

## Management of scrotal and penile lymphedema – physiotherapist experience: A case series

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### ABSTRACT

Scrotal and penile lymphedema (SPL) is one of the complications of urogenital cancer treatment. Presenting here with a case series of three patients who were referred to the physiotherapy department for SPL management. Although SPL is routinely treated surgically, there are no recommendations for the assessment of SPL. Hence, in our case series, assessments were done pre- and post-intervention using Modified Justine Whitaker's pouch measurement for girth difference and genital lymphedema score for identifying symptoms. The gold standard management of lymphedema is complete decongestive therapy (CDT), which includes skin care, multilayered lymphedema bandaging with short-stretch bandages, manual lymphatic drainage, exercises, and a compression garment. In this case series, CDT was administered by modifying the bandages; Coban 2 and finger bandages were used for SPL. Coban 2 bandages are self-adhesive bandages that fix securely and firmly around the waist and genitals without causing slippage and can be left for 2–3 days or till it gets loosened. Interventions were done for 5 days. Physiotherapy approaches using the principles of CDT are beneficial and effective without subjecting patients to surgical assaults. Clinicians and physiotherapists should be made aware of the well-established conservative management of SPL, which is poorly practiced due to embarrassment, taboo, and fear.

**Key words:** Complete decongestive therapy, Penile lymphedema, Physiotherapy management, Scrotum


Lymphedema is an abnormal accumulation of lymphatic fluid (protein-rich) in the subcutaneous tissue and under the skin, progressing to pitting and tissue fibrosis secondary to damage, disruption, or developmental abnormality of the lymphatic system. Consequently, skin loses elasticity, which may further become thickened, causing irreversible changes [1]. A compromised lymphatic system makes the area more susceptible to infections, especially recurrent cellulitis, ulceration, lymphorrhea, and lymphangitis [1,2]. Lymphedema has been classified into two types, primary and secondary [2]. Primary lymphedema is idiopathic, caused by lymphatic vessel defects, whereas secondary lymphedema could be due to infections, cancer, and its treatments [2]. Secondary lymphedema is caused due to infective etiology, with human parasitic roundworm, *Wuchereria bancrofti*, is one of the major causes of filariasis, which is commonly seen in tropical countries. While in developed countries, secondary lymphedema is most commonly seen due to cancer and its treatment [3]. Scrotal lymphedema is one of the many complications of urogenital cancer treatment,

especially presenting with advanced diseases and pelvic lymph node involvement [3]. It may present with or without lower extremity and/or penile lymphedema [3,4]. Patients with scrotal lymphedema may present with urinary incontinence and sexual dysfunction, causing social embarrassment, emotional, and psychological distress [3,4]. Most patients present with massive scrotums causing heaviness and pain, restricted physical activity, hampering self-care, thereby impacting their quality of life [3].

According to the International Society of Lymphology, the gold standard management of lymphedema is complete decongestive therapy (CDT), which includes skin care, multilayered lymphedema bandaging (MLLB), manual lymphatic drainage, exercises, and a compression garment. Management of scrotal lymphedema, though well-established, is poorly practiced due to embarrassment, taboo, and fear of accusations of sexual abuse [2].

### CASE SERIES

There are no standard guidelines for the assessment of scrotal and penile lymphedema (SPL). General assessment includes the patient's treatment history (surgery, radiation, and chemotherapy),

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physical examination (pitting and tissue fibrosis), skin conditions such as lymphorrhea, redness, cellulitis, and any other infective etiology. Diagnostic tests, likely lymphoscintigraphy and magnetic resonance imaging, are done to confirm the diagnosis of secondary lymphedema. However, these investigations are only available at major super-speciality hospitals and educational institutions and incur additional costs to the patients. Hence, the physiotherapists have used easily available and simple administered tools for lymphedema assessment, in this case series of three patients with SPL (Fig. 1a), who were referred to the physiotherapy department, Tata Memorial Hospital, Mumbai. These assessments will aid in providing an understanding of the patient's symptoms, help to quantify the lymphatic load, and evaluate the effectiveness of scrotal lymphedema management.

The tools used in our case series are Modified Justine Whitaker's pouch measurement (MJWPM) for girth difference and genital lymphedema score (GLS) for identifying symptoms.

### MJWPM

For objective assessment, the MJWPM method was used [5]. In this method, the maximum girth of the scrotum was measured at the neck and base of the scrotum, and the length of the scrotum was measured from the base of the penis to the perineum in a standing position (Fig. 2) [5,6]. The maximum girth measurement of the penis at the neck and base was measured in a standing position (Fig. 3) [5,7]. Assessments were done at baseline and after 5 days.

### GLS

Subjective assessment of SPL was done using the GLS, which is calculated based on symptoms. There are six symptoms, which include a sensation of heaviness, the sensation of tension, swelling, urinary troubles due to genital edema, cutaneous lymphatic cyst or vesicle, and lymphorrhea. The symptoms are rated from 0 to

2, where 0 indicates no affection, whereas 1 or 2 indicates the presence of affection. The total score of GLS is out of 9, where higher scores indicate severe symptoms (Table 1) [6].

MLLB is an important and integral component of CDT [2]. Although short-stretch bandages or inelastic bandages of different sizes are used to provide compression in extremities, the shape, structure, and contour of the scrotum causes the bandages to slip and make it difficult to provide effective support to the genital area. Hence, Coban 2, a type of short-stretch bandage with cohesive property, was used for all three patients with scrotal edema (Fig. 1b) [7-9]. It is a self-adhesive bandage, which fixes securely and firmly around the waist and genitals without causing slippage and can be left for 2-3 days or till it gets loosened due



Figure 2: Depicts scrotal lymphedema measurements



Figure 1: Depicts scrotal and penile lymphedema and management. (a) Scrotal and penile lymphedema. (b) Scrotal and penile bandaging. (c) Compression garment



Figure 3: Depicts penile lymphedema measurements

to volume reduction [7,9]. Coban 2 bandage was used with foam underneath, as a direct application on the skin may cause irritation or injury [7]. The bandages were changed daily throughout the treatment period. For two patients with penile edema, finger bandages, also known as soft touch bandages, were applied across the shaft of the penis (Fig. 1b) [7,8]. Treatment duration was 5 days as the patients were out-stationed and were unwilling to wait for a longer duration. A scrotal garment was provided to all patients at the end of treatment (Fig. 1c) [10].

The following are the details of the patients who were referred for lymphedema management. Assessment details of all patients are provided in Tables 2 and 3. Lymphedema management using MLLB was done for all patients, followed by providing compression garments.

Case 1

A 58-year-old male patient, diagnosed with muscle-invasive bladder cancer, underwent four cycles of neo-adjuvant chemotherapy followed by radical cystoprostatectomy and bilateral pelvic lymph node dissection in 2021. The patient has a stoma bag *in situ*. Post-surgery, the patient developed swelling in the scrotum and penis, for which no medical investigation was done. The patient was using a scrotal garment for 3 years without any significant reduction in the swelling. The patient presented to the Physiotherapy Department in April 2024 with complaints of scrotal and penile swelling, heaviness, and difficulty in ambulation. The patient was assessed and treated conservatively for SPL. The patient showed significant improvement in the treatment outcomes.

Case 2

A 55-year-old male patient, diagnosed with carcinoma penis, underwent partial penectomy and left inguinal node biopsy in September 2023. Later, developed a 5×4 cm left inguinal nodal mass in 2024, for which he underwent bilateral ilio-inguinal lymph node dissection and free anterior thigh flap reconstruction in January 2024. Surgical site infection was noted and was treated with a course of antibiotics. Following this, swelling in the scrotum was noted. The patient complained of swelling and firmness in the scrotum and was referred to the physiotherapy department for management of the same. The case was discussed with the treating team for confirmation of lymphedema diagnosis, as no underlying investigations were done. The patient was started on CDT for SPL, and a significant reduction was seen.

Case 3

A 40-year-old male, a known case of carcinoma of the penis, underwent partial penectomy with bilateral ilioinguinal lymph node dissection in September 2024. The patient complained of scrotal edema post-surgery, while penile edema was not evident due to maximal resection of the penile shaft. The patient was initially advised to use scrotal support to manage the swelling,

Table 1: Genital lymphedema score [6]

Subjective Symptoms	No	Yes
Sensation of heaviness	0	1
Sensation of tension	0	1
Swelling	0	1
Urinary troubles due to genital edema	0	2
Cutaneous lymphatic cyst	0	2
Genital Lymphorrea	0	2
Total=GLS	Range	0-9

Table 2: GLS pre- and post-intervention

GLS (genital lymphedema score)	PRE	POST
Case 1	5/9	2/9
Case 2	7/9	4/9
Case 3	7/9	2/9

Table 3: Objective lymphedema assessment

Assessment details	PRE	POST	Difference in measurements (%)
Case 1			
Scrotum circumference in cm			
Upper	46	37	20
Middle	43	36	16
Lower	37	30	23.33
Vertical	36	25	30.56
Penile circumference in cm			
Upper	16.5	11	33
Middle	16	10.5	34
Lower	14.4	10	30.55
Case 2			
Scrotum circumference in cm			
Upper	43	37	13.9
middle	36	32	11
Lower	34	30	11.76
Vertical	36	31	14
Penile circumference in cm			
Upper	22	17	22.7
Middle	23	18	22
Lower	23	19	17.3
Case 3			
Scrotum circumference in cm			
Upper	34.2	28	18.12
middle	34	29	17.2
Lower	31.5	27	12.9
Vertical	27.5	22	20

which showed no significant improvement. No medical investigations were done to diagnose lymphedema. Regular assessment was done using MJWPM on every follow-up, which demonstrated an increase in the swelling and tissue thickening. Hence, lymphedema management was started using bandaging, which effectively reduced the symptoms.



## RESULTS

Comparison between the subjective outcome measures (GLS) was done pre- and post-intervention (Table 2). Baseline GLS was 7/9 for the 2<sup>nd</sup> and 3<sup>rd</sup> cases, which was reduced to 4/9 and 2/9, respectively, post-treatment. For the 1<sup>st</sup> case, the score pre-treatment was 5/9, as the patient had a stoma bag *in situ* for urine collection, and this score dropped to 2/9, signifying a reduction in the patient's symptoms. MJWPM was taken at pre- and post-intervention, as shown in Table 3. Case 1 showed a 16–23% reduction in girth while the vertical length and penile edema were reduced by  $\geq 30\%$ . Case 2 showed a reduction of 10–14% in scrotal edema and 17–22% in penile edema. Case 3 only had scrotal edema, which reduced to 12–20%.

## DISCUSSION

The differential diagnosis of SPL is challenging, as infection-causing cellulitis and lymphangitis are commonly seen in cancer patients. Primary lymphedema due to lymphatic pathway affection, such as filariasis, is also an established cause in developing countries [7]. The incidence of scrotal lymphedema is very low, and hence, the research pertaining to the management is poor. Although studies with surgical interventions are numerous, there are very few case reports that have focused on conservative management using compression garments, bandaging, and skin care.

Benjamin *et al.* discussed the conservative management of acute scrotal edema using scrotal support, sling, and Whitekar pouch for benign and malignant conditions [10]. The present case series highlights the importance of physiotherapy intervention in the management of SPL. There are studies on the surgical management of scrotal lymphedema, but very few studies stress the importance of conservative management of SPL. In our case series, the objective assessment showed a significant reduction in the girth measurement. This was due to the use of a Coban bandage, which provides high working pressure and low resting pressure, creating peak pressure to produce a good lymphatic flow. Coban is self-adhesive and need not be changed every day. In our study, we were required to change the bandages every day as they became loose, signifying its effectiveness in reducing edema in the distorted area. With a good reduction in girth measurement, symptoms were reduced, causing a reduction in GLS score, which improves function, mobility, and quality of life. To maintain the reduction of scrotal edema, all patients

were fitted with a customized compression garment at the end of 5 days, which is in line with the recommendation by Whitekar for prescribing garments [7,8].

This study highlights the importance of early detection and management of SPL and also creates awareness among clinicians and therapists. It will help in improving their quality of life and maintaining personal hygiene. Although this is one of its kinds of case series on conservative management of SPL in the Indian cancer population, the number of patients was very less; hence, more patients and clinicians should be sensitized about the conservative management. All the patients were treated only for 5 days; hence, further improvement beyond 5 days of intervention could not be assessed.

## CONCLUSION

SPL can be treated effectively with the Coban 2 short-stretch compression bandage and soft touch bandage.

## REFERENCES

1. Saeed GT, Ahmad D, Al Smady MN, Awatramani G, Hamid TA, Janahi F. Isolated scrotal lymphedema in a 43-year old male patient: A case report. *Int J Surg Case Rep* 2024;117:109403.
2. American Society of Lymphology (ASL) Guidelines. Best Practice for the Management of Lymphoedema. International Consensus London: MEP Ltd.; 2006.
3. Pastor C, Granick MS. Scrotal lymphedema. *Eplasty* 2011;11:ic15.
4. Kumar S, Saha A, Kumar S, Singh P, Singh KK. Giant scrotal lymphoedema: A case series. *Cureus* 2023;15:e48248.
5. Whitaker J. Best practice in managing scrotal lymphoedema. *Br J Community Nurs* 2007;12:S17,-8, 20-1.
6. Yamamoto T, Yamamoto N, Furuya M, Hayashi A, Koshima I. Genital lymphedema score: Genital lymphedema severity scoring system based on subjective symptoms. *Ann Plast Surg* 2016;77:119-21.
7. McDougal WS. Genital lymphedema. *J Lymphedema* 2009;4:1.
8. Reddick M. Scrotal lymphedema- compression solution for challenging condition. 2012:18-22.
9. Borman P, Noble-Jones R, Thomas MJ, Bragg T, Gordon K. Conservative and integrated management of genital lymphoedema: Case reports for men. *J Wound Care* 2021;30:6-17.
10. Benjamin KD. Conservative management of acute scrotal edema. *Urol Nurs* 2014;34:139-42.

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