

ORIGINAL RESEARCH—SURGERY

Minimizing the Losses in Penile Lengthening: “V-Y Half-Skin Half-Fat Advancement Flap” and “T-Closure” Combined with Severing the Suspensory Ligament

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ABSTRACT

Introduction. The technique most commonly used for penile lengthening is the release of the suspensory ligament in combination with an inverted V-Y skin plasty. This technique has drawbacks such as the possibility of reattachment of the penis to the pubis, a hump that forms at the base of the penis, in addition to alteration in the angle of erection.

Aim. In this work, we describe a new technique that overrides these drawbacks and minimize the loss of gained length.

Methods. The suspensory ligament was released through a penopubic incision. The caudal flap of the resected ligaments was reflected caudally and sutured to the Buck's fascia. The V flap was incised. The caudal half of the V was deskinned, leaving a cranial skin-covered V flap, and a caudal, rectangular fat flap. The fat flap was pulled into the gap between the base of the penis and the pubis and secured in position by suturing its deep surface and lower edge to the pubis. This maneuver filled up the gap. The V incision was closed as a Y. The penopubic incision was closed as a T shape, to avoid pulling the penis back at skin closure. A stay suture stretched from the glans to the thigh, maintaining the penis in the stretched position. A urinary catheter was inserted.

Results. Six months after surgery, there was no loss in the length gained. The angle of erection (as reported by the patient) was similar to that prior to the procedure. The skin incisions left no hump and a faint scar that was not troublesome to the patient.

Conclusion. “V-Y half-skin half-fat advancement flap” and “T-closure” may improve the results of suspensory ligament release for penile lengthening. The reported techniques minimize the losses compromising length gain, whether in-surgery or following it. **Shaer O, Shaer K, and El-Sebaie A. Minimizing the losses in penile lengthening: “V-Y half-skin half-fat advancement flap” and “T-closure” combined with severing the suspensory ligament. J Sex Med 2006;3:155–160.**

Key Words. V-Y Half-Skin Half-Fat Advancement Flap; Penile Lengthening; T-Closure

Introduction

The size of the penis is an obsession that haunts a vast majority of men. Penile lengthening is performed for a variety of reasons, some cosmetic and some medical, such as to achieve better fixation for a condom catheter, particularly in wheelchair-dependent patients with spinal cord

transection [1]. In the United States, an estimated 10,000 men have undergone penile surgery for cosmetic reasons from 1989 to 1996 [2].

Various surgical approaches have been described to augment both the length and the girth. The technique most commonly used for penile lengthening is the release of the suspensory ligament in combination with an inverted V-Y

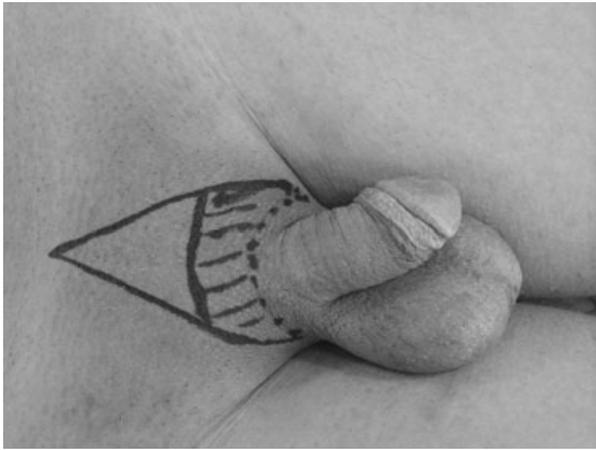


Figure 1 Flap design.

skin plasty [3]. However, no single procedure has gained unanimous acceptance. Every approach has its advantages and disadvantages.

In this work, we describe refinements to the technique of “severing the suspensory ligament in combination with V-Y plasty,” aiming to eliminate some of its downsides, particularly the loss of the gained length throughout the steps of the operation and in the long run after surgery.

Methods

A 21-year-old male patient consulted us, complaining of undersized penis. Physical examination revealed normal secondary sex characters, clinically normal testes, and a flaccid outstretched penile length of 8 cm, from the bony pelvis to the tip of the glans.

Erectile power was evaluated by intracorporeal injection of prostaglandin E1 and duplex examination. Erectile response was adequate and no abnormality was detected. The erect length was 10.5 cm. The angle between the penis and the trunk upon erection was around 100 degrees.

The patient requested lengthening of the penis.

A written consent was signed by the patient, indicating that he agreed to undergo penile lengthening surgery, knowing that the gain in length may be limited, may only be in the flaccid state, and that the erect penis may have a downward slant after surgery, in addition to other possible complications of surgery and anesthesia.

Under general anesthesia, the outlines of the skin incisions were marked. These were in the form of an inverted V with the apex cranial and the base caudal. The base coincided with the penopubic junction and was semicircular,

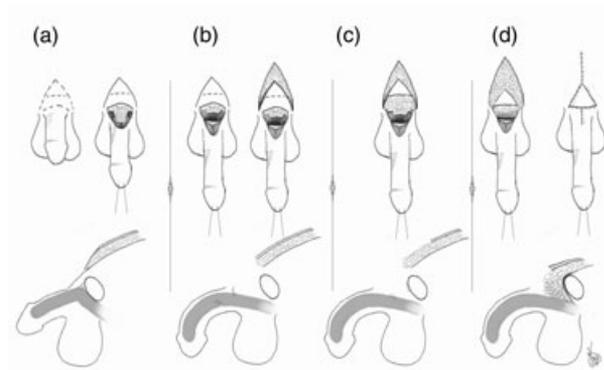


Figure 2 Schematic illustration of the procedure. (a) Skin incision and exposure of the suspensory ligament. (b) Suspensory ligament released and the flap defined. (c) Lower half of the V flap deskinned. (d) Fat flap tucked into the cavity and the incisions closed.

measuring 5 cm. The limbs measured 10 cm. The V was divided into a cranial half and a caudal half by a line running parallel to the base (Figures 1,2a).

A stay suture was placed through the glans penis minding the urethra. This was used to stretch the penis during surgery.

The first skin incision was the penopubic incision overlying with the base of the V. The subcutaneous fat was split, exposing the fundiform and suspensory ligaments. Blunt dissection on either side of the ligaments skeletonized the ligaments and revealed the spermatic cord bilaterally (Figures 2a,3). The fundiform ligament and superficial layer of suspensory ligament were incised in the midline, away from the base of the penis. The incision was widened, creating a bulk of tissue on either side. These bulks were cautiously resected. Resection proceeded deeper, hugging the symphysis pubis, away from the base of the penis. The deep layer of the suspensory ligament was resected in the same way. This left a gap between the



Figure 3 Suspensory ligament dissected.



Figure 4 Suspensory ligament released.

base of the penis and the symphysis pubis (Figures 2b,4). The penis was stretched by pulling on the stay suture, and the length was measured from the pubis to the tip of the glans. The length was 13.5 cm (the stretch of the glanular tissue caused by the stay suture was disregarded) (Figure 5).

The caudal flap of the resected ligaments was reflected caudally underneath the penile skin and sutured to the Buck's fascia, with the aim of preventing reattachment of the ligament (Figure 6).

The limbs of the V were incised superficially, and so was the horizontal dividing incision



Figure 5 Length gain after severing the suspensory ligament.



Figure 6 Securing the severed suspensory ligament.

(Figure 7). The V incisions were widened by undermining the skin flaps lateral to the V flap (Figure 2b). The caudal half of the V beneath the dividing incision was deskinned, leaving a cranial skin-covered V flap and a caudal, rectangular fat flap (Figures 2c,8). The fat flap was undermined by blunt dissection at a plane below Scarpa's fascia (above which most superficial vessels travel), and its caudal lateral angles were divided. This ensured



Figure 7 Flap incised.



Figure 8 Lower half of the flap deskinning.



Figure 10 Fat flap filling the dead space.

mobility of the flap (Figure 9). The fat flap was pulled into the gap between the base of the penis and the pubis and secured in position by suturing its deep surface and lower edge to the pubis. This maneuver filled up the gap (Figures 2d,10).

The deeper part of the corpora cavernosa was sutured to the cranial part of the fat flap, thus elevating the corpora, adding to the length gain, closing the gap, and preventing reattachment of the penis at a shorter position. A rubber drain was left in the remaining tight space. Dorsal placcation was applied to prevent downward slanting.

The caudal lip of the penopubic incision was sutured to itself in the midline, along the vertical axis of the penis. This required some undermining for the penile skin. The resulting dog ear was corrected. This is aimed at preventing the penis from being pulled back when the penopubic incision is closed. This incision was then closed in a T-shaped manner: the cranial lip of the incision

was sutured to the vertically closed caudal lip (Figure 11). Without this step, the gained length would have been around 1 cm less than that achieved after cutting the ligament, as measured during the procedure. The remaining V flap (skin flap) was pushed caudally and the incision was closed. The limbs of the V were closed as a Y (Figures 2d,12). Special attention was given to skin closure at the tip of the V because it is liable to necrosis. One stitch joined the subcutaneous fat at the tip of the V with that on either side. The skin was not sutured at this site to avoid compromising its vascularity.

The final length was measured with the penis outstretched. This was no different than that measured right after severing the suspensory ligament and before skin closure (13.5 cm). The stay suture was secured to the thigh, maintaining the penis



Figure 9 Fat flap undermined and mobilized.

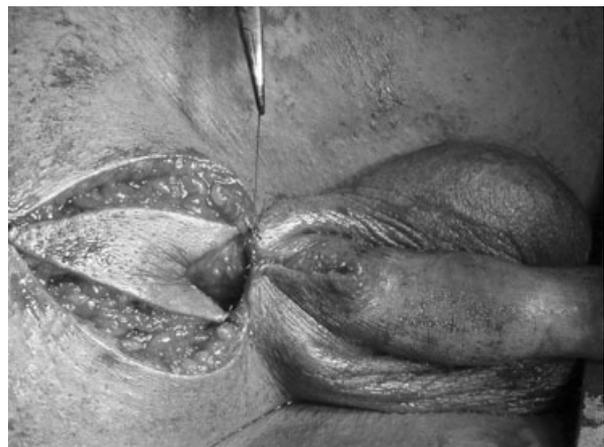


Figure 11 Closure of the penopubic incision.



Figure 12 Immediately postoperative showing the stay suture.

in the stretched position. A urinary catheter was inserted.

The drain was removed after 48 hours, and both the stay suture and the urinary catheter were removed after 5 days.

Main outcome measures were the maintenance of the intraoperative length gain by the sixth month after surgery, as well as the angle between the penis and the trunk upon erection.

Results

Twenty-four hours postoperative, edema of the penis set in. The patient was reassured and edema resolved spontaneously in 2 weeks' time.

Six months after surgery, there was no loss in the gained length. The final outstretched length (pubis to tip of the glans, including the fat cushion at the base of the penis) was 13.5 cm (Figure 13). The patient refused to be injected intracorporally with a vasoactive substance for evaluation of erect penile length and slant. The patient reported that the angle of erection was similar to that prior to the procedure.

The skin incisions left no hump and a faint scar that was not troublesome to the patient because it was hidden within the pubic hair (Figure 13). The fat flap was clearly palpable at the base of the penis, indicating its adequate viability.

Discussion

One of the most commonly performed techniques for elongation of the penis is the release of the



Figure 13 Six months after surgery.

suspensory ligament in combination with an inverted V-Y skin plasty [3–5]. Length gain from this procedure is variable and controversial. Our modification focuses on minimizing its downsides and preventing losses compromising length gain, however long or short that is. Among these downsides is the penis reverting to its original length due to reattachment of the suspensory ligament to the pubis [4]. The descent of the corpora off the pubic bone creates a dead space that should be filled because the ligament can reattach and possibly reduce length gain, or can even cause penile shortening. A roll of polytetrafluoroethylene fills the space despite the infection risks of alloplastic materials. Dermal fat grafts are occasionally used [4].

Our technique omits the need for alloplastic materials and also for fat grafts that have the drawbacks of resorption due to unreliable blood supply, as well as morbidity to the donor site, which may be used for girth augmentation in the same or a later session. Harvesting fat from remote sites through other incisions is not required. The fat advanced into the dead space creates a well-vascularized cushion upon which the corpora cavernosa recline, preventing reattachment and loss of the length gain.

Reflecting the suspensory ligament caudally prevents the rare possibility of reattachment of the ligament [4] and the consequent loss of length gain, because the ligament is liable to contracture and, if it attaches to a raw surface, may pull the penis inwards.

Another downside of severing the suspensory ligament is that it may result in a pendulous “low-hanging” penis [6], where the angle of erection is different from the preoperative state. In our procedure, this was avoided by suturing the deeper parts of the corpora cavernosa to the cranial part of the fat flap and by applying dorsal plication to the corpora. The former step added to the length

gain and substituted the trivial loss following dorsal plication.

Much of the gained length may be lost during skin closure. Approximating the lips of the penopubic incision implies that the caudal lip overlying the penis will have to move cranially (and vice versa for the cranial lip). This retreat of the penis can be prevented by suturing the caudal lip of the penopubic incision to itself along the vertical axis of the penis before closing the incision (T-closure). However, this may result in "scrotalization" in some patients with tight shaft skin. This possibility should be discussed with the patient before surgery.

Some authors believe that postoperative penile stretching using weights is recommended after surgery and should be sustained for months [4]. The rationale behind this is to prevent premature ligament reattachment in the early postoperative phase and to stretch the corpora on the long run, adding to the length gain. However, if this maneuver is intended, girth augmentation cannot be performed in the same session and has to be postponed, because of penile swelling and discomfort and the risk of decreasing the gain in girth due to stretching of the applied flap [4].

Our procedure eliminates the need for early postoperative stretching because the corpora are already pushed forward. Late, long-term stretching for elongation of the corpora can also be omitted because the length gain achieved at surgery suffices and can be maintained with no intraoperative or postoperative losses. This also avoids the discomfort associated with penile stretching for months. This gives way to combined lengthening and girth augmentation procedures. We did apply penile stretching for a short period in a simple and novel way, by securing the glanular stay suture to the thigh and inserting a urinary catheter. However, we would not recommend this maneuver, because it caused discomfort to the patient and we believe it is unnecessary.

The scar is effectively hidden if the patient has adequate pubic hair. This may be of value in case selection for the procedure. The hump that occurs at the penopubic junction upon advancement of the V-Y flap [4,6] can be avoided. This hump is mostly due to advancement of a bulk of fat along

with the skin. This is not the case with our technique as the fat plunges into the dead space to fill it up, while the skin of the V flap fits snugly to the opposite lip of the incision. This also avoids the dog ears, notorious with this approach.

To sum up, the length gain achieved by severing the suspensory ligament, regardless how long that is, suffers losses throughout the steps of surgery as well as on the long term afterwards. These losses can be effectively minimized.

Conclusion

"V-Y half-skin half-fat advancement flap" and "T-closure" may improve the results of suspensory ligament release for penile lengthening. Further modifications and refinements described here add to the durability of the length gain. The reported techniques minimize the losses compromising length gain, whether in-surgery or following it.

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Conflict of Interest: None.

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