Penile Girth Augmentation Using Flaps "Shaeer's Augmentation Phalloplasty": A Case Report

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ABSTRACT

Introduction. Current girth augmentation techniques rely either on liposuction/injection or on the use of dermal fat grafts. These procedures have serious disadvantages, including regression in gained size, deformities, irregular contour, and asymmetry. Ideally, the augmentation technique should ensure durability and symmetry. This case report describes the first application of a flap (superficial circumflex iliac artery island flap) in penile girth augmentation.

Materials and Methods. The superficial circumflex iliac vessels were identified and the groin flap was elevated from lateral to medial, rotated toward the penis, and tunneled into a penopubic incision. It was wrapped around the penis short of the corpus spongiosum and insinuated under the glans.

Results. Six months after surgery, the patient had an erect girth of 19.5 cm and a flaccid girth of 16.5 cm, compared with 11 cm and 7 cm, respectively, before surgery, thus maintaining the intraoperative girth gain. The outer surface felt smooth with no lobulation. The size of the glans was proportionate to the shaft's girth.

Conclusion. This case report shows that the application of flaps in penile girth augmentation may provide a reliable alternative to the currently applied techniques. Glans flaring promotes the aesthetic results and is applicable with other techniques of penile girth augmentation. **Shaeer O, and Shaeer K. Penile girth augmentation using flaps "Shaeer's augmentation phalloplasty": A case report. J Sex Med **; **:**–**.**

Key Words. Phalloplasty; Penile Girth Augmentation; Flaps

Introduction

The purpose of surgery may be enhancement of a normal state, as much as it may be for correction of an abnormality. This is the aim of aesthetic surgery: enhancement of self-esteem [1]. A man's self-esteem is often related to the size and appearance of his genitalia [2]. Distorted body image may reflect negatively on many aspects of a man's life, one of which is the sexual domain. Penile girth augmentation procedures are commonly requested for personal fulfillment and improving self-image.

Controversy surrounds girth augmentation procedures, both ethically and technically. Current girth augmentation techniques rely either on liposuction/injection or on the use of dermal fat grafts. These procedures have serious disadvantages that feed this controversy, including regression in gained size on the long term, deformities due to contraction of the graft and absorption of the fat, irregular contour, and asymmetry due to discrepancy between the augmented shaft and the native glans. Ideally, the augmentation technique should ensure durability and symmetry.

This case report describes the first application of flaps, namely the superficial circumflex iliac artery island flap (groin flap), in penile girth augmentation, instead of grafting, with the aim of avoiding the aforementioned drawbacks of penile augmentation.

Methods

A 27-year-old male patient presented with erectile dysfunction and complained about the girth of his penile organ. The flaccid penis measured 5 cm in

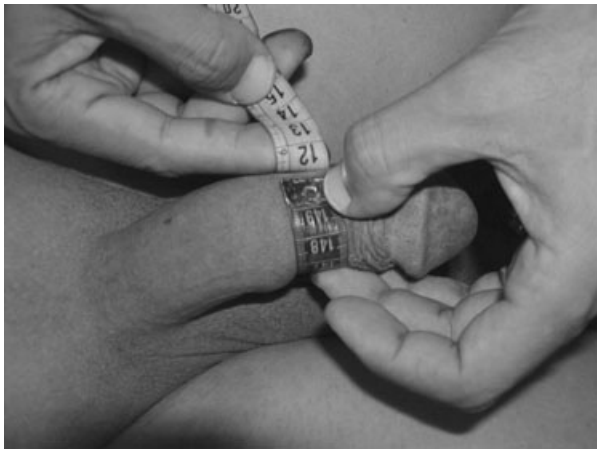

Figure 1 Preoperative girth in the erect state.

length in the nonstretched state and 10 cm in the outstretched state. Flaccid girth was 7 cm. Artificial erection was induced by injection of prostaglandin E1 (PGE1) intracorporally. The erect penis measured 13 cm in length and 11 cm in girth (Figure 1). Penile skin in the erect state showed enough flexibility to accommodate the planned flap. Color Doppler of the penile circulation in response to PGE1 revealed adequate erectile power and no organic abnormality. The diagnosis of psychogenic erectile dysfunction was established.

Psychological counseling revealed that the reason behind the psychogenic erectile dysfunction was insecurity about penile size and distorted self-image. Counseling sessions and oral erectogenic treatment helped improve the erectile power, but the patient still demanded girth augmentation.

An informed written consent was obtained from both the patient and his partner, documenting acceptance of the expectations from surgery as well as the possible complications.

A Doppler study was performed before surgery to confirm the presence of the feeding vessels of the flap and to delineate their course. The left femoral vessels and inguinal ligament were marked. The axis of the flap (superficial circumflex iliac vessels) was marked as a line 3 cm below and parallel to the inguinal ligament. The left sartorius muscle, an important landmark in flap elevation, was palpated and marked. The flap was outlined to be 15 cm long and 10 cm wide, extending over the left groin from the sartorius muscle to a point beyond the anterior superior iliac spine. The distance between the origin of the superficial circumflex iliac vessel and lateral border of the sartorius muscle was confirmed to be equal to the distance between the base of the penis and lateral border of the sartorius, both being 8 cm (Figure 2). This design was dictated by the vascular anatomy of the flap [3], which necessitates that the maximum length of the flap be 25 cm (skin island and vascular pedicle inclusive) and the width be 10 cm. The skin island was chosen to be 15 cm, 2 cm longer than the erect penile length, to allow for flap recoil that occurs once the flap is mobilized from the donor site.

Anatomy of the Flap

The groin flap is a fasciocutaneous, type A flap, comprising the skin of the lateral groin, extending from the femoral vessels to the posterior iliac spine. The long axis of the flap is centered on a line, 3 cm inferior and parallel to the inguinal ligament. The width of the flap is 6–10 cm. The length of the flap is 25 cm, pedicle inclusive. It is supplied by the superficial circumflex iliac artery (and venae comitantes), a branch of the superficial femoral artery, and the superficial circumflex iliac vein, a branch of the saphenous vein. The superficial circumflex iliac vessels are approximately 2-cm long (the main trunks) and 1.5-mm wide. They proceed from their origin laterally, passing beneath the deep fascia until they encounter the sartorius muscle, where they lie superficial to the deep fascia. The arc of rotation occurs over the femoral vessels beneath the inguinal ligament. The flap can be rotated to cover the abdomen as well as the perineum [3].

The procedure was performed under general anesthesia and optical magnification. A careful superficial incision was laid over the site of the

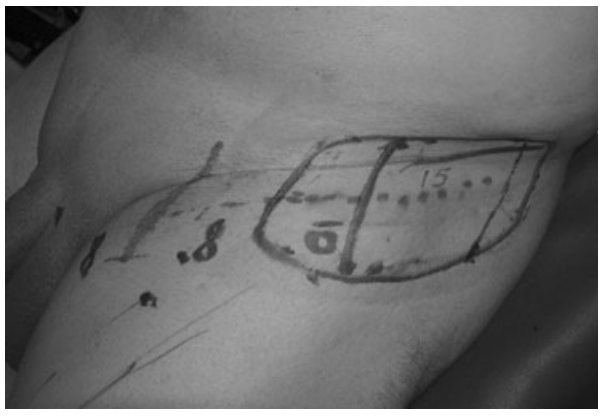

Figure 2 Outline of the flap, flap pedicle, and important landmarks.

Figure 3 Incision around the flap.

Figure 4 Groin flap elevated and the pedicle skeletonized.

superficial circumflex iliac vessels, from their origin to the medial border of the sartorius. Skin edges on either side of the incision were undermined and the vascular pedicle was identified and skeletonized.

The flap was incised all around with a margin outside the marked area (Figure 3). The superficial epigastric vessels were encountered and ligated in the course of incising the flap. Flap undermining and elevation started from the lateral aspect overlying the iliac crest and proceeded medially, superficial to the deep fascia. Once the sartorius muscle was encountered, flap elevation proceeded beneath the deep fascia, very carefully, in anticipation for encountering the superficial circumflex iliac vessels that course beneath the deep fascia in the segment between the medial border of the sartorius and their origin.

The superficial circumflex iliac vessels were identified and flap elevation proceeded medially with preservation of the vessels. A muscular branch to the sartorius was identified and ligated. Once the femoral artery and saphenous vein were approached, dissection stopped. The superficial circumflex iliac vessels were freed of the surrounding fat as much as preservation of their integrity permitted. The flap was now fully elevated, with its only attachment being the vascular pedicle and some overlying fat (Figure 4).

De-epithelialization of the flap followed, leaving the dermis intact. Trimming and careful debulking of the edges were performed. The bleeding surface of the flap gave confidence in its adequate vascular supply. Hemostasis was achieved by the minimal use of bipolar diathermy to avoid vascular injury.

Penopubic and subcoronal incisions were performed. This was followed by creation of the space to accommodate the flap on the dorsal and lateral aspects of the penis, between Buck's fascia and Colle's fascia. Adequate fascia was left attached to the skin to preserve its vascularity. The skin and fascia were left attached to the ventral aspect of the penis.

A tunnel was bluntly created between the left groin and the base of the penis (Figure 5). The flap was rotated clockwise, threaded through the tunnel, and into the penopubic incision. It was then placed as a blanket wrap in the space created between Buck's fascia and Colle's fascia, and pulled distally through the subcoronal incision. The dermal surface faced outwards to maintain the smooth surface of the penis, in contrast to the lobular surface that results when fat is placed beneath the penile skin (Figure 6).

Figure 5 A tunnel created for the flap.

Figure 6 The flap inset, surrounding the corpora cavernosa.

Artificial erection was induced. The lateral and distal flap edges were trimmed. The lateral borders were sutured to either sides of the corpus spongiosum with the help of partial degloving. The glans was undermined, elevating glanular wings underneath which the distal edge of the flap was sutured. This augmented the size of the glans, so as to be proportional to the enhanced girth of the shaft.

Both the penopubic and subcoronal incisions were closed. The groin incision was undermined to facilitate tension-free closure. A vacuum drain was inserted. Subcutaneous fat and skin were closed.

The girth of the penis measured 20 cm in the erect state (Figure 7). Artificial erection resolved spontaneously. Operative time was approximately 4.5 hours.

Figure 7 Postoperative girth in the erect state.

Figure 8 Girth in the erect state, 6 months after surgery.

Sessions for psychological counseling followed surgery, because surgery alone cannot cure a general lack of self-esteem.

Results

Immediately postoperative, the penis and scrotum suffered edema and congestion. Frenular edema was the most marked. This resolved gradually through the first month. An area of sloughing around 1 cm diameter appeared on the dorum of the penis, probably due to overstretching of the skin, but re-epithelialized spontaneously. Donor site healed without complications.

Six months after surgery, the patient had an erect girth of 19.5 cm (Figure 8) and a flaccid girth of 16.5 cm (Figure 9), thus maintaining most of the intraoperative girth gain. The surface of the penis felt smooth with no lobulation. The size of the glans was proportionate to the shaft's girth.

Flaccid outstretched and erect lengths were essentially the same as the preoperative state. However, the flaccid nonstretched length was

Figure 9 Girth in the flaccid state, 6 months after surgery.

more than the preoperative state, 7 cm, because of the presence of the flap that acted as a backbone to the flaccid penis.

As reported by the patient, erotic and touch sensation were preserved in both the glans penis and the shaft. However, when specifically asked, the patient reported that the shaft was less sensitive in the initial period following surgery.

The patient resumed normal sexual relationship 8 weeks after surgery, with no complaints regarding erectile power.

Through the sessions of postoperative psychological counseling, the patient demonstrated improvement in self-esteem and body image, as well as self- and partner satisfaction with the sexual relationship.

Discussion

Injection of a large amount of fat subcutaneously for penile augmentation has been reported to end in atrophy and reabsorption of the fat. This may be due to inadequate tissue bed, difficulty in immobilization, and fat cell trauma. Reabsorption of fat in the penis can cause severe deformities or asymmetry. This can be avoided if small amounts of fat are injected, but results in minimal girth gain because of reabsorption of more than 50% of the fat [4,5].

A step forward is the application of dermal fat graft in penile girth augmentation. Dermal fat graft enhancement achieves a 1–2-inch circumference increase, in comparison with the limitations of fat injection. The permanent symmetric girth increase is definitely more reliable [2]. The aforementioned complications of fat injection are less common with grafting. However, inadequate graft take, infections, and asymmetry still occur with dermal fat grafts, resulting in penile curvature and shortening due to fibrosis [2,6]. Dermal fat grafts placed as sheets instead of strips provide smooth texture with less risk of ridges and displacement [2].

Flaps are known to be more reliable than grafts, especially when based on axial blood supply. This ensures long-term viability and abolishes the risk of the aforementioned complications that result from necrosis of the tissue by which girth expansion is achieved.

Immobilization is crucial for graft take. This can be achieved with difficulty in the penis because of morning (and otherwise) erections, necessitating the application of drugs to inhibit erection. This is not necessary with the flaps.

Three inches gain in girth could be achieved with no compromise in tissue viability, contrary to fat injection which should be of minimal volume to avoid fat necrosis, and contrary to grafts whereby a maximum of 1–2 inches can be achieved, with no assurance as to maintenance of the girth gain, which is dependent on graft take. However, the flap may be too thick for the required task in obese patients, which highlights the need for proper patient selection.

Becsause the flap dimensions are relatively wide (15 cm × 10 cm), it can be applied as one whole blanket wrap rather than strips, eliminating ridges common to grafts.

We recommend flap insetting in the erect state because this has improved the appearance of the flaccid penis, acting as a backbone that props the organ. We also recommend glans flaring and insetting the flap underneath it, so that the glans size will be proportional to the augmented girth.

Conclusion

This case report shows that the application of flaps, namely the superficial circumflex iliac artery island flap (groin flap), in penile girth augmentation provides a potential alternative to the currently applied techniques of liposuction and injection and dermal fat grafting. Our technique addresses and undermines most of the drawbacks of the current techniques. Its true value should be revealed in a series of cases. Glans flaring promotes the aesthetic results and may be applied in whatever technique adopted for penile girth augmentation.

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Conflict of Interest: None.

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