

Case Reports

Elephantiasis of Penis and Scrotum

NASEHI A, AZADI SH

Department of Urology, Aiatollah Kashani Hospital, Tehran, Iran

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Introduction

Lymphedema of penis and scrotum is rarely seen in countries in which filariasis is not endemic. The abnormal accumulation of lymphatic fluid in subcutaneous tissue of penis and scrotum could lead to swelling, pain, dysuria, and sexual dysfunction (impotency and erectile dysfunction). Lymphedema may be idiopathic or secondary to inflammation, surgery, malignancies, trauma, radiation, hypoproteinemia, and other medical disorders. Lymphatic obstruction is limited to penis and scrotum and is not seen in adjacent organs such as lower extremities, abdomen, and buttock.⁽¹⁾ Regardless of the cause of scrotal and penile elephantiasis, this disease can lead to physical and spiritual weakness and its treatment is difficult particularly in the aged.⁽²⁾

Case Report

A 16-year-old boy was referred to our hospital because of painless swelling of penis and scrotum (fig. 1). He reported a history of swelling since his childhood, which had been intensified during the past year.

No history of irradiation, surgery, trauma, or infection was reported. Penis and scrotum was swelling and non tender. Testes in the scrotum were palpable with difficulty. Mild lower extremities edema was present. Other systems were normal. Ultrasonography of testes and lower urinary tract were normal.

Abdominal and pelvic CT scan, as well as CBC, U/A, ESR and blood biochemical tests were normal. Serologic study was negative for filariasis. With the diagnosis of idiopathic elephantiasis of penis and scrotum, surgery was planned in which extensive debridement of the involved tissue, scro-



FIG. 1. Lymphedema or elephantiasis of penis and scrotum

toplasty by the use of skin flaps of $\frac{1}{3}$ of the posterior scrotum, and Z plasty by applying extra skin of penis region to repair its cover were to be performed (fig. 2, 3, 4).

Pathology report was diffuse dermal edema with chronic inflammation around vessels, compatible with arteriovenous malformation (fig. 5).

Our patient had primary or idiopathic penile or scrotal lymphedema. In one year follow-up after reconstructive surgery, recurrence was not seen



FIG. 2. Freeing of testes and spermatic cord from the surrounding involved tissue through a horizontal incision on posterior part of the scrotum



FIG. 3. Testes, spermatic cord and penis have been separated from the surrounding involved tissue through two longitudinal and spiral incisions.

and he had a normal sexual function.

Discussion

Genital elephantiasis is mostly developed in tropical regions. Degreef believes that about 20% of males in tropical regions develop penile and scrotal elephantiasis.⁽³⁾

Lymphedema has two types: Primary and secondary. Primary lymphedema is subdivided into three categories: 1. congenital-inherited (Milroy syndrome), 2. praecox (with early onset), and 3. tarda (with late onset).⁽¹⁾

Secondary lymphedema has four subtypes: 1. obstructive (secondary to neoplasm, radiation, surgical intervention, mechanical trauma, and chemical agents injection), 2. inflammatory (parasitic, bacterial, and fungal infections), 3. phlebitis, and 4. angioneurotics.⁽¹⁾

Penile and scrotal lymphedema mostly occurs

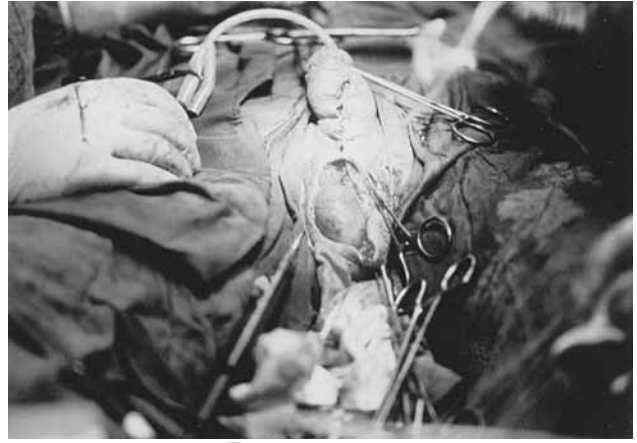


FIG. 4. Scrotoplasty and Z plasty in order to construct the cover of penis following extensive debridement of the involved tissue

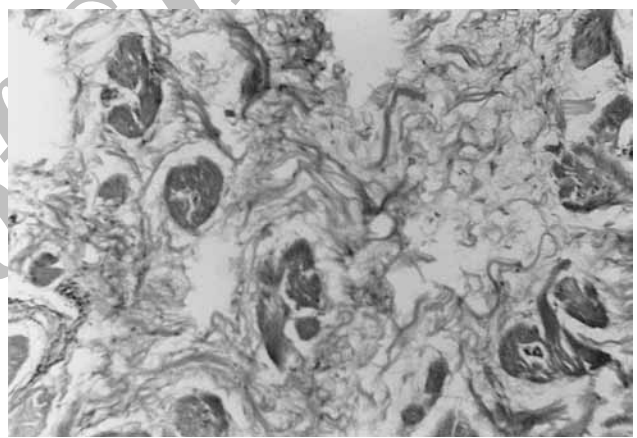


FIG. 5. A microscopic image from the involved tissue that shows diffuse edema in dermis, interstitial tissue, and muscle fibers

following an infection or as a reaction to trauma. Idiopathic lymphedema is rarely seen and is caused by a primary obstruction of lymphatic vessels of scrotum.⁽¹⁾

No effective medical treatment has been introduced; instead, different surgical methods for the treatment of chronic genital lymphedema have been reported in the literature. Two main methods are as follows:

1. Physiologic methods or lymphangioplasty through which lymphatic discharge from involved regions to new lymphatic channels is obtained.
2. Lymphangiectomy with reconstructive surgery.⁽²⁾

Lymphangioplasty is used in the cases of recurrent lymphedema; however, this method can not be successful in the cases of chronic fibrosis or lymphedema caused by radiation because of the lack

of appropriate lymphatic channels.⁽²⁾

Lymphangiectomy includes the removal of superficial lymphatic network, which is located above the Buck's fascia which is derived from median raphae and prepuce lymphatics. These lymphatics drain to superficial posterior lymphatic channels. A deeper system is located beneath the Buck's fascia and is drained into deep inguinal lymph nodes.⁽⁴⁾

This method of drainage leads to the success of this surgical method. It is essential to remove involved skin and subcutaneous tissue completely (reduction scrotoplasty) to prevent lymphedema recurrence followed by reconstructive surgery of penis and scrotum.^(5,6)

Different surgical techniques are used in lymphangiectomy and repair of penis and scrotum which include Jourdan and Meller,⁽¹⁾ Dlepech,^(2,5) Larrey,⁽⁵⁾ Cadogan and Anderson,⁽⁷⁾ Raghaviah,⁽⁸⁾ Vaught,⁽⁹⁾ Dandapat,^(3,5) Morey,⁽¹⁰⁾ Apesos,⁽²⁾ and Malloy.⁽¹⁾

Surgical complications of elephantiasis or genital lymphedema include hemorrhage, hematoma, urethral injury, infection, painful erection, decrease of sensation, and scar in suture line. These complications could be reduced by using a proper incision, use of Z plasty instead of longitudinal suture, separating of testes and cord by an

external incision in scrotum before taking any measure, and removal of involved tissue.^(2,3)

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