CASE REPORT

Partial penile reconstruction following fat augmentation with anterolateral thigh perforator flap

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Summary
Augmentation phalloplasty of the normal penis although is gaining popularity among a subgroup of men, is not free of complications. A 27 years old healthy man with normal functioning penis underwent a lipofilling penile augmentation. The procedure was complicated by a post-operative haematoma and infection resulting in a full thickness dorsal penile skin necrosis and a pedicled anterolateral thigh (ALT) perforator flap was required for reconstruction. His presentation, operation and final outcome are reported and the possible options for reconstruction are discussed.

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Augmentation phalloplasty of the normal penis is gaining popularity among a subgroup of men and is performed not only by plastic surgeons but also by urologists, “cosmetic surgeons” and general surgeons. Currently, there are no published guidelines for selecting the best method of augmentation. Complications following autologous fat lipofilling are not uncommon. We present a case with a severe penile contracture secondary to a dorsal penile skin necrosis due to lipoinjection that required reconstruction with a pedicled anterolateral thigh (ALT) perforator flap.

Case report

A 27 year old healthy man with normal functioning penis underwent a lipofilling penile augmentation by a urologist. The procedure was complicated by a post-operative haematoma and infection resulting in a full thickness dorsal penile skin necrosis treated conservatively with dressings...
for 2 months. This resulted in a serious penile contracture with the shaft deviating to the right with painful erections and inability for sexual intercourse. Two years prior the fat injection, he had a lengthening procedure of the shaft by having his suspensory ligament released using a V to Y advancement flap. He self presented to us 9 months after his second operation requesting a corrective procedure.

Following an exhaustive discussion of the surgical options and considering the importance of normal sexual function, it was decided to proceed with a release of the shaft contracture and resurfacing the defect with a vascularised skin. A perforator based ALT flap from the right thigh, measuring 9 × 3 cm, was designed. A single perforator artery was identified (Photo 1) using an 8 MHz Doppler probe. The flap was raised and tunneled using the extended approach, beneath the rectus femoris muscle (Photo 2). In order to reach the debrided penile wound, a subcutaneous tunnel was created, ensuring that there was no pressure to the pedicle following flap inset and wound closure. There were no post-operative complications and the patient was discharged on the fourth post-operative day.

A further procedure was performed five months post-op when the flap was thinned by defatting the space between the skin and fascia lata whilst protecting the perforator artery. In addition, the patient received three courses of epilation LASER treatment: two, three and four months after the thinning procedure. The patient was satisfied with the result with good erectile function and sexual satisfaction. He was also happy with the flap bulk and donor site scar (Photo 3). In the absence of any concerns with erogenous stimulation and as the more sensitive glans penis was undisturbed during all procedures, no Seemes–Weinstein monofilament tests were performed on the flap.

**Discussion**

Fat injection is commonly performed for penile augmentation. The injection plane is usually between Buck’s and Dartos’ fascia. Complications following this procedure can result from inadequate blood supply, fat necrosis, fat resorption, fat migration, penile lumps and nodules and shaft deformities. This patient suffered severe dorsal shaft contracture with the shaft deviating to the right with painful erections and inability for sexual intercourse.
skin necrosis causing a penile deviation and inability of engaging in sexual intercourse. The patient did not take any legal action against the urologist.

Several options for correcting partial penile skin defects have been described in the literature. Isken et al., suggested a local flap based on the anterior scrotal artery but as this patient’s defect was dorsal and reaching the penile glans as well as possible compromise of the anterior scrotal flap from the previous lengthening procedure, it was excluded.

Other alternatives included a groin flap based on the superficial circumflex iliac artery. In this case, it was rejected due to the need of a two-stage procedure. The tensor fascia lata perforator flap was also rejected due to the insufficient pedicle length for this defect.

One could also contemplate the Cecil-culp procedure. Unfortunately this is a two-stage procedure, which requires the burial of the penis during the first stage and more often addresses ventral rather than dorsal shaft defects.

In the scenario of a non-circumcised patient, the foreskin could have been used as a full thickness skin graft (FTSG) although after correction of the contracture a sizeable skin graft would be required. To achieve this, it may have been possible to deglove the whole penis or even perform a FTSG as described by Bracka. However, performing such a radical procedure in a patient with this problem carries significant risks. In addition, a need for frequent erections and hydrating creams is necessary for a reasonable non-contracture result following such operations.

There have been reports for successful use of the ALT flap for both scrotal and total penile reconstruction. There are many advantages to using this flap for partial penile reconstruction: It is a locoregional flap with similar colour and virtually no donor site morbidity, especially if the donor site is closed directly. The potential for a neurosensory flap is available and the reach of the flap is adequate. Drawbacks include flap bulk especially in Caucasians, which can be addressed with raising the flap suprafascially or secondary thinning procedures. There are published reports that support primary thinning of the ALT flap. The presence of hair can also be addressed with LASERs.

The successful outcome of this reconstructive option in this patient, suggests that the anterolateral thigh perforator flap is a viable option for partial penile reconstruction, especially when increase in bulk is desired.

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None.

**References**