

**The "Lympha-Press" intermittent sequential pneumatic device  
for the treatment of lymphoedema: five years of clinical experience**

**A. Zelikovski, M.D., M. Haddad, M.D., and R. Reiss, M.D.**

*From the Department of Surgery "B", Beilinson Medical Center, Petah Tiqva,  
Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel*

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**SUMMARY.**—Five years of clinical experience with the "Lympha-Press" is presented. This intermittent sequential pneumatic device has proved to be very efficient as a conservative method of treatment in lymphoedema of the upper and lower limbs, and as an aid for surgery of lymphoedema.

**KEY WORDS.**—Lymphoedema - Lympha-Press - Intermittent sequential pneumatic compression.

Intermittent pneumatic compression therapy for lymphoedema of the limbs has been in use for almost thirty years. The relief obtained was mainly in the consistency of the swollen limbs but no real reduction in volume was achieved. We designed a new device, the Lympha-Press, which instead of applying a simple intermittent pressure on the limb, creates a "milking" pressure by the use of 10-12 overlapping air cells. This modification in the concept of intermittent to *sequential* pneumatic compression treatment has shown results in rapid and impressive reduction of lymphoedema of the limbs which could not be achieved before.<sup>1,2</sup> We now present an updated report.

## Technical details

The sleeve of the Lympha-Press, which is easily fitted over the patient's limb, contains 10-12 overlapping cells, fed independently by air tubes connected to a pressure system. A compressor forces air into the cells, apportioned by a distributor, in a sequential rhythm. The cycle is only of 30 seconds' duration including 5 seconds of deflation of air from all cells simultaneously (Figs 1, 2). This system conducts most of the pressure in one direction only, from the distal part of the limb to the proximal, creating a wave of pressure which propels the protein-rich content of the lympho-

edema through the poor lymphatic collaterals which are present in these patients.

This mechanism has been confirmed by isotopic studies.<sup>3</sup> The brief and efficient use of a uni-directional cycle of pressure achieves high reduction of lymphoedema in a relatively short time<sup>4</sup> (Figs. 3-4). The results achieved in the lower extremities are maintained by firm elastic stockings and only one treatment is necessary. The upper limbs require repeated treatments because high pressure stockings for the upper limbs cannot be tolerated by the patients.

## Methods and results

Since 1978, we have treated 262 patients with the Lympha-Press. Only patients with very severe



Fig. 1.—Patient during treatment with the Lympha-Press.

**Lympha Press, pressure system**

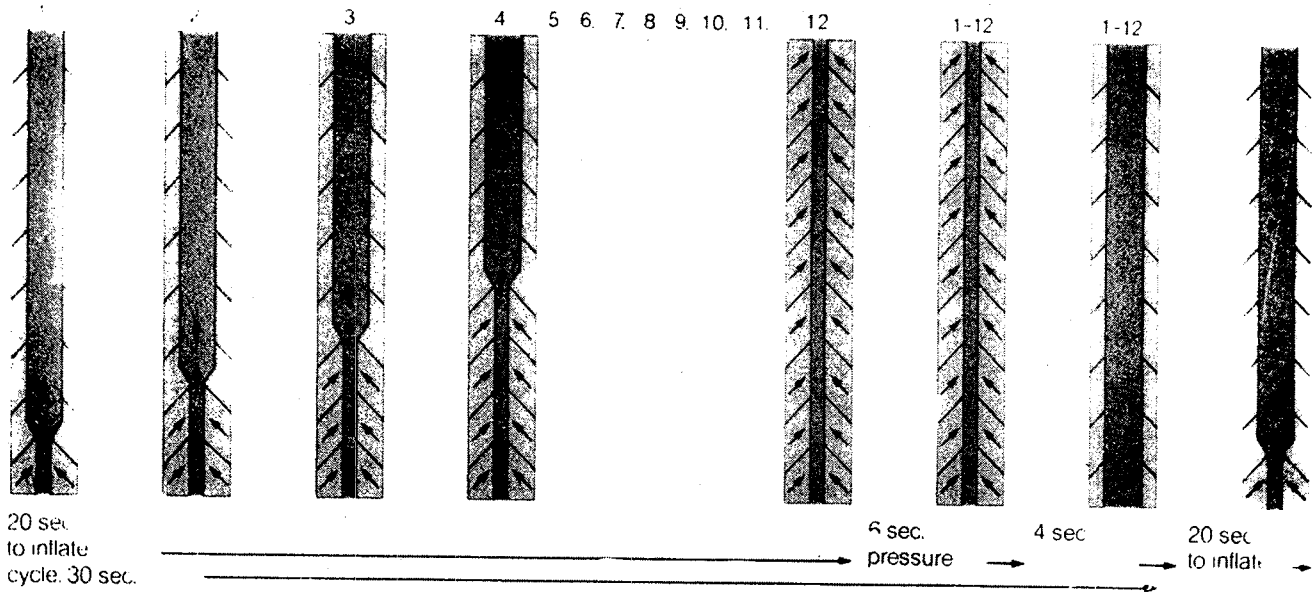


Fig. 2.—The cycle of pressure and intermission.

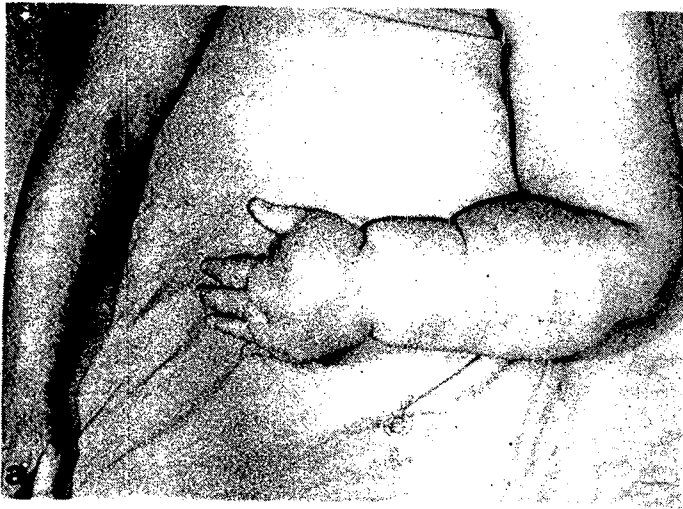


Fig. 3a and b.—A patient with post-mastectomy lymphoedema before (a) and after (b) 3 hours treatment.

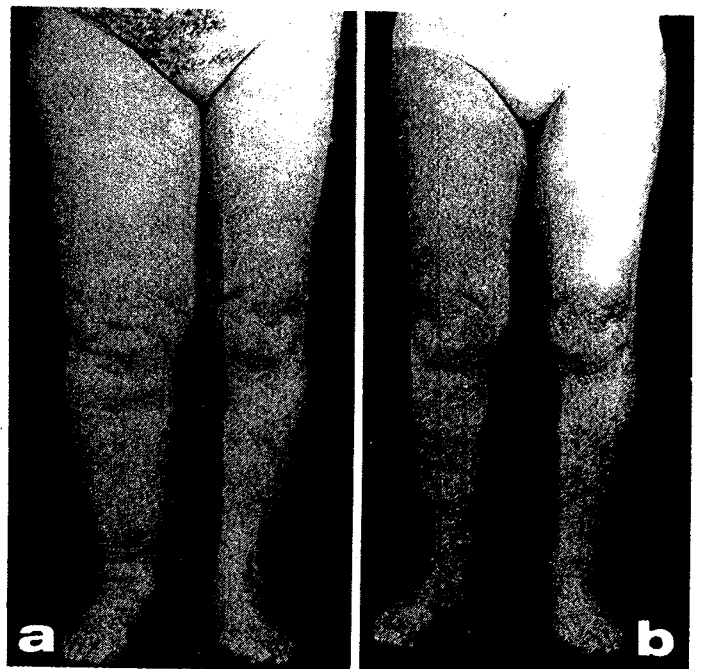


Fig. 4a and b.—A patient with lower limb lymphoedema before (a) and after (b) 16 hours of treatment.

lymphoedema of the limbs were hospitalized for treatment. One hundred-twelve patients (mainly post mastectomy lymphoedema) were treated on an ambulatory basis 2 to 3 times weekly in our physiotherapy institute, with very encouraging results. Reduction of lymphoedema of 36 to 70% was achieved in 88% of the patients with upper limb lymphoedema, while lower limb lymphoedema almost completely disappeared. Surgery, necessary only for patients with lymphoedema of huge proportions, consisted mainly of the simple excision of redundant cutis and subcutis and plastic repair. In these cases the Lympha-Press was applied before surgery to facilitate the surgical procedures. Our results of surgery in lymphoedema with the combination of Lympha-Press treatment has been previously reported.<sup>5</sup>

In conclusion, the Lympha-Press has proved to be a very efficient device for the conservative

treatment of lymphoedema and as a preoperative aid.

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[Authors' address:

A. Zelikovski  
Dept. of Surgery "B"  
Bellinson Medical Center  
Petah Tiqva (Israel)]