

*Preliminary communication***A novel treatment of post-mastectomy lymphedema***Anna MacIntosh, Ph.D., N.D.*

According to 1988 statistics from the American Cancer Society approximately one in nine U.S. women can expect to be afflicted with breast cancer.(1) Given that main stream medicine recommends aggressive treatment with surgery and radiation therapy, the number of mastectomies performed in this country will closely match with the incidence of breast cancer.(2) Lymphedema of the arm is often accepted as an untreatable common consequence of breast cancer managed surgically with or without radiation. Approximately one-third of all patients will develop lymphedema post-mastectomy.(3) It is not surprising to find that the incidence of lymphedema is greater following more radical surgery and with the addition of radiation therapy.(4) The number of women who suffer pain and disability from arm lymphedema is staggering.

Lymphedema is defined by the International Society of Lymphology as an abnormal collection of excessive tissue proteins, edema, chronic inflammation, and fibrosis. Lymphatic drainage of the arm primarily occurs through lymph vessels passing through the axilla. Some arm lymph drainage may also occur through lympho-venous anastomoses.(5) In patients who have undergone axillary node dissection, lymphoscintigraphy has demonstrated impaired uptake and mobilization of lymph in the arm.(6) Radiation can independently damage the lymphatics and blood vessels, as well as the skin and subcutaneous tissues.(7) The lymphatic system has a large potential to remove extra interstitial fluid given the need, but with actual destruction of the lymph and venous vessels of the arm and axilla, this lymphatic drainage reservoir is severely limited. The main mechanism leading to edema in the arm is accumulation of interstitial protein and the only route of removing proteins from the interstitium is via the lymph vessels.(8) Consequently, any degree of lymphatic obstruction leaves excessive proteins in the interstitium and the water which is osmotically held by those proteins.

To date the treatments of arm lymphedema that have been tried and reported include drugs, microvascular surgery, and various physical therapy methods. In general, the results of surgical techniques to treat lymphedema have been disappointing.(9) The two types of drugs which have been tried are diuretics and benzopyrones. Diuretics only serve to deplete the intravascular fluid volume and do nothing to alter the accumulation of interstitial proteins. Benzopyrones have been tried with some success probably because their mechanism of action is thought to be that of stimulating the proteolytic activity of macrophages.(10,11) In terms of cost, patient control, and effectiveness, physical therapy treatments appear to be the most successful. As an example, the efficacy of electrical stimulation has been tested in comparison to the use of a compression sleeve. Both groups had a 17% reduction in arm girth.(12) Greater reductions have been reported by a number of investigators when a combination of physical therapy modalities have been employed.(3-13)

This author became interested in the problems which accompany post-mastectomy lymphedema because of the reported use of

exercise as one of the effective therapeutic modalities. The author's interest was further enhanced following an extensive literature search which revealed a dearth of studies on post-mastectomy lymphedema. This finding, in combination with discussions with numerous women who had undergone mastectomies, suggests that there is a general lack of concern and lack of information within the medical community regarding arm lymphedema and its treatments. Furthermore, the most effective combination physical therapy treatments published require extensive time and financial commitment by the patient and a specially trained massage therapist. Dr. Casley-Smith's group in Australia have reported the best results using a complex regimen of physical therapy including manual lymph drainage (MLD). In order to appropriately perform MLD specific training is required and it can take years to master this specific massage technique as developed by Dr. Vodder.(14)

The author hypothesized that a number of natural therapies might be effective for relief of lymphedema given the current understanding of the pathophysiology. Part of the treatment program is designed to keep treatment simple, inexpensive, and less time consuming than a complex physical therapy approach. The treatment program basically includes a series of simple exercises and the use of specific plant enzymes. The exercises require about twenty minutes to perform. The patient is asked to do the exercises at least once daily, although twice a day could enhance their effectiveness. The initial series of exercises has been designed to enhance lymph flow of the affected arm, direct lymph into the thoracic duct region, enhance mobility and be simple to execute. If the patient is compliant in doing the initial exercises, and arm swelling has decreased, then arm and shoulder strengthening exercises can be added. The patient is asked to wear a Juzo compression sleeve while exercising. (a)

Additionally, a concentrated lipase and concentrated protease supplement (Tyler Encapsulations) is prescribed. The lipase is given 1 hour before a meal and the protease is given 1/2 hour later. The lipase enzyme is given in an attempt to enhance membrane permeability, so that the protease enzyme might have a greater chance of actually getting into the interstitial compartment where the excessive protein levels are the presumed cause of lymphedema. Interestingly, Dr. Howard Loomis suggests that the lipase enzyme may actually be used to help decongest the lymph system (per lecture given at NCM several years ago).

Several authors have reported that their treatment of post-mastectomy lymphedema appears to be less effective in women who are overweight.(3,12) Therefore it may be important to also address weight loss as part of an overall program to treat post-mastectomy lymphedema.

The author has not had a chance to test out this protocol in a research setting, but a summary of two individual cases will be reported. The first case was a 52 year old woman who had a mastectomy with radiation treatment 8 years previously. She has been using a pneumatic pump for last 2 years. Initially it was extremely helpful, but eventually it did not seem to help and actually worsened her hand and finger lymphedema. By the time this patient was first referred to my office, use and mobility of the affected arm was severely limited. This woman used to be an aerobics instructor and was happy to be

(a) *Miller LT. Personal communication indicating that within her physical therapy practice, where she specializes in the treatment of women with lymphedema, she's found that the Juzo sleeve is the best. Philadelphia, PA.*

asked to do some exercises. Her record keeping indicated a high compliance with the exercise routine. She continued to use the pneumatic pump 2 hours daily. At a one month follow-up visit her overall shoulder mobility had increased by 20% and her affected limb circumference had decreased by 50%. The patient reported that her arm didn't feel as heavy and the feeling of a "knot" in her upper arm was gone. This patient has not returned for further follow-up.

The second case was a 50 year old women who had a lumpectomy followed by radiation 1.5 years previously. Her lymphedema was much less severe than the previous patient and she had full range of motion in her shoulder. She has been using a pneumatic pump between two to four hours daily. On her initial visit lymphedema was most notable in her upper arm and index finger. This patient was concerned about the impact on her life of needing to spend four hours daily using the pneumatic pump and the stiffness in her hand and fingers. (b) After 5 weeks of treatment the patient reported using the pneumatic pump less, able to sleep on the affected side, able to vacuum without her hand swelling the day after. Follow-up measurements at this time revealed a 100% normalization of upper arm circumference relative to her unaffected arm. Interestingly, this patient was not very compliant about doing the exercises and she decided not to wear the compression sleeve. She reported only doing the exercise routine two times per week. Although the size of her arm is essentially normal this patient still has occasional finger stiffness and still feels like she needs to use the pneumatic pump a couple of times a week. The patient will continue on the treatment program with the goal of being able to stop using the pneumatic pump altogether.

In summary, the problems that these women face due to post-mastectomy lymphedema are very real. Discomfort, immobility, pain and the need to protect the affected arm from even small injuries due to the greatly increased risk of cellulitis or lymphangitis can drastically impact the lives of these women. The decrease in quality of life these women suffer can be significant. Simple, at home, natural therapies may have an important role to play in this neglected problem which affects thousands of women.

(b) In my correspondance with Linda Smith, P.T. her experience suggests that even though surgeons will recommend anywhere from 2-6 hours daily hooked up to a pneumatic pump, 2 to 2 1/2 hours on a pneumatic pump is sufficient.

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