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Case-Report Open Access

Penile Replantation in an Acutely Psychotic Patient

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Abstract

Penile amputation is a rare injury, but one which all Plastic Surgeons with a microsurgical interest should be aware of. The majority of cases are seen in acutely psychotic patients who amputate their own penis, and this provides a unique challenge for the treating surgeon. Not only does it present issues with compliance, but also raises the difficult question of whether replantation is in the best interest of the patient.

Keywords: Penile replantation; Traumatic amputation; Plastic Surgery

Introduction

The loss of a limb or organ is a devastating injury for any patient. When that injury includes the penis, significant psychological issues are also involved. Although uncommon and rarely fatal, traumatic amputation of the male genitalia is a challenging injury to treat. Many factors combine to complicate management. The mental and physical condition of the patient is rarely simple and mandates rapid stabilization to afford the appropriate time and specialization for surgical success.

The incidence of penile amputation injuries is low. One early study found only 3 cases in a review of 10,660 trauma admissions1. Another study found no cases in a review of 64 patients with major genital injuries presenting to San Francisco General Hospital from 1977 to 19812. Despite the infrequency of the injury, a review of the case reports and series in the literature has allowed penile amputation to be classified into three groups based on aetiology; amputations from felonious assault, self-inflicted injuries, and injuries due to accidental trauma.

Though well publicized, traumatic penile amputation resulting from felonious assault is the least common subset in Western cultures, but a large series of assaults have been reported in Thailand. An epidemic of penile amputations occurred during the 1970s when numerous women amputated their husbands' genitalia after marital indiscretion. More than 100 cases were identified from 1973 to 1980. Most of these appendages were lost after being discarded into animal pens. The largest series from this epidemic reported eighteen cases of partial or complete penile amputation3.

By far the most common aetiology of this injury is self-inflicted. Men who commit genital self-mutilation were initially categorized as belonging to three groups: schizophrenics, transvestites, and men with religious or cultural conflict4. In a detailed analysis, however, Greilsheimer and Groves5 reviewed 53 cases of self-mutilation that were reported in the literature after 1901. They made the following generalizations from that data: (1) Most individuals were psychotic at the time of injury. (2) Any illness with psychotic potential can be associated with self-mutilation. (3) Three particular groups at risk for genital self-injury were young, acutely psychotic men with sexual fears, older men with depression and psychosis, and men who became violent when intoxicated. Interestingly, a significant number of patients were not psychotic (7 of 53). They were most often found to have personality disorders or unresolved transsexual issues and tended to inflict injuries as severe as their psychotic counterparts.

A more recent study reviewed a further 45 cases of genital self-mutilation6. Of note, they reported a higher proportion within the non-psychotic group (33%), and that a significant minority (20-25%) will repeat the act.

The following case report highlights the difficulties associated with the surgical management of a complex injury in a patient with an acute psychotic episode. It also provides an opportunity to revisit the detailed cross-sectional anatomy of the penis that is rarely encountered in surgical practice.

Case Report

A 45-year-old male patient, with known bipolar disorder, became psychotically depressed after electing to discontinue his medication three months prior. During the psychotic episode he developed abhorrence towards his penis and proceeded to amputate the body part with a bread knife at the proximal shaft.

Almost immediately after the event, he became regretful of the decision and presented to the local emergency department requesting replantation of the penis. An initial psychiatric assessment revealed psychotic depression, but the patient clearly and repeatedly stated his desire to have the body part reattached. The decision was therefore made for the patient to be transferred to the nearest Plastic Surgery unit for replantation.

Detailed assessment by Plastic Surgery and Urology revealed a sub-total amputation of the penis and scrotal skin (Figure 1), with a 1-inch proximal stump remaining (Figure 2). In the operating theatre, the skin envelope of the amputated penis was reflected to reveal the dorsal neurovascular structures, corpora cavernosa, corpus spongiosum, and

urethra (Figure 3). A schematic of these structures allows better visualisation of the cross-sectional anatomy (figure 4).

Figure 1: sub-total penile amputation.

Figure 2: Proximal penile stump.

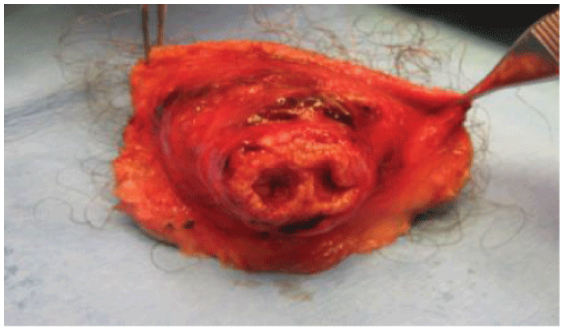

Figure 3: Skin reflected to show the cross-sectional anatomy of the penis.

The urethra was spatulated and repaired in two layers over a urinary catheter (Figure 5). The vessels were prepared using standard microsurgical techniques to remove thrombus and provide healthy vessel ends for anastamosis. The corporal arteries were repaired with a 10-0 nylon suture, and the corporal bodies with absorbable sutures. The deep dorsal arteries and veins were also anastamosed primarily with a 10-0 suture, but the superficial dorsal vein required an interposition vein graft harvested from the right foot, for size match, due to insufficient length following vessel debridement. The dorsal nerves were also repaired with 10-0 nylon and the skin was closed over a drain. Good Doppler signals were heard from the vessels at the end of the operation, and the penis remained well perfused on arrival at the Intensive Care Unit (ICU) (Figure 6).

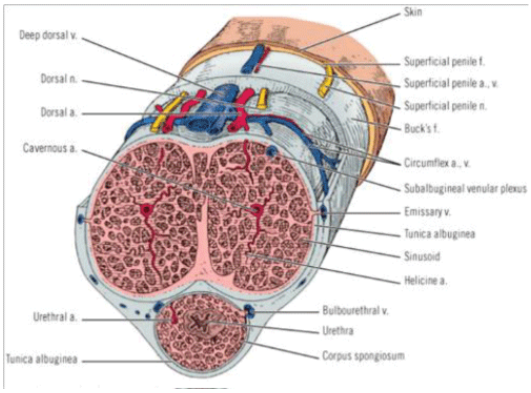

Figure 4: Schematic of the penile structures.

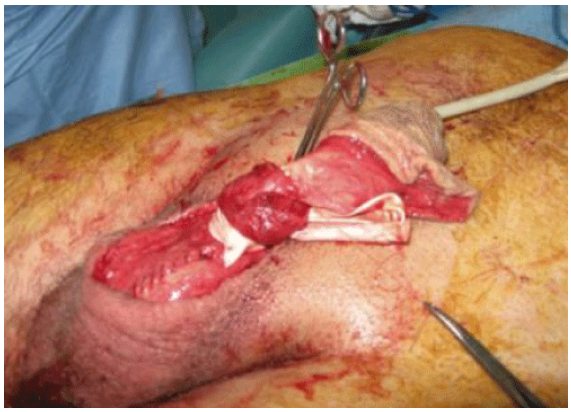

Figure 5: Urethral repair over urinary catheter.

Following extubation, the patient was seen to have a rapidly fluctuating level of consciousness and compliance. Despite careful observation, 2 days later he pulled at the replanted penis in an attempt to remove it again. The penis subsequently became venously congested and the patient returned to theatre for exploration.

The dorsal skin was reflected and thrombus was found in the dorsal arteries and viens. The vessel ends were debrided to healthy tissue and interposition vein grafts, again from the right foot, were used to reconstruct the defects. Again, good Doppler signals were heard in theatre and on return to ICU. The penis was grossly contused, but viable (Figure 7).

Following the second operation, the patient made good progress medically and the venous congestion resolved. He was grateful for our efforts during brief lucid periods, but remained mentally unstable and non-compliant. Four days later, he pulled out his urinary catheter with the balloon inflated. There was subsequent loss of Doppler signal from the vessels and the decision was made that no more salvage procedures were justified. The penis was therefore removed and a perineal urethrostomy was formed to allow greater control of urinary flow than would be afforded by a short proximal stump [1-7].

Figure 6: Post-operative appearance in ICU.

Figure 7: Contused penis after second operation.

Discussion

Penile amputation is an uncommon injury, but one which is well documented. A review of the available literature has found that by far the most common mechanism of injury is self-mutilation associated with an acute psychotic episode5,6. The mental instability of the patient provides a unique set of challenges to the treating surgeon, since any attempt at microsurgical reconstruction requires a large degree of compliance with post-operative management. In this case, it was the patient's fluctuating capacity that led to the ultimate failure of penile salvage.

Replantation of a penis is a procedure that all Plastic Surgeons with a microsurgical interest should be able to perform, but most will not see in their career. This case report therefore provides an invaluable learning opportunity to prepare Plastic Surgeons for the unexpected penile amputation. Not only does it revisits the cross-sectional anatomy of the penis, but also provides a step-wise approach to the operative procedure.

This case also raises important questions about the relative and absolute contraindications to replantation of an amputated body part. Mental instability is felt to be an absolute contraindication to digital replantation, so one could argue that the same should be true for the penis. The patient was subjected to a prolonged general anesthetic, with its associated risks, for a procedure that, in hindsight, may not have been in the patient's best interests.

One should also consider the number of salvage procedures that are justified. In this case, a second salvage procedure was performed despite the patient having already shown himself to be non-compliant.

These are difficult questions to answer, but a consensus-derived opinion would help the treating surgeon since the available literature does not provide sufficient guidance.

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