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UROLOGY – CASE REPORT

Successful penile replantation using loupe magnification

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Abstract Traumatic penile amputation is a rare condition requiring urgent surgical consultation with almost immediate surgical intervention. Although seen in both paediatric and adult populations, the majority are seen in the latter age group. These injuries are penetrating in nature, usually occur with the organ flaccid and most are self-inflicted by mentally unstable patients. Currently replantation involves meticulous microsurgery to reduce skin, urethra and graft loss, but these complications may still occur. Non-microsurgical techniques have been utilised with good post-operative outcomes. This report describes penile replantation in a 24-year old mentally challenged patient using 4.5× loupe-magnification to restore a functional, fully erectile penis without tissue loss and a 20-year problem free follow-up.

Keywords Self-inflicted penile amputation · Replantation · Loupe-magnification · Long-term follow up

Introduction

Traumatic amputation of the penis is a rare clinical presentation. Penetrating injuries to the penis are usually self-inflicted but are also seen in felonious assault, inappropriate circumcision techniques, as a result of farming or work-place accidents, gunshot wounds and human or animal bites.

Self-mutilation of the external genitalia in mentally ill patients (known as Klingsors syndrome) involves repetitive aggressive behaviour especially when medication is ceased.

Microsurgical techniques are generally accepted as the favoured method of repair to improve vessel and tissue alignment and hence reduce the immediate and long-term post-operative complications.

However, replantation of the amputated penis has been achieved without the use of operating microscope without the recognised complications of necrosis of the glans, fistula formation, urethral stricture and loss of erectile function. The duration of the surgical procedure is also reduced with good vessel alignment obtained and an acceptable surgical outcome.

This report describes successful replantation of a self-inflicted, amputated penis in a 24-year old patient, utilizing surgical loupes without microscopic magnification.

Case report

A 24 year old mentally disturbed man was found by his father in a pool of blood with a self-inflicted amputated penis, lying on the floor. Since the father

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was aware of limb replantation surgery (which had been reported in the newspapers), he collected the severed penis in a plastic bag, which he placed in another plastic bag containing ice and carried it to the hospital along with his injured son.

Replantation surgery was started within 45 min of arrival to the hospital and 3 h after the injury. The procedure lasted 6 h. Two dorsal arteries and one dorsal vein were reanastomosed using 7/0 Prolene™ with the aid of 4.5× loupe magnification. Urethral continuity was restored with interrupted sutures of 4/0 Dexon™ and the corpora cavernosa and spongiosum were approximated by suturing the tunica albuginea with 4/0 Dexon™. At the end of surgery, the venous filling could be seen below the penile skin (Fig. 1).

A 12-size Foley Catheter was left in situ for 9 days after which he passed urine comfortably via the urethra. There was no evidence of ischemia of the glans or the skin. He was managed by the psychiatrist for schizophrenia. At 12-week follow up, he reported normal erection. On long-term (20-year) follow up he passes urine freely and experiences normal erections but has persistent decreased sensation of the glans penis.

Discussion

Although there are many reports of penile replantation with successful return to function, this surgery is still rare. Ehrich [1] reported the first case of penile replantation in 1929; this original method of repair comprised of simple approximation of the penile anatomy without meticulous neurovascular anastomosis. Later, the microsurgical technique for replantation of the amputated penis was first reported independently by Cohen and Tamai during 1977 and has become the preferred method of repair [2, 3]. Bhanganda et al. [4] described an epidemic of penile amputations in Thailand during 1983 and this series of patients provided substantial information regarding the utility and outcome of non-microsurgical techniques. Some unconventional non-microsurgical techniques have been reported in the literature such as "Leech therapy" [5].

Microsurgical methods claim to return the amputated penis to its original anatomic state approximating all the penile shaft structures and re-establishing penile blood supply [6–8]. However, a recent review has found that the value of microsurgical techniques to be uncertain [9]. Since there is enough evidence to show a good collateral supply between the deep and superficial penile arterial systems, the anastomosis of one artery is sufficient for success of the replant. The literature supports the view that a repair of a single dorsal penile artery is more important than a single or multiple profundi arteries and hence microscopic and non-microscopic repairs may not have a major difference in the overall outcome of the patient [10].

Various techniques have been developed to augment the process of replantation including preoperative hypothermia and/or hyperbaric oxygen treatment. Jezoir et al. [11] reported that if the amputated tissue can be preserved by hypothermia prior to surgery, this has shown to increase ischemic time and tissue survival. Landström et al. [12] utilized post-operative hyperbaric oxygenation to facilitate replantation, especially if there is any indication of possible infection. If the amputated segment is lost, then microsurgical free forearm flap

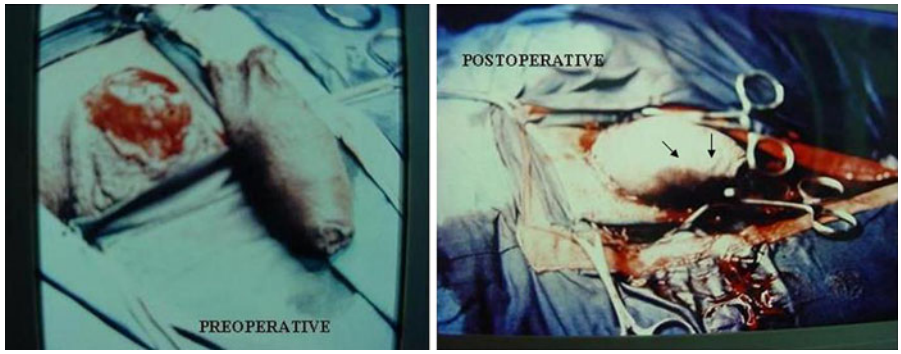

Fig. 1 Preoperative and postoperative appearances of penile replantation. Note venous filling (*Arrows*) postoperatively

phalloplasty is regarded as the treatment of choice similar to reconstruction following amputation for penile carcinoma [13].

Surgical loupes can provide adequate magnification for anastomosis of both the penile shaft structures as well as the crucial vascular structures. This affords adequate optical viewing and can be performed in limited resource setting where an operating microscope is not available.

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