

The Effectiveness of Manual Lymph Drainage (MLD) in Breast Lymphedema and Generalized Oedema after Mastectomy: A Case Study

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ABSTRACT

Background: After a mastectomy a very common pathology for patients is to develop breast or arm lymphedema. The reasons are unknown. Lymphedema has described as a very uncomfortable situation that concerns many patients after mastectomy. Also, during chemotherapy these patients may develop generalized oedema, especially to the ankles, torso, and face. The most easy and painless way to treat this oedema is the Manual Lymph Drainage (MLD), with very good results to patient's health.

Case Study: A 67-year-old woman has developed a lymphedema on the left breast, three months after a mastectomy and placement of a breast prefix. During the chemotherapy with taxanes and anthracyclines, she also developed a generalized oedema to her legs and torso. Her medical history was mitral valve stenosis without any significant issues, and a fully recovery after a valve replacement. The medication for her heart disease was medicines for the blood pressure and anticoagulant drugs. The patient started being treated with MDL for the oedema, for one hour a day, two times a week, for eight weeks. Five measurements of the oedema were taken. The individual was tested before, every two weeks and at the end of the intervention program. In addition to MLD, the usage of a mastectomy bra was suggested, and instructions for arm and legs exercise, and daily care of the skin around the breast area, were given for better results. The results were a major progressive reduction of the generalized oedema and lymphedema in this patient.

Conclusions: The MLD has a great effect on generalized oedema and breast lymphedema in patients with an oedema after a mastectomy and chemotherapy.

Keywords: Breast Cancer; Mastectomy; MLD; Rehabilitation; Lymphedema; Oedema

Background

In the US, 65% of adults whose is diagnosed with cancer have a 5year life expectancy of which 22% are breast cancer survivors (CDC [1]). The main treatment for breast cancer is mastectomy which is the dissection of the breast gland and axillary lymph-nodes to prevent the spread and metastasis of the cancer, after the mastectomy chemotherapy (taxanes) and radiotherapy is following (Verbelen, et al. [2]). Even though those treatments are suitable for breast cancer, patients develop a toxicity after the treatment which create Lymphedema and generalized oedema up to 90% of the patients (Todd [3,4]). Lymphedema is a deformity of proteins' deposition to

the intercellular fluid and create loss of function, physical discomfort, psychological distress, and erysipelas infection as a result of chemo-radio therapy and mastectomy, and it may occur to 12-26% of post cancer treatment patients (Stanton et al. [5-9]). Lymphedema is a tough condition that can be very difficult to be treated and it becomes chronic. The main treatment for Lymphedema is the Complex Decongestive Therapy (CDT). CDT is a fourfold conservative treatment and comprise from two parts. The Phase 1 includes Manual Lymphatic Drainage (MLD), Compressing Bandages, Skin Care and Exercise. The Phase 2 includes the use of Compressing Garments to maintain the oedema reduction in long-terms. More specific, MLD is a specific type of hand manipulations, collecting the excess lymphatic

fluid from the area of treatment, and directing it back to the main blood stream. These hand manipulations are slow, circular, painless, with flow and provide the feeling of relaxation to the patient (Ezzo et al. [10,11]).

Case Study

A 67-year-old woman was diagnosed with left breast cancer and underwent total mastectomy and dissection of 13 axillary lymph nodes. She was treated one cycle of Cyclophosphamide (FEC), and three cycles of Taxanes. After the end of the second cycle of chemo, the patients began to develop an oedema to the left breast and torso, and severe oedema to the lower and upper extremities. Even though, she developed breast lymphedema, she did not develop upper arm lymphedema. Her physicians suggested to her to start treatment for oedema and lymphedema. Her previous history was mitral valve stenosis without any significant issues, and a fully recovery

after a valve replacement. The medication for her heart disease was medicines for the blood pressure and anticoagulant drugs, also suffered from fibromyalgia.

Protocol

The patient started being treated during the fourth cycle of chemo to prevent further oedema. The protocol started with phase 1 of CDT rehabilitation and lasted 8 weeks. The MLD sessions performed 1 hour per day, two times per week, for 8 weeks. They were 5 measurements to insure the oedema and lymphedema reduction. Except MDL, Compressing Garment (Bra), directions of skin care and exercise were given to the patient between MLD sessions. The first measurement occurred before the first treatment started, and the rest of them every 2 weeks duration. To determine and establish the loss of oedema, 10 stable body points were chosen to being measured with a measure tape, and for weight control a home body scale was used.

Table 1: Oedema body measurements during 8 weeks of MLD treatment.

Measurements	1st		2 nd		3 rd		4 th		5 th		Total Reduction (cm)	
	R	L	R	L	R	L	R	L	R	L	R	L
3cm over the Ankle	23,7	25,5	23	23	23,8	23	22,5	22,3	22	23	1.07	2.5
Middle of Tibia	25	23,4	23,5	23,6	23,2	23	23	23	23	23	2	0.4
Middle of Calf	34	33	30,5	32,3	28	27	29	27	28	27	6	6
5cm under the Patela	34,5	32	30,5	32,3	30,1	31,5	30	30,5	30	30,1	4.5	1.9
Wrist joint	18	17	16,5	16	16,5	16	17	15,2	16	16	2	1
Middle of Forearme	21	18	23	22	20	21	20	20,5	20	20	1	-2
3cm over the Elbow	27	26,7	25	25	23,5	23,3	23	23,2	23	23	4	3,3
Middle of Upper Arm	30	27	29	28	26	28	28	28	27	27,1	3	-0,1
Left Breast (perimeter)	55		55		54,2		51		49		6	
Torso (perimeter)	94		93,2		90		90		88		6	
Body Weight	79		75		73,9		72,5		72		7	

Results

The progression of oedema reduction was noticeable during the 8 weeks duration of treatment, furthermore, there was a major reduction of the body weight, torso, and left breast perimeter (Table 1). In Figure 1, the results of the oedema reduction on the first body point of the ankle were from 25,5 cm to 23 cm for the left ankle, and from the 23,7 cm to 22 for the right ankle. The total reduction was 2,5 cm for the left ankle and 1,07 cm for the right. In Figure 2, the results of the oedema reduction on the second body point of the middle of the Tibia were from 23,4 cm to 23 cm for the left limb and 25 cm to 23 for the right limb. The total loss was 0,4 cm for the left limb and 2 cm for the right limb. In Figure 3, the results of the oedema reduction on the third body point of the middle of the calf were from 33 cm to 27 cm for the left limb and from 34 cm to 28 for the right limb. The total loss was 6 cm for both limbs. In Figure 4, the results of the oedema reduction

on the fourth body point of 5 cm under Patela were from 32 cm to 30,1 cm from the left limb and from 34,5 cm to 30 cm for the right limb. The total loss was 1,9 cm for the left limb and 4,5 for the right limb. In Figure 5, the results of the oedema reduction on the fifth body point of wrist joint were from 17 cm to 16 cm for the left arm and from 18 cm to 16 cm for the right arm. The total loss was 1 cm for the left arm and 2 cm for the right arm. In Figure 6, the results of the oedema reduction on the sixth body point of the middle of forearm were from 18 cm to 20 cm for the left arm and from 21 cm to 20 cm for the right arm. The total loss of the right arm was 1 cm and the left arm gained 2 cm. In Figure 7, the results of the oedema reduction on the seventh body point of 3cm over the elbow were from 26,7 cm to 23 cm for the left arm and from 27 cm to 23 cm for the right arm. The total loss was 3,3 cm for the left arm and 4 cm for the right arm. In Figure 8, the results of the oedema reduction on the eighth body point of middle of upper arm were from 27 cm to 27,1 cm for the left arm and 30 cm to 27 cm

for the right arm. The total loss was 3 cm for the right arm and the left arm gained 0,1 cm. In Figure 9, the results of oedema reduction on the torso were from 94 cm perimeter to 88 cm and the total loss was 6 cm. In Figure 10, the results of the lymphedema reduction on the

left breast perimeter were from 55 cm to 49cm and the total loss was 6cm. Finally, in Figure 11, the results of the total loss of body weight were from 79,9 kg to 72 kg and the total weight loss was 7 kg.

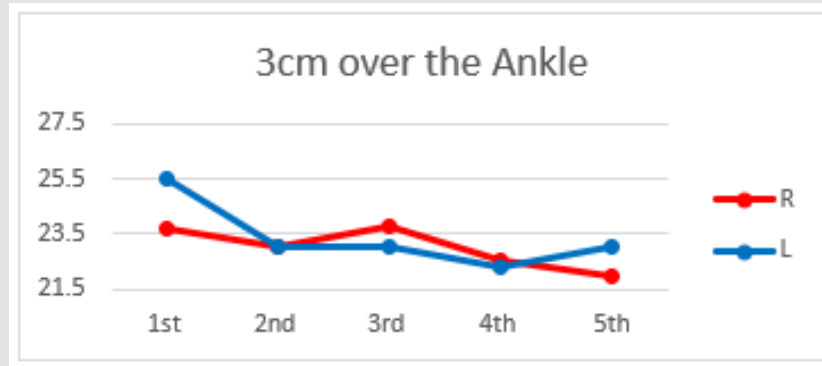


Figure 1: Progression of oedema reduction first body point.

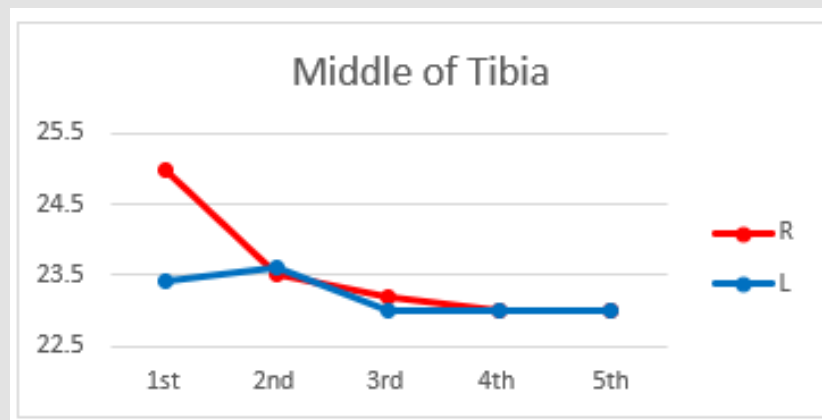


Figure 2: Progression of oedema reduction second body point.

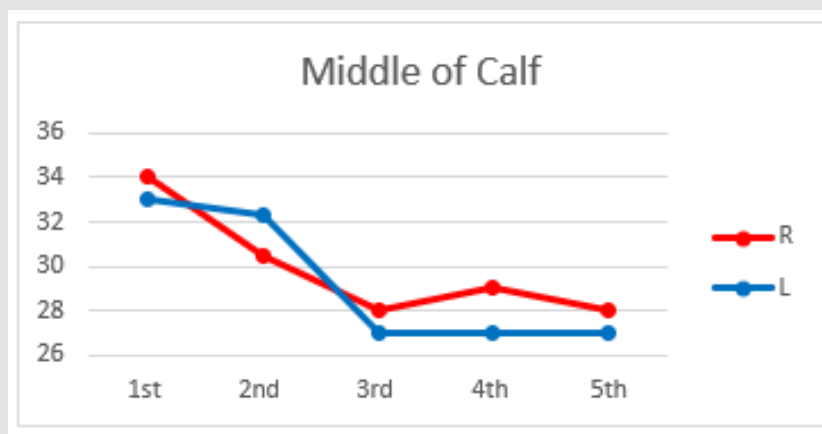


Figure 3: Progression of oedema reduction third body point.

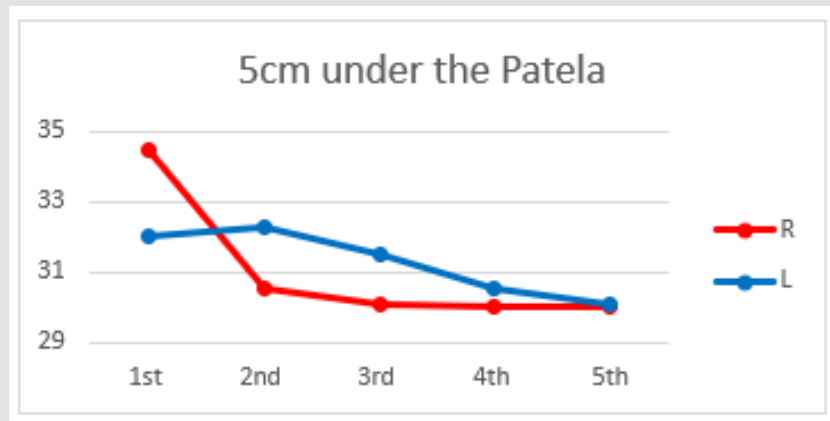


Figure 4: Progression of oedema reduction fourth body point.

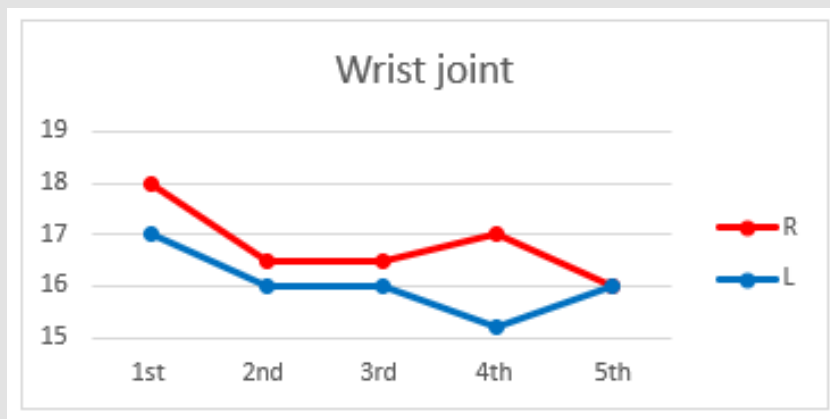


Figure 5: Progression of oedema reduction fifth body point.

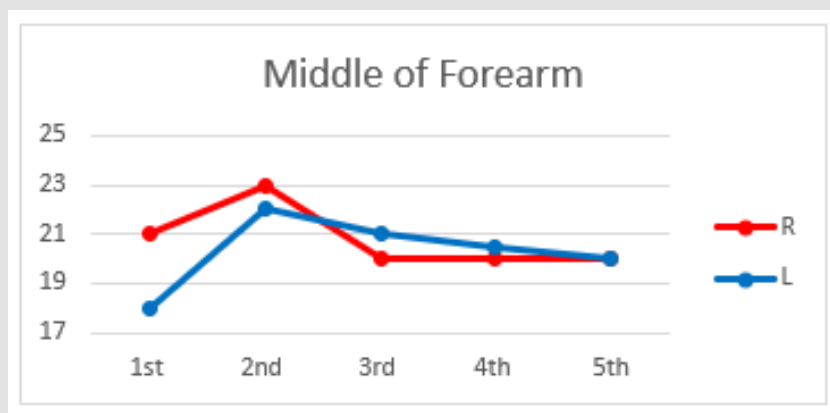


Figure 6: Progression of oedema reduction sixth body point.

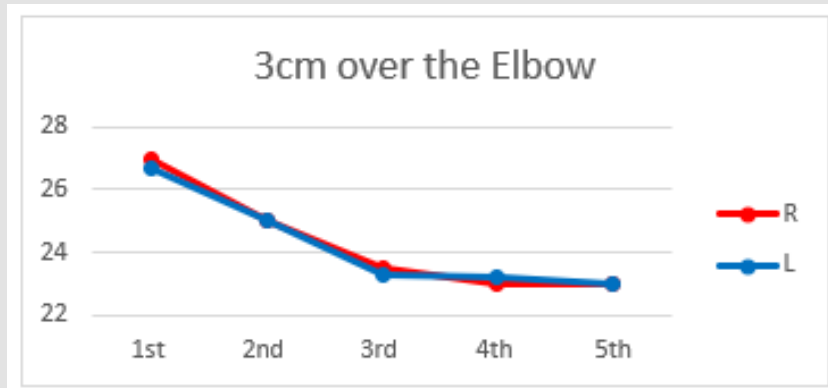


Figure 7: Progression of oedema reduction seventh body point.

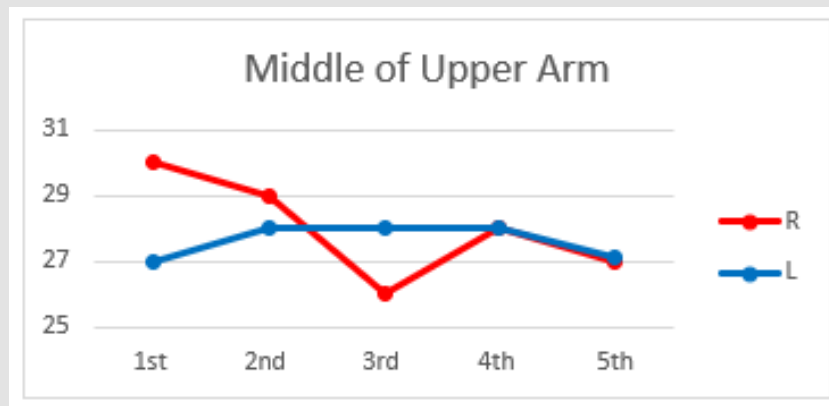


Figure 8: Progression of oedema reduction eighth body point.

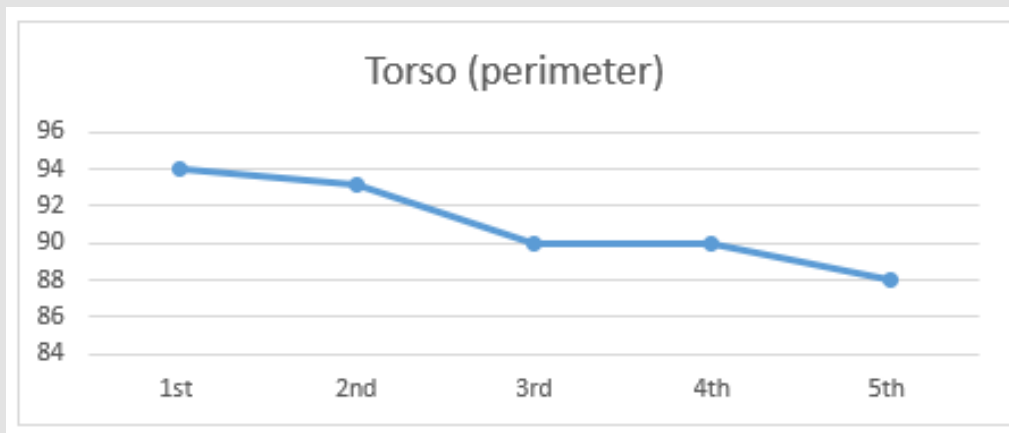


Figure 9: Progression of the oedema reduction of torso.

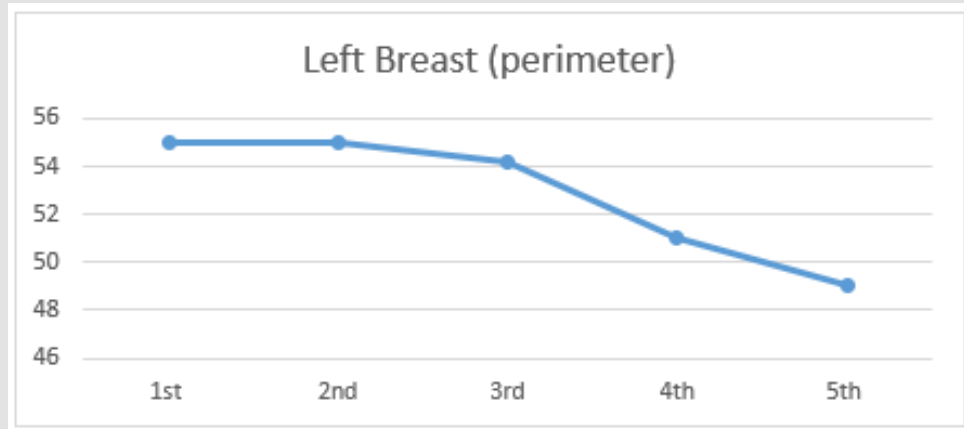


Figure 10: Progression of Lymphedema reduction of the left breast.

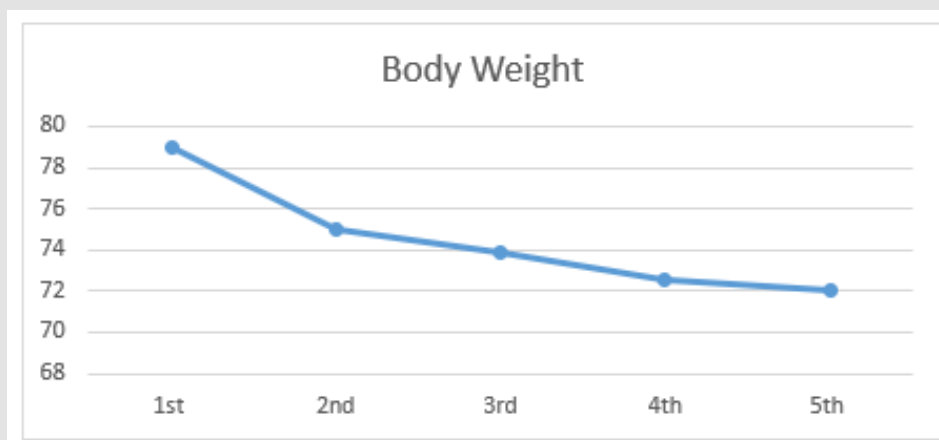


Figure 11: Progression of body weight loss.

Discussion

The patient in this case study developed lymphedema and generalized oedema after mastectomy of left breast and chemotherapy due to breast cancer. In addition, torso oedema also observed. The major reduction of oedema after an eight-weeks MLD protocol was significant and helped the patient to have better mobility of upper body and less discomfort. Additionally, even though the mastectomy area was on the left site of the body, the right site was found to have the largest amount of oedema. The left site of the body had less oedema, although some increase in two body points was found. The major oedema of the torso had had an enormous reduction through time. The body weight had also a significant reduction. Finally, the lymphedema on the left breast had been reduced and become softer and more flexible. The most important notice during the procedure was that the patient did not perform any type of exercise due to her poor condition and did not change her diet. That gives the conclusion that the reduction of the oedema and lymphedema was the result of

MLD protocol. Some other researchers conducted the same results in three patients with lymphedema after mastectomy and chemotherapy. They found that the most common reason to develop lymphedema is chemotherapy and radiotherapy and must be prevented in an early stage (Park, et al. [12]). Even though, the patient would continue the treatment to phase 2, she developed respiratory systemic infection due to a common cold and the therapy stopped. After, that the patient started the phase 2 with compressive garment (bra and belt) and exercise twice a week.

Conclusion

This case study shown that the eight-week protocol of MLD was effective and helped the patient to feel better. Furthermore, the treatment did not have any side effects and the patient did not feel any pain during the procedure. According to the results MLD is an effective, pain-free, and suitable treatment for the reduction of Lymphedema and generalized oedema after mastectomy and chemotherapy.

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