International Journal of Community Medicine and Public Health
Mankar SN et al. Int J Community Med Public Health. 2026 Jul;13(7):3931-3934
https://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20262302

Case Report

Lymphastim and breathing exercises in breast cancer-related lymphedema: a path to improved lung function and quality of life – a case report

Shruti N. Mankar[1]*, Bhagyashree C. Salekar[2], Mayura Deshmukh[3], Karuna Kamble[3]

[1]Department of Cardiovascular and Respiratory Physiotherapy, PES Modern College of Physiotherapy, Pune, Maharashtra, India
[2]Department of Musculoskeletal Physiotherapy, MAEER's Physiotherapy College, Talegaon Dabhade, Pune, Maharashtra, India
[3]Department of Cardiorespiratory Physiotherapy, Dr. D. Y. Patil College of Physiotherapy, Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune, Maharashtra, India

Received: 24 April 2026
Accepted: 16 June 2026

***Correspondence:**
Dr. Shruti N. Mankar,
E-mail: mankarshrutee@gmail.com

ABSTRACT

Breast cancer incidence in India is rising, accounting for 66% of all cancers diagnosed in a year. Due to improvement in survival rates attributed to various treatment alternatives, emphasis on quality of life and secondary complications of breast cancer are of importance. Breast cancer related lymphadenopathy is a common complication in breast cancer treatment. A 76-year-old female, case of treated breast carcinoma, 5 years ago with radical mastectomy, presented with progressive, painless swelling of the left upper limb for 30 days. The swelling originated in the fingers and wrist, gradually extending proximally, restricting her functional activities. She also complained of progressive breathlessness, difficulty in doing day to day activities. Clinical examination and investigations, including arm circumference measurements, the modified Medical Research Council scale, pulmonary function tests, and the lymphedema quality of life questionnaire, confirmed significant lymphedema. The patient underwent lymphastim therapy with structured breathing exercises protocol for 4 weeks. Post-intervention assessments revealed a significant reduction in limb circumference, improved pulmonary function parameters (FEV1: 0.84 -1.06, FVC: 0.84 - 1.04), and an enhanced quality of life score (LYMQOL: 65 to 30) with relief from breathlessness and comfort in doing day to day activities. This case highlights the effectiveness of lymphastim and breathing exercises in reducing lymphedema-related morbidity and improving functional outcomes in breast cancer survivors.

Keywords: Breast cancer related lymphedema, Physiotherapy, Cancer rehabilitation, Mastectomy, Lymphastim

INTRODUCTION

Breast cancer is the commonest malignancy in India, with a prevalence of about 14% amongst the females. The incidence of breast cancer starts usually in women in their early thirties till late fifties and it continues as the age increases.[1] Due to evolution in the advances in the treatment of cancer, the numbers of cancer survivors are also now increasing drastically. Consequently, the complications from the treatment of breast cancer are gaining more importance. Secondary lymphedema accounts for about 2-40% cases reported as a complication post the treatment of breast cancer either by chemotherapy, surgery or radiation therapy.[2] Approximately 1 in 5 patients experience secondary lymphedema, as a complication post-surgery, post axillary lymph node dissection or chemotherapy or local lymph node radiation resulting in swelling and deformity of skin. The prevalence of breast cancer related lymphedema rising to about 19.9% and 24% at two and seven years post breast cancer

respectively, with majority of patients reporting lymphedema in upper arm than trunk. This risk is comparatively more in women who have undergone lymph node dissection as well as radiation.

Breast cancer related lymphedema (BCRL) is a potential morbidity that has detrimental effects on the patients functional and psychological aspects of quality of life.[3] Lymphedema, apart from being a reminder of the cancer is also painful and is psychologically distressing for the patients as it starts affecting their quality of life. Upper limb Lymphedema is a chronic progressive pathological complication characterized by accumulation of protein rich fluid in the interstitial spaces due to disruption of the lymphatic system, post mastectomy surgery or radiation to the upper limb. Lymphedema can be diagnosed with various subjective findings like painless swelling due to increase in the arm volume and circumference, which affects the upper extremity movement, strength and thus affecting the overall functional and day to day activities. A holistic approach needs to be directed in order to improve the functional activities and reduce the psychosocial impact of the condition.[4]

Complete decongestion therapy is a traditional treatment, with manual lymphatic drainage, faradism under pressure, elevation, crepe bandage as components as a part of the therapy.[5] Intermittent pneumatic compressions, is a non-invasive device that has been used to treat venous thromboembolism in venous ulcers.

Lymphastim is a mechanical compression device, based on pneumatic pressotherapy principle helps to facilitate the movement of lymphatic fluid. The present case highlights the complex treatment program planned using lymphastim, breathing exercises and active upper extremity exercises for rehabilitation of breast cancer related lymphedema.

CASE REPORT

A 76-year-old female, a known and treated case of breast carcinoma, operated for radical mastectomy, 5 years ago presented with painless, swelling over the left arm extending up to the fingers, which was gradually progressing for 30 days.

She initially observed the swelling in the fingers and wrist and experienced difficulty in lifting and grasping objects. The swelling gradually progressed to the proximal areas due to which she was unable to do her functional activities and experienced discomfort.

She also started experiencing discomfort in breathing while doing strenuous activities, which gradually progressed to breathlessness in her day-to-day activities like stair climbing, walking and changing clothes. The patient visited her oncologist for the swelling in the left arm and the breathing dysfunction for which she was recommended to the physiotherapist for further treatment. For assessment, several clinical examination and investigations were conducted such as arm circumference/girth measurement, modified medical research council scale, pulmonary function test, and lymphedema quality of life arm questionnaire (Table 1).

Table 1: Investigations (pre intervention).

Investigation	Pre	Left	Right
ARM circumference	Axilla	14	13.2
	Biceps	12.5	10.5
	Elbow	11.2	9.5
	Mid forearm	11	7.2
	Wrist	8	6
	Finger F1	4	2.5
	F2	3	2.1
	F3	3	2.1
	F4	2.5	2.1
	F5	2.2	1.9
MMRC	3		
PFT	FEV1	0.84	
	FVC	0.84	
	FEV1/FVC	100 %	
LYMQOL	65 (8 on quality of life)		

A complete decompression protocol was planned for the patient which included lymphatism (intermittent pneumatic compression therapy), upper extremity exercises and breathing exercises. Table 2 discussed the protocol for 4 weeks (Figure 1).

Assessment tests were repeated after a month, which showed tremendous improvement in the swelling of left arm, functional abilities, breathing capacity and overall, in her quality of life (Table 3).

Table 2: Protocol for 4 weeks.

Complete decongestion program	Protocol
Intermittent pneumatic compression therapy	50 minutes protocol: affected arm elevated in an upper limb cuff, a pressure gradient of 50 mmHg used with gradual rise and fall in the pressure
Neck and shoulder exercises	20 minutes protocol: 10 repetitions of neck movements, chin tucks, assisted shoulder range of motion exercises for flexion, abduction, shoulder shrugs, elbow flexion–extension and wrist rotations
Breathing exercises	40 minutes protocol: 10 repetitions of apical, segmental and diaphragmatic breathing exercises, followed by 10 repetitions of thoracic expansion exercises

Table 3: Investigations (post intervention).

	Post	Left	Right
ARM circumference	Axilla	10	13.2
	Biceps	11	10.5
	Elbow	9.2	9.5
	Mid Forearm	8	7.2
	Wrist	6.5	6
	Finger F1	2.5	2.5
	F2	2.1	2.1
	F3	2.1	2.1
	F4	2.1	2.1
	F5	1.9	1.9
MMRC	1		
PFT	FEV1	1.06	
	FVC	1.04	
	FEV1/FVC	97.40%	
LYMQOL	30		

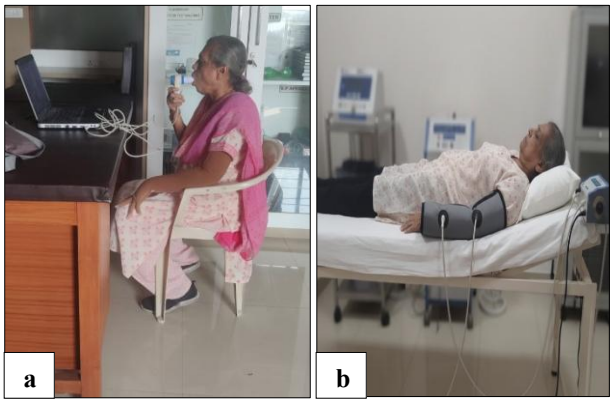

Figure 1 (a and b): Patient undergoing lymphastim therapy.

DISCUSSION

Lymphedema is a swelling in the tissue spaces that develops due to an interruption in the lymphatic system.[6] Apart from swelling due to accumulation of lymphatic fluid in the upper limb, it also affects the QoL in all concerns including physical concerns like heaviness, inability to complete full range of movement, muscle weakness, psychological concerns like social embarrassment and functional concerns like not able to do daily routine activities independently. Lymphedema when detected early and treated with palliative rehabilitation is easy to resolve with functional improvement.

World Health Organization (WHO) has released morbidity, management and disability prevention (MMDP) guidelines for lymphedema and have highlighted use of various physiotherapeutic interventions like manual lymphatic drainage, faradism under pressure, bandaging, kinesio taping, compression bandaging and exercises.[7]

In the above case presented, lymphastim along with breathing exercises showed significant effects in treatment of lymphedema. According to Leduc, lymphastism which is intermittent pneumatic compression works on the principle of pressotherapy.

Lymphastism is a mechanical decompression therapy where the cuff applied along the length of arm causes compression and relaxation initially in the proximal and later in distal areas, thus helping the accumulated fluid to drain in the lymphatic vessels.

Along with lymphastism, shoulder exercises showed tremendous improvement in the range of motion, muscle strength and helped in reduction of arm circumference, whereas breathing exercises improved the lung capacity.

Breathing exercises including thoracic expansion exercises, segmental breathing, diaphragmatic breathing exercises improved lung capacity, lung volume and helped in the drainage of lymph in the lymphatic vessels. Diaphragmatic breathing exercises which facilitate the abdominal excursion aid in the direction of lymph into the thoracic duct, resulting in lymphatic drainage.[8]

CONCLUSION

This study reports a patient case report for breast cancer-related lymphedema, where she was stage zero post-treatment. Changes were slow and gradual as reported by the patient which she took lightly and didn't report to the medical professional and no intervention was followed. After three months it led to stage 2, with the development of the heavy limb and higher circumferential measurements. This study provided the data assessment of the patient concluding that leniency can lead to severe issues, making the condition less manageable and negatively affecting the QoL.

ACKNOWLEDGEMENTS

Authors would like to thank the patient for her co-operation and consent. They would also like to extend gratitude to the faculty and colleagues for their timely guidance and support in completing this case report.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 2021;71:209-49.
2. Pappalardo M, Starnoni M, Franceschini G, Baccarani A, De Santis G. Breast Cancer-Related Lymphedema: Recent Updates on Diagnosis, Severity and Available Treatments. J Pers Med. 2021;11(5):402.
3. Zhang J, Wang C. Axillary radiotherapy: An alternative treatment option for adjuvant axillary management of breast cancer. Sci Rep. 2016;6:26304.
4. Lawenda BD, Mondry TE, Johnstone PA. Lymphedema: a primer on the identification and management of a chronic condition in oncologic treatment. CA Cancer J Clin. 2009;59:8-24.
5. Lasinski BB, McKillip Thrift K, Squire D, Austin MK, Smith KM, Wanchai A, et al. A systematic review of the evidence for complete decongestive therapy in the treatment of lymphedema from 2004 to 2011. PM R. 2012;4(8):580-601.
6. Fu MR, Axelrod D, Haber J. Breast-cancer-related lymphedema: information, symptoms, and risk-reduction behaviors. J Nurs Scholarsh. 2008;40:341-8.
7. Narahari SR, Ryan TJ. Morbidity management and disability prevention: An agenda for developing nations initiated in India. Lymphology. 2020;53(4):157-61.
8. Douglass J, Mableson HE, Martindale S, Kelly-Hope LA. An Enhanced Self-Care Protocol for People Affected by Moderate to Severe Lymphedema. Methods Protoc. 2019;2(3):77.

Cite this article as: Mankar SN, Salekar BC, Deshmukh M, Kamble K. Lymphastim and breathing exercises in breast cancer-related lymphedema: a path to improved lung function and quality of life – a case report. Int J Community Med Public Health 2026;13:3931-4.