication has been verified by one of our coauthors in the *Annals of Plastic Surgery* publication. The Editorial by Witte et al. recommends "massage" for management of chronic lymphedema but at its face value this term is a gross oversimplification and potentially harmful. There are many methods of massage, but in treatment of lymphedema only one correct usage is consistent with anatomy, physiology, and pathophysiology. Even treatment by a "Swedish" type of sports massage" or "effleurage" may be harmful. "Effleurage" or simply pushing edema fluid from the periphery of a limb (arm or leg) toward its root into the axilla or groin respectively is not helpful and potentially harmful because the adjacent ipsilateral drainage quadrant of the trunk belongs to the tributary area of the axillary or groin lymph nodes as well as the arm or leg including the genitalia and perianal region.

Rational treatment of lymphedema aims to restore a disturbed equilibrium between tissue fluid-lymph protein load and lymphatic vascular transport capacity, i.e., return the total protein content of interstitial fluid to normal. This goal cannot be practically achieved by reducing the normally small amount of plasma proteins that escapes from blood capillaries per unit time. Accordingly, the most reasonable approach is to enhance lymphatic drainage although some evidence suggests that increased tissue proteolysis with drug therapy facilitates resorption of hydrolyzed protein (amino acids) directly back into the bloodstream.

Inflammatory or infectious processes which dramatically increase blood capillary permeability and therefore greater plasma protein "leakage" must, of course,

be combated vigorously (e.g., antibiotics, debridement). Many concomitant diseases (e.g., diabetes mellitus, cardiac failure, cyclic-idiopathic edema, lipedema) aggravate lymphedema and also require aggressive treatment. Where lymphedema is secondary to malignant blockage of lymph nodes and lymphatics, oncological treatment is essential in conjunction with physiotherapy.

"Decongestive" physiotherapy consists of the following and each part is of equal importance:

1. Hygienic measures and the eradication of fungal infections are mandatory. In most patients, this approach suffices to abolish repeated attacks of cellulitis; if not, life-long antibacterial drug treatment needs to be instituted.

2. A massage technique designated as "manual lymph drainage" is preferred. In brief, this special technique requires massage first of both the contralateral (to increase normal lymphatic propulsion) and ipsilateral truncal quadrant (to facilitate limb lymph drainage) and then only thereafter pushing edema fluid from the upper limb into the "prepared" quadrants of the torso and finally manual central compression of the most distal portion of the arm or leg. Bandaging concomitantly is applied during massage treatment to minimize recurrence of swelling while permitting active remedial exercises to enable muscle and joint pumping action to aid in return of peripheral lymph. At the end of therapy which lasts approximately 4 weeks, elastic support hose is measured and prescribed to maintain improvement and minimize return of edema. Because the trunk quadrants are separated by lymphatic "watersheds" but with bridging lymphatics between upper and lower aspects, the manual decongestion technique as outlined avoids the sequelae of edema fluid accumulating within the axilla and/or thigh-genitalia in contradistinction to standard pneumatic compression (pneumomassage).

It is regrettable that most English speaking doctors seldom read medical articles and books in languages other than English. We urge not only Witte et al., but all physicians that treat acquired and congenital lymphedema to review the classic book by Von Winiwarter (3) for insight into the correct way to manipulate the lymphedematous extremity.

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Editor's Note: *Clodius et al make several telling points and the reader may examine their article in the* Annals of Plastic Surgery 22 (1989), 505-515 *for greater details. Nonetheless, what is sorely needed in the nonoperative management of primary and secondary lymphedema is a randomized controlled prospective clinical trial with objective measurements of limb volume and circumference before and several years after therapy. As it stands now, whether treatment advocated is "sophisticated" massage-bandaging, pneumatic compression, heat, or for that matter, lymphatic-venous shunting or "debulking" in conjunction with elastic support stockinettes, photographs of individual patients are typically shown demonstrating notable early improvement in extremity swelling for each of these treatment methods. On the other hand, the long-term value of each treatment protocol compared to others in a randomized control fashion is rarely if ever provided, nor are short-term objective comparisons made of these standardized modalities in the same or similar patients (CLW).*