

# Scrotal Lymphedema and its Conservative Treatment: A Rare Complication of Circumcision

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## ABSTRACT

Lymphedema is defined as an abnormal accumulation of extracellular fluid in the subcutaneous compartment caused by impaired lymphatic drainage. Scrotal lymphedema is a rare condition characterised by swelling of the scrotal skin due to deterioration in lymphatic drainage. Over time, fibrosis may develop in the scrotum and genital malformations that impair the patient's quality of life. Here, we present the first case in our experience of scrotal lymphedema, which occurred in a 3-year child following circumcision, and subsequently was treated successfully with complex decongestive physiotherapy.

**Key Words:** Circumcision, Complex decongestive physiotherapy, Lymphedema, Scrotum.

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## INTRODUCTION

Scrotal lymphedema is a rare condition characterised by swelling of the scrotal skin due to deterioration in lymphatic drainage. Primary scrotal lymphedema is usually congenital, while secondary lymphedema is mostly due to filariasis in tropical countries.<sup>1</sup> Circumcision may also be counted as a secondary cause. Here, the anatomical relationship between the superficial inguinal lymph nodes and superficial lymphatic system of the penis is in the foreground.<sup>2</sup>

Scrotal lymphedema is characterised clinically by edema and painless enlargement of the scrotum. Fibrosis may develop in the scrotum, leading to genital malformations that impair the patient's quality of life.<sup>3</sup> Treatment is mostly conservative, but it is difficult to apply these methods to the genital area.

Herein, we present, as far as we know, a first case of scrotal lymphedema, which occurred following circumcision in a 3-year-old child and was treated with complex decongestive physiotherapy (CDT).

## CASE REPORT

A 3-year male child was brought to our clinic with the request for circumcision for religious / cultural reasons. On physical examination, the development of external genitalia was normal and there was no previous illness

and surgery. The socio-cultural level and hygiene conditions of the child and his family were good. The patient was circumcised with dorsal slit method, followed by administration of prophylactic antibiotic and anti-inflammatory treatment (cefuroxime 125mg / 5ml + ibuprofen 100mg / 5ml). On the third postoperative day, the patient presented to our center with complaints of enlargement of the scrotum (Figure 1). Physical examination and scrotal ultrasonography (USG) were evaluated and diagnosed as scrotal lymphedema. Antibiotic and anti-inflammatory treatment was continued for 7 days. Observing no reduction in lymphatic edema, we consulted the Physical Therapy and Rehabilitation Clinic. In this clinic, CDT was applied and, after 10 days of treatment, lymphatic edema was completely reduced.

## DISCUSSION

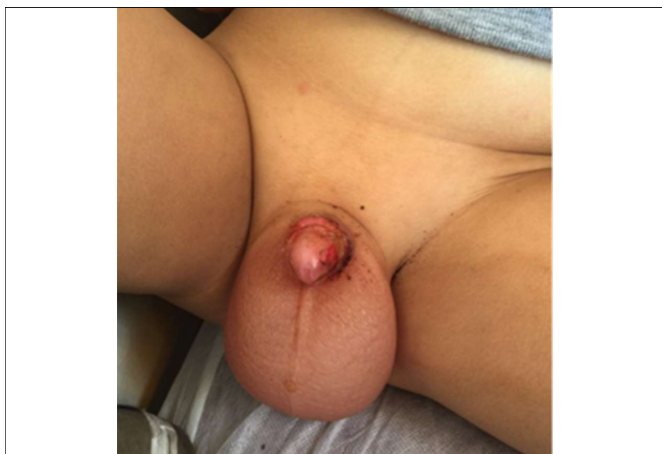
Male circumcision is one of the oldest and most commonly performed surgeries in history. While no complication is observed in most patients, rarely complications may occur, including excessive or inadequate skin removal, pain, hemorrhage, infection, skin bridge, meatal stenosis, meatal ulcers, loss of penile sensitivity, urethro-cutaneous fistula, sexual dysfunction and penile amputation.<sup>1</sup>

Lymphedema is defined as an abnormal accumulation of extracellular fluid in the subcutaneous compartment due to impaired lymphatic drainage.<sup>2</sup> Inhibition of lymphatic flow leads to ductal dilatation, accompanied by hypertrophy and interstitial edema.<sup>3</sup> Primary lymphedema originates from intrinsic impairment of lymphatic vessels and about 14% is inherited.<sup>4</sup> Primary lymphedema is classified as either age-related congenital lymphedema or late-onset lymphedema, which can be seen after 35 years of age.

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**Figure 1:** Scrotal lymphedema, which occurred after circumcision in a 3-year child.

Secondary lymphedema is most often caused by tropical country roundworm *Wuchereria Bancrofti*, or due to surgery, infections and radiotherapy.<sup>5</sup> The underlying pathophysiology is that the lymphatic drainage is interrupted due to damage or surgical removal of lymphatic vessels.

In males, genital lymphedema may affect the penis and scrotum in isolation, but may also coexist in all external genitalia. The penis has two lymphatic systems: superficial and deep. The superficial system empties the superficial inguinal lymph nodes of the preputium, penis skin, and scrotal skin; while in the deep system, glans is drained directly into the pelvic lymph nodes.<sup>6</sup> Therefore, as the excision of the preputium reaches the superficial lymph nodes, the scrotal skin will be affected; while the glans will be completely normal, as in our patient.

Scrotal lymphedema is clinically characterised by edema and painless enlargement of the scrotum. Over time, fibrosis may develop in the scrotum and genital malformations impairing quality of life.<sup>7</sup> Scrotal lymphadenopathy is clinically diagnosed, but scrotal USG and magnetic resonance imaging (MRI) can exclude other possible etiologies.<sup>8</sup> Patients with mild symptoms can be treated with local hygiene, compression, elevation of the affected limbs, diuretics and benzopyrones. Such interventions decrease the amount of protein in the interstitial tissue, activate macrophages, enhance the capillary barrier to prevent exudation of proteins, lower hydrostatic pressure and lower the risk of infection.<sup>9</sup> In severe cases, tissue resection, skin grafts and vascular reconstruction may be needed.<sup>10</sup>

Because of anatomical features, the application of conservative methods to the genital region is difficult. However, if performed by experienced therapists, it can lead to a significant decrease in genital volume. Components of CDT are as follows: manual lymphatic drainage, compression therapy, decongestive kinesio-therapy, and

good skin care, which increase the transport capacity of the lymphatic vessel system. CDT is accepted as the main conservative treatment method for primary and secondary lymphedema, lipolymphedema, and phlebolympedema.<sup>9,10</sup> Additionally, CDT may facilitate genital reduction by providing decrease of pre-operative edema in severe lymphocytic patients.<sup>9</sup> Despite post-surgery antibiotic and anti-inflammatory prophylaxis, a conservative approach was preferred for the patient with scrotal lymphedema and permanent treatment with CDT was provided in our case. We should also keep in mind that although post-circumcision lymphedema is very rare, CDT is an effective conservative treatment option that can be applied.

#### CONFLICT OF INTEREST:

Authors declared no conflict of interest.

#### AUTHORS' CONTRIBUTION:

SA: Design and writing of manuscript.  
 BU: Design of manuscript; and literature review.  
 IA: Data collection; and literature review.  
 AU: Manuscript writing.

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