

A STUDY TO EVALUATE EFFECTIVENESS OF TWISTING TOURNIQUET DECONGESTIVE TECHNIQUE IN LYMPHEDEMA PATIENTS

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ABSTRACT

We have developed a series of simple tools for manually reducing the size of each swelling extremity. Starting *de novo* from ordinary materials, a prototype Twisting Tourniquet – or in Thai, *Schnogh* – was designed, tested, modified, and continually improved into its current form.

The Twisting Tourniquet Decongestive Technique (TTDT or TTT) is a non-invasive, self-manageable approach to treating lymphedema, and is based on the principles of compression therapy. A Twisting Tourniquet is a progressive tightening device, applied by transforming power of hand-twisting rotation into circumferentially constricting compression force around an axis. Creating optimally high resting pressure against the tissues and vessels, the tourniquet is thought to accelerate venous and lymphatic drainage.

The practice of TTT for upper and lower extremities requires multilayer wrapping with different materials. Repeatedly doing a ‘twist’ for 15 min followed by an ‘untwist’ for 5 min results in a compression-decompression cycle that reduces swelling. Five to eight sets of *Schnogh* were used on each limb. Twisting pressure was maintained at 80 mmHg and reduced 5 mmHg for each segment of *Schnogh* distoproximally, to generate a descending gradient of pressure. Patients were required to enroll on a 5-day therapeutic program to learn about its different applications and phases: **a decongestive phase**, some practical training (learning ease of use and self-operation), and **a maintenance phase** (for when employing the technique at home).

From 2006 to 2011, over 2,555 patients came to the Lymphedema Day Care Center. After applying patient selection criteria, 599 consecutively treated lymphedema patients were chosen for the study. Among 287 patients with unilateral upper-extremity lymphedema, the average edema reduction volume attained was 441 ± 291 mL, making the average edema reduction rate 49.5%. Among 312 patients with unilateral lower-extremity lymphedema, the average edema reduction volume attained was $1,826 \pm 1,333$ mL, giving an average edema reduction rate of 54.3%.

In conclusion, the TTT is effective in helping to reduce swelling. Approximately 50% volume reduction in five days was recorded in 599 patients with lymphedema – the largest number of patients looked at so far. We propose with confidence that the *Schnogh* technique is highly efficient, totally non-invasive, and economically self-sufficient. The benefits of the *Schnogh*, under WHO support, have been shown in Bangladesh, where lymphatic filariasis/elephantiasis remains one of the biggest national health concerns.

KEY WORDS: TWISTING TOURNIQUET / COMPRESSION THERAPY /
LYMPHEDEMA / ELEPHANTIASIS / EFFECTIVENESS

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