

TRAUMATIC AMPUTATION OF THE PENIS

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ABSTRACT

Introduction and Objectives: Penile amputation is an uncommon injury and 87% of the patients had psychiatric problems. Since 1970 in Thailand there had been an epidemic of penile amputation as philandering punishment by humiliated wives. We reported on the surgical management of this injury.

Patients and Indications for Repair: Our state of the art management of penile amputation is based on a review of 100 reported cases of which 25 were our patients. Penile reimplantation applies to all cases of amputated penis, providing that the amputated part is available or not completely destroyed. The amputated part can be maintained up to 16 hours or may be up to 24 hours at hypothermia.

Surgical Management: The penile amputated part is carefully cleaned with cold sterile normal saline. Administration of broad-spectrum antibiotics for gram positive-negative and anaerobic organisms is judicious and anti-tetanus measures are taken. The following steps should be followed in sequence: 1)- Bleeding from the proximal stump should be controlled by a tourniquet; 2)- Under loupe magnification, the ends of the dorsal arteries and a dorsal vein, and nerve are identified; 3)- A Foley's catheter is used to stabilize both ends before anastomosis. The urethral ends are spatulated. The urethral mucosa of both ends is approximated by interrupted 6-0 chromic catgut and the adventitia and corpus spongiosum by 4-0 or 5-0 polyglycolic acid; 4)- Meticulous dissection to find the healthy dorsal arteries is vital for successful anastomosis by 11-0 monofilament nylon. The dorsal vein is anastomosed by 10-0 nylon. Perineurorhaphy of the dorsal nerve with 9-0 or 10-0 nylon suture was carried out; 5)- The dartos fascia is approximated by interrupted 5-0 or 6-0 polyglycolic acid.

Results: The adequate cosmetic restoration of the penis is satisfying. Erection returns in nearly all cases, making intercourse possible. Although the penile sensation showed some decreasing, the recovering is remarkable. The common complication is skin loss. Urethrocutaneous fistula is uncommon.

Conclusion: Penile reimplantation represents a remarkable success of microsurgical technique or if microsurgical facility is not available, macrosurgery alone may be done.

Key words: penis, amputation, trauma, reimplantation, reconstruction, microsurgery

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INTRODUCTION

Penile amputation is an uncommon injury (1-3). Eighty-seven percent of the patients suffering from this injury had psychiatric problems of which 51% were in a decompensated schizophrenia. Some patients had poor gender identity, feeling themselves inadequate as males. In the western societies, most penile amputation resulted from self molestation

during the acute psychiatric episodes. Felonious assaults from jealous homosexual lovers account for a few (1). Since 1970 in Thailand there had been an epidemic of penile amputation as philandering punishment by humiliated wives (4-6).

In 1929, Ehrich macroscopically reported penile reimplantation. The corpora were approximated and the penis buried in the scrotum (7). The macroscopic technique was reviewed by Mc

Roberts et al. (8). The scrotal skin was thick and hairy. Some surgeons did not bury the replanted penis in the scrotum, thus reducing tension at the suture line (8).

Although the final cosmetic and functional results of the macroscopically replanted penis was gratifying, skin necrosis was commonly reported (1,5). The survival of the penis and functions depend no doubt on the unique penile vascular system. Cohen et al. and Tamai et al. reported reimplantation of the penis by microsurgical technique in which the blood vessels and nerves were also anastomosed (9,10). The results were highly satisfactory and skin necrosis, although present in some, was far less (9-12).

Our state of the art management of penile amputation is based on a review of 100 reported cases of which 25 were our patients (4,5). Based on these 25 cases, the following systematic sequence was taken (4,5).

INDICATIONS FOR REPLANTATION

Penile reimplantation applies to all cases of amputated penis, providing that the amputated part is available or not completely destroyed. The amputated part can be maintained up to 16 hours or may be up to 24 hours at hypothermia (1). Many patients will need psychiatric evaluation and management (1,14).

PATIENT PREPARATION

The patient has cut wound from a knife or an accident and lost blood. Hypovolemic shock requires immediate resuscitation. Bleeding from the proximal penile stump should be stopped by a tourniquet, non-crushing hemostat or pressure dressing. The patients should be transferred to a hospital with microsurgical facility available.

ORGAN PREPARATION

The penile amputated part is carefully cleaned with cold sterile normal saline (Figure-1). It is put in a clean plastic bag immersed iced saline container.



Figure 1 - The penile amputated part.

PREOPERATIVE PREPARATION

The patient is prepared for general anesthesia. Administration of broad-spectrum antibiotics for gram positive-negative and anaerobic organisms is judicious. The patient is given 1500 units of anti-tetanus serum and 2 ml of tetanus toxoid.

INSTRUMENTS

For microsurgical reimplantation, the followings are required.

- 1)- Instruments used generally in microsurgery;
- 2)- Loupes (2.5 or 3.5x) and operative microscope (8-16x).

OPERATIVE STEPS

After routine operative preparation, the following steps should be followed in sequence.

1)- Bleeding from the proximal stump should be controlled by a small Penrose drain or 10F rubber catheter if the penile shaft is long enough, or Tamai clamps if the amputation is near the penoscrotal junction (12). The distal part is removed from the bag, blood clots at both ends should be washed away by flushing irrigation whether the amputation is partial or complete. Debridement of obviously necrosed skin must proceed with extreme care (1);

2)- Under loupe magnification, penile skin at both ends should be undermined for 1 cm to expose the corpora. The ends of the dorsal arteries and a dorsal vein, and nerve are identified (Figure-2);

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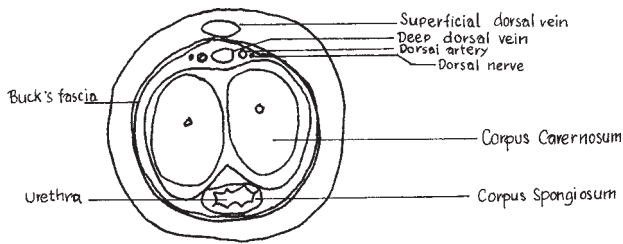


Figure 2 - Cross-sectional anatomy of penile stump.

3)- A Foley's catheter is used to stabilize both ends before anastomosis. The urethral ends are spatulated (Figure-3). The urethral mucosa of both ends is approximated by interrupted 6-0 chromic



Figure 3 - Spatulated urethra.

catgut and the adventitia and corpus spongiosum by 4-0 or 5-0 polyglycolic acid (Figure-4). The tunica albuginea and the septum of the corpora cavernosa are reapproximated by 4-0 or 5-0 polyglycolic acid in a watertight fashion. There is no need to anastomose the tiny deep cavernosal arteries unless the injuries are proximal and dissection in the erectile tissue show sizable cavernosal arteries (1,5);

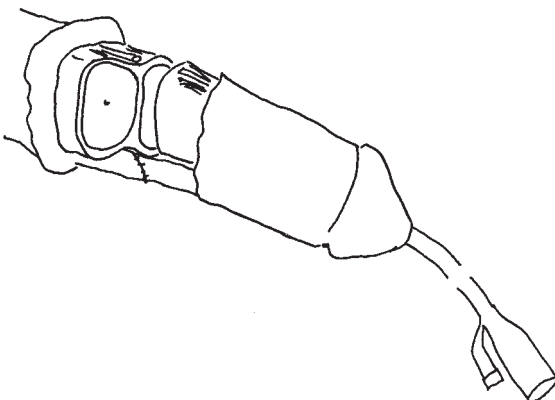


Figure 4 - After urethral anastomosis.

4)- Under 8-16x microscopic magnification, both dorsal arteries (1 mm in diameter) and dorsal vein (3 mm in diameter) are identified. Meticulous dissection to find the healthy dorsal arteries is a vital necessity for successful anastomosis by 11-0 monofilament nylon. The dorsal vein is anastomosed by 10-0 nylon. Perineurothaphy of the dorsal nerve with 9-0 or 10-0 nylon suture was carried out. There is no need to perform fascicular anastomosis (5). Release of the tourniquet usually showed the glans to be pink (1). During the vascular anastomosis, the area is irrigated with 1:3 heparin solution to prevent platelet aggregation (16);

5)- The dartos fascia is approximated by interrupted 5-0 or 6-0 polyglycolic acid. Small drain is inserted. The skin is approximated by 4-0 or 5-0 chromic catgut suture. The dressing is loose and keeps the penis elevated for good venous and lymphatic drainage (13). A percutaneous suprapubic cystostomy catheter is inserted (Figures-5 and 6).

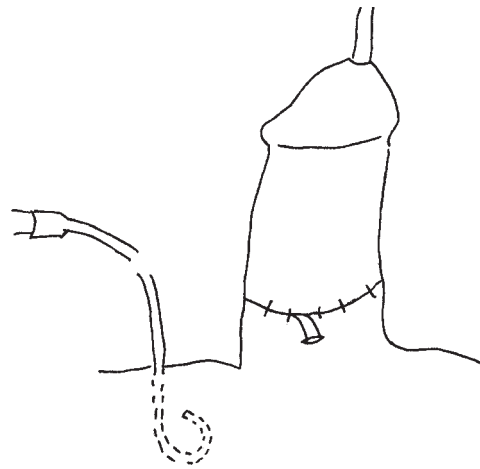


Figure 5 - After complete reimplantation.

POST-OPERATIVE CARE

The patient should be well hydrated, and body kept at normal temperature. Heat lamp help vasodilatation (1). Five hundred ml per day for 3 days of low molecular dextran is given to reduce blood viscosity, decrease platelet adhesion, and promote antithrombotic property (15,16). Post-operative congestion can be treated by tapping blood from the corpus cavernosa. Drains are removed on the second



Figure 6 - After complete reimplantation.

post-operative day and Foley's catheter after one week. Retrograde urethrography is performed after 2 weeks, if there is no leak the cystostomy tube is clamped and removed after normal voiding. In case of a leak, the cystostomy should be maintained for another 2 weeks. Persistent urethrocutaneous fistula indicates surgical repair (1). With microsurgery, skin necrosis is minimal and wet dressing is required. Rarely, skin grafting is indicated (5).

RESULTS

The adequate cosmetic restoration of the penis is satisfying. Erection returns in nearly all cases, making intercourse possible (1,5,17). Although the penile sensation showed some decreasing, the recovering is remarkable (1,5).

COMPLICATIONS

The common complication is skin loss (5). Urethrocutaneous fistula is uncommon (1,5). Penile necrosis has been reported and seems to be rare (1). Anastomosis in 2 layers of the spatulated urethral ends makes stricture an uncommon event (1,5). In conclusion, penile reimplantation represents a remarkable success of microsurgical technique or if microsurgical facility is not available, macrosurgery alone may be performed.

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