

Surgical management of giant scrotal lymphedema in morbidly obese patient with trisomy 21

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ABSTRACT

Huge scrotal lymphedema is a rare problem that affects the patient's lifestyle and leads to physical and emotional disability. It also carries potential challenges for the treating surgeon, especially if the patient is noncompliant or morbidly obese. A 21-year-old morbidly obese trisomy 21 man with huge scrotal lymphedema and buried penis that developed within 2 years presented for excision scrotoplasty with reconstruction of the penis using the original invaginated penile skin. Giant scrotal lymphedema with buried penis can be treated successfully by excision scrotoplasty with preservation of the invaginated healthy penile skin to reconstruct the penis. (*J Vasc Surg Cases and Innovative Techniques* 2019;5:71-4.)

Keywords: Lymphedema; Genitalia; Trisomy; Scrotoplasty

Giant scrotal lymphedema is a challenging problem that leads to physical and emotional disability. It may be due primarily to congenital lymphatic impairment or be acquired as a result of parasitic infestation (filariasis), malignant disease, irradiation, recurrent infections, or groin surgery.¹ Nonsurgical treatment methods usually fail, so excision becomes the cornerstone of management.² The reconstruction plan becomes more challenging if penile skin reconstruction is required as well.³ In this case, we present our experience of giant scrotal lymphedema with buried penis; the preputial opening was located distally 30 cm from its normal site. We dissected the invaginated penile skin with intact blood supply and reimplanted it at the anatomic penoscrotal site.

Written informed consent was obtained from the patient's guardian for publication of this case report and any accompanying images.

CASE REPORT

A 21-year-old man with trisomy (47+, XY) and history of bronchial asthma under corticosteroid therapy presented to our department with a huge scrotal lymphedema that surprisingly developed within 2 years with the start of oral corticosteroid therapy. It was causing the patient difficulty during micturition and sitting; he also had difficulty in keeping good hygiene. On

examination, the body mass index was 56.7 kg/m². The widest circumference of the mass was 82 cm. The scrotal mass also was displaced by the patient backward, keeping it behind him all the time (Fig 1); this resulted in a buried penis and stretching of the neck of the scrotum, leading to a shifted preputial opening 30 cm distal from its normal site.

All laboratory values were in the normal range except for moderate anemia of 8.8 g/dL. Pelvic-abdominal ultrasound was performed and revealed no inguinal, pelvic, or abdominal lymphadenopathy. The patient was prepared for excision of his huge scrotal swelling.

There was a potential challenge in determining the line of excision, being that the glans penis was totally embedded inside the scrotum. We designed a smile-like incision. The anterior part of it started from the neck of the scrotum overlying the external inguinal ring from one side and passing just below the penoscrotal sulcus, terminating back at the neck of the scrotum overlying the external inguinal ring on the opposite side. The posterior part of the incision started from the same point and curved posteriorly and laterally, reaching healthy scrotal skin toward the other end (Fig 2).

We removed most of the unhealthy scrotal skin and subcutaneous tissues, including the septum. Eversion of the tunica vaginalis after careful dissection of the spermatic cord and testis was done. We then faced a challenge regarding the buried penis with shifted preputial opening 30 cm distal from its normal site. The glans was invaginated along a skin tube (penile skin) attached to the coronal sulcus (Fig 3).

We dissected the invaginated penile skin, keeping its blood supply intact to the penoscrotal sulcus, followed by eversion and reimplantation to a buttonhole incision made at the anatomic site of the penis. A new septum was created between the anterior and posterior flaps, followed by trimming of the skin flaps and skin closure after application of negative suction drains (Fig 4). The patient recovered from general anesthesia without adverse events.

The patient was transferred to the ward with a urinary catheter. He was not cooperative, refusing instructions for early mobilization. He spent all his time in a semisitting

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Fig 1. The huge scrotal swelling from the back.

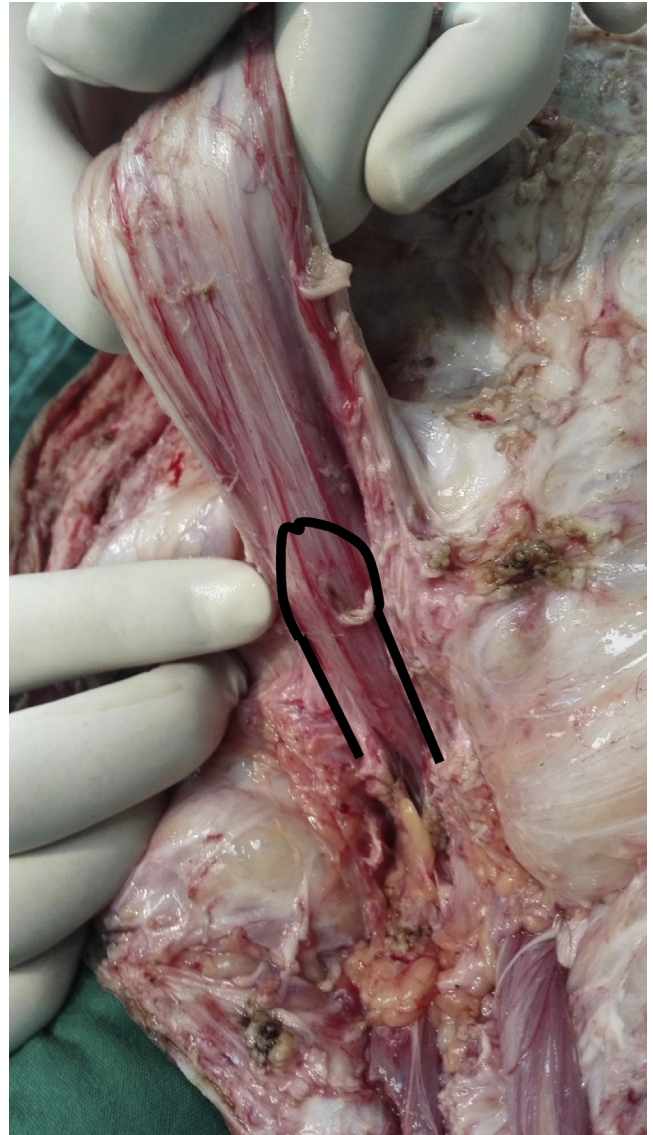


Fig 3. Intraoperative image shows the invaginated penile skin. The *drawing* shows the site of the penis.



Fig 2. Scrotal incision planning (smile-like incision).

position, compressing the scrotum underneath and leading to ischemic necrosis to the skin edges. Frequent dressing assisted with secondary wound closure. The scrotal wounds healed successfully within 6 weeks. Histopathologic examination of the excised tissue revealed no malignant cells. The patient was followed up for 1 year (Fig 5), and no recurrence was noticed.

DISCUSSION

Scrotal lymphedema can become a disabling condition when enlargement of the scrotum reaches huge sizes. The superficial inguinal lymph nodes are responsible for lymphatic drainage of scrotal and penile



Fig 4. Intraoperative steps and the excised specimen. **A**, Preputial opening shifted away from its normal site. **B** and **C**, Reimplantation of the penis to its anatomic site. **D** and **E**, Final result. **F**, Excised specimen.

skin, whereas the abdominal and deep pelvic lymph nodes drain the testis and penile body.⁴ Patients become exhausted with nonsurgical strategies that usually fail and become frustrated with the unsatisfactory outcomes. When the condition affects the penis, the

problem is magnified with a sexual and functional disability.

The reconstruction of associated penile problems varies among the case reports and studies. Some authors chose the whole excision of the penile skin and coverage

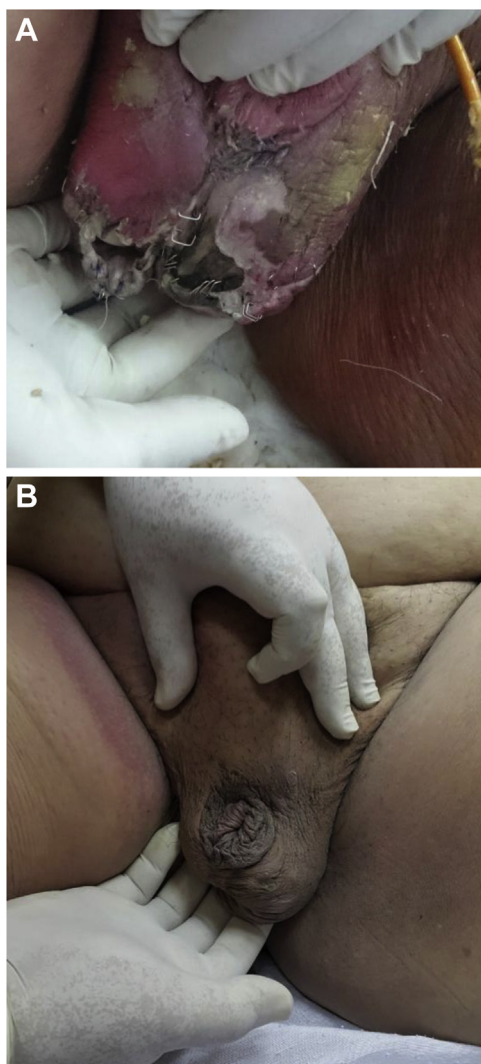


Fig 5. The 1-week postoperative and 1-year follow-up images. **A**, At 1-week after operation, the appearance of necrotic skin edges. **B**, Complete healing at 1 year postoperatively.

by skin grafting⁵; this causes a delayed recovery period, loss of normal skin sensation, and extreme cosmetic disfigurement. Others used local tissue flaps, which may have the potential of tissue ischemia, delayed recovery, and unsatisfactory cosmetic outcomes. Our method

used the original penile skin after minimal debulking and avoidance of injury to underlying neurovascular bundles, which proved to be effective and more rapid in recovery, saving the natural tactile sensation and resulting in a better cosmetic appearance.⁶

Although this technique seems promising, we faced another difficulty postoperatively. The patient, being obese and uncooperative, sat on his recent scrotal incisions, and ischemia and necrosis of the skin edges and dehiscence of the wounds occurred. Once that happened, daily dressing with antiseptic solution and wet dressing for 6 weeks and the guardian's education about changing the position frequently resulted in full healing for the scrotal incisions in 6 weeks.

CONCLUSIONS

Giant scrotal lymphoedema with buried penis in a morbidly obese noncompliant patient carries a lot of challenges. However, excision scrotoplasty with preservation of the invaginated healthy penile skin to reconstruct the penis results in satisfactory cosmetic and functional outcomes.

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