

Treatment of Elephantiasis with Physiological Retraction of the Skin to Clinical Standards of Normality

Abstract

Background: Stage III lymphedema, also known as elephantiasis, is the most advanced stage and involves the occurrence of large deformities. **Aim:** The aim of the present study was to show the physiological retraction of large folds of excess skin during the treatment of elephantiasis. **Case Report:** This article reports the case of a 30-year-old woman with bilateral stage III lymphedema who weighed 109 kg. The largest circumference measurements below the knee were 97 cm on the right leg and 76 cm on the left leg. Intensive treatment was performed, involving 8 h per day of mechanical lymphatic therapy with the RAGodoy® device, which performs passive plantar flexion and extension, 15 min of cervical lymphatic therapy per day, and the use of non-elastic laced compression stockings. Treatment resulted in a considerable loss of edema as well as the occurrence of folds of excess skin, which were resolved by continuing treatment in a slower, non-intensive manner. **Conclusion:** Folds of excess skin are common during the treatment of large lymphedemas until reaching standards of normality or near normality but can be resolved with further clinical treatment.

Keywords: Elephantiasis, Godoy method, lymphedema, physiological, skin retraction, treatment

Introduction

Lymphedema is a clinical condition caused by the retention of macromolecules in the interstitial space, leading to the retention of fluids and the development of a specific type of edema. The cause may be primary or secondary. In primary lymphedema, the patient is born with a congenital abnormality. Congenital lymphedema occurs at birth and is apparent at 2 years of life. Lymphedema praecox occurs at puberty and lymphedema late is seen in those above the age of 35 years. In secondary lymphedema, the patient is born without the problem, but the condition arises because of the damage to the lymphatic system throughout the course of life.^[1-3]

Lymphedema is classified based on clinical staging. In stage I, edema develops throughout the course of the day but is reversed with rest. In stage II, the patient wakes up with edema, which is aggravated throughout the course of the day and there is no reversal of the condition even with several days of rest. Clinical stage III, which is also known as elephantiasis, is

the most advanced stage and involves the occurrence of large deformities.^[1]

Regarding treatment, a considerable advance emerged with novel concepts and therapeutic modalities developed by Godoy and Godoy that enable the reduction of approximately 50% of the volume of the swollen limb in 5 days of intensive treatment. This method enables achieving normality or near normality in all clinical stages of lymphedema, including elephantiasis.^[4,5]

One of the consequences of intensive treatment is the occurrence of folds of excess skin at the largest circumferences of the limb, as a more-than-threefold difference in the circumference can be found between an affected limb and the unaffected contralateral limb. These skinfolds constitute a challenge but can be resolved with adaptations to the treatment.

The aim of the present study was to report the physiological retraction of large skin folds resulting from the treatment of elephantiasis.

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Case Report

A 30-year-old woman who had undergone treatment for gynecological cancer developed bilateral lymphedema over the years; the cause was secondary. She underwent several treatments and one of the options was the use of pressure therapy (40 mmHg). After progressing to clinical stage III (elephantiasis), the patient was sent for specific treatment. During the physical examination, bilateral lower limb lymphedema was identified, reaching up to the navel [Figure 1]. The patient weighed 109 kg. The perimetric evaluation was performed every 5 cm from the ankle to the inguinal crease, two measurements of the dorsum of the feet, and two measurements of the circumference in the hip and abdomen region (baseline umbilical). The largest circumference measurements below the knee were 97 cm on the right leg and 76 cm on the left leg.

Stage three lymphedema, classified as, the highest severity by International Society of Lymphology- ISL, presented with fibroadipose deposition and skin changes, hard consistency without pitting. The intensive Godoy method was proposed for treatment. Intensive treatment



Figure 1: Physical aspect of the patient before treatment, showing large deformities

was performed for 10 days, involving 8 hour per day of mechanical lymphatic therapy with the RAGodoy® device, Figure 2, which performs passive plantar flexion and extension, 15 min of cervical lymphatic therapy per day, and the use of grosgrain compression stockings.^[6-8] The type of compression stocking developed by Godoy and Godoy, Figure 3, custom-made according to the size of the limb, uses eyelets to allow a certain amount of adjustment directly by the patient. Grosgrain is a fabric that stretches along its length, thereby allowing normal movement of the limb. However, it stretches little across the width of the fabric (< 50%), thus it is ideal to treat lymphedema. Before putting on stocking, hygiene was done with water, neutral soap, dried with an absorbent towel, and hydrated with a neutral moisturizer, always waiting for the skin to absorb so that it was free of moisture. The patient's weight diminished from 109 to 77.6 kg in 5 days and then to 72 kg after another 5 days of treatment. Figure 4 shows the reduction after 5 days of treatment and Figure 5 shows the result after 15 days of treatment during a period of 3 weeks. The circumference of the right leg diminished from 96 to 73 cm after 5 days of treatment, reaching 57 cm in the second week. The circumference of the left leg diminished from 76 to 65 cm after 5 days of treatment, reaching 43 cm in the second week. The substantial reduction in edema led to the occurrence of numerous folds of excess skin [Figure 6].

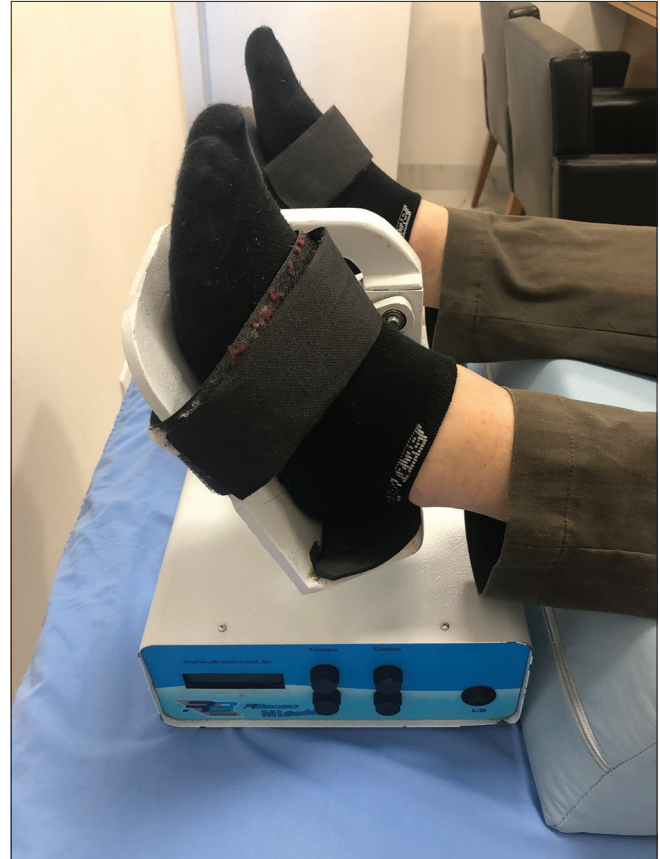


Figure 2: Device mechanical lymphatic therapy (RAGodoy®)



Figure 3: Grosgrain stocking lower limbs

The decision was made to halt intensive treatment and continue treatment only with the grosgrain stocking 24 h per day for 4 months. To treat the skinfolds, the strategy was to use a stocking before gorgurão stocking, made from fitness fabric, which has an elastic component of around 10–15%. With the elevation of the limb during the placement of the stocking, it was possible to achieve an even distribution of the skin. The laced grosgrain stocking was placed after the placement of the fitness stocking. The patient returned after 4 months, having maintained the results, and another 5 days of intensive treatment was performed. Her weight diminished from 74 to 69 kg; the circumference of the right



Figure 4: Change in the volume of limbs and skin after 5 days of treatment

leg diminished from 57 to 34 cm, and the circumference of the left leg diminished from 42 to 32 cm. The patient currently maintains treatment with the grosgrain stocking and has maintained the results for 8 years [Table 1]. The case was approved by the Ethics Committee Research in Medicine School of Sao Jose do Rio Preto-FAMERP-Brazil # 4.411.569. The patient signed the consent form.

Discussion

The present study reports the physiological retraction of the skin following treatment for elephantiasis of the lower limbs. The intensive Godoy method enables substantial reductions in weight and the circumference of the limbs within a short period of time, which results in folds of excess skin.^[4,5] This method achieves a reduction of an average of 50% in the edema within



Figure 5: Aspect of limb and skin after 15 days of treatment during a 3-week period

Table 1: Changes in weight and lower limb circumference throughout treatment

	Initial	5 days	15 days	4 months	8 years
Weight	109 kg	76.6 kg	72 kg	69 kg	70 kg
Right leg	96 cm	73 cm	57 cm	34 cm	33 cm
Left leg	76 cm	65 cm	43 cm	32 cm	32 cm

5 days of treatment, leading to normality or near normality with the continuity of treatment, even in cases of elephantiasis.

The most striking aspect in the present case was the excess skin after therapy, which was resolved with clinical treatment and without the need for surgery. Over the years, a number of patients have experienced important reductions in the circumference of limbs affected with lymphedema, in which the circumference was initially threefold larger in comparison to the normal circumference, and it was possible to achieve such reductions without the occurrence of large folds of



Figure 6: Aspect of limbs and skin 4 months after initial treatment

excess skin. In the present case, the patient experienced a physiological reduction in fibrosis and the physiological retraction of the skin.

Our initial proposal was the normalization or near normalization of lymphedema in all clinical stages. We began by confirming the reconstruction of the layers of the skin using high-frequency ultrasound (article in publication phase). We are currently confirming the reversal of fibrosis through skin biopsy.^[9,10] These studies show that the skin can improve using therapeutic modalities that enable physiopathological reversal. One study (in the publication phase) shows an increase of approximately 250% in elastin and important physiological remodeling. The present study shows that it is possible to achieve the physiological reversal of the affected tissue to within standards of normality or near normality using an adequate method.

Conclusion

Folds of excess skin are common during the treatment of large lymphedemas until reaching standards of normality or near normality but can be resolved with further clinical treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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