

Surgical Management (Microsurgery) of Traumatic Penile Amputation: A Case Report

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Abstract

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BACKGROUND: Traumatic penile amputation is an uncommon surgical emergency with various etiologies, carrying major functional and psychological consequences concerning the patient's overall quality of life. Regardless of the aetiology, penile amputation represents a surgical emergency that must be addressed quickly and efficiently to maximise functional outcomes.

CASE PRESENTATION: We herein describe a case of psychiatric disorder that resulted in a complete self-amputation of the patient's penis. The author presents a case of a 20-year-old single Indonesian male with no significant past medical or psychiatric history, who was presented to our Regional Referral Hospital with traumatic penile self-amputation. Immediately, the patients were taken to the operating room, and careful examination under anaesthesia revealed fully and transversally transected urethra as well as corporal bodies at the level of penis base. Viable artery and vein were then searched using a microscope after suturing through the tunica albuginea of the corporal bodies on the ventral aspect and snapped them for future tying. After microvascular re-anastomosis of the left dorsal artery and only one dorsal vein done. We attached the urethra and placed a 16 Fr silicon catheter. The result was an excellent tension-free, widely spatulated urethra anastomosis, which was then reattached to the corporal bodies. The penis had significant oedema and swelling in the distal penile shaft; however, pain sensation was gradually returning.

CONCLUSION: The authors noted that microsurgical reimplantation is the treatment of choice for penile amputation, with a minimum one of the penile vascular was successfully anastomosis.

Introduction

Traumatic penile amputation is an uncommon surgical emergency with various etiologies. It carries major functional and psychological consequences regarding the patient's overall quality of life. There is a paucity of case reports of traumatic penile amputation during circumcision; however, most of the cases reported with self-mutilation are a result of severe substance-induced psychosis or underlying psychiatric disorder [1]. Nonetheless, the incidence of traumatic penile amputation remains low, limiting our understanding mainly to case reports and reviews. Regardless of the aetiology, penile amputation represents a surgical emergency that must be addressed quickly and efficiently to maximise functional outcomes [2]. We herein describe a case of

psychiatric disorder that resulted in a complete self-amputation of the patient's penis.

Case Report

A 20-year-old single Indonesian male with no significant past medical or psychiatric history was presented to our Regional Referral Hospital with traumatic penile self-amputation. The patient brought in his distal penile stump placed in dry gauze (3-hour warm ischemic time), the stump was placed on the ice after arrived in the emergency department (4 hours cold ischemic time). The patient had some family problems and developed severe depression; it begun almost 3 weeks and never talk any word. Earlier to the

patient's presentation, the patient had done wooden carving tools, and suddenly he cut the penis with a sharp pocket blade due to auditory hallucinations.



Figure 1: Complete penile amputation at the base of the penis

A detailed discussion regarding surgical reimplantation of the amputated penile stump was undertaken. All risks, benefits, alternative treatments, and potential complications were discussed, and formal consent to the family was obtained. Immediately, the patients were taken to the operating room, and careful examination under anaesthesia revealed fully and transversally transected urethra as well as corporal bodies at the level of penis base. The skin along with the penile stump and amputated penis were intact with no evidence of ischemia or necrotic changes. Prophylactic intravenous antibiotics (cefazolin 1 gr) were given.



Figure 2: Amputated penis before reimplantation

Meanwhile, the urology team began to look for the dorsal artery and vein using a microscope. We did sutures through the tunica albuginea of the corporal bodies on the ventral aspect and snapped them for future tying. Next, we success to do microvascular re-anastomosis of the left dorsal artery and only one dorsal vein. We attached the urethra in a 360-degree fashion using interrupted 6-0 vicryl sutures. Halfway through the anastomosis, we placed a 16 Fr silicon catheter. We had an excellent tension-free, widely spatulated urethra anastomosis. We reattached in interrupted fashion using 3-0 vicryl

sutures to the corporal bodies.



Figure 3: (A and B) Process of reimplantation and re-anastomosis under the microscope

The penis was then covered in sufratule and gauze. Postoperatively, the patient had adequate flow to the distal end. During his postoperative course, he was under strict bed rest until postoperative day 14, with given an antidepressant from psychiatry. The penis had significant oedema and swelling in the distal penile shaft; however, pain sensation was gradually returning.



Figure 4: (A and B) Postoperative image day 1 after re-anastomosis and 16 French Silicon Foley catheter in place

Discussion

Penile amputation is a rare urologic emergency, with only a few microsurgeons have or will experience managing this patient. Therefore, the course of management has to be carefully [1].

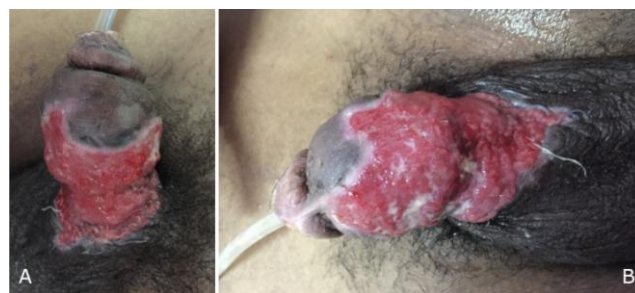


Figure 5: (A and B) Penile skin was necrotic and was done wound care until the granulated raw surface

Tamai and Cohen in 1977, has successfully

microsurgical reimplantation of the penis, repair involved suturing of the major part – corpora cavernosa, urethra, and skin without repair of the nerves and vessels. This was often complicated with skin and glans necrosis, urethral fistula, stricture, incomplete erection, and failure of sensory sensation.¹ Skin loss has been a problem in microsurgical repair; data showed from 28 patients reviewed by Landstrom et al. showed 15 patients with skin loss of which 2 were a complete loss [3].



Figure 6: (A and B) Penile after FTSG (Full-thickness Skin Graft) (5 weeks after the first reimplantation)

In our case, penile skin was partial loss after 14 days reimplantation. In a systematic meta-analysis detailed by Li et al., a total of 109 patients with penile amputation were successfully reimplanted in China for over 48 years. Among all cases, 53/109 (49%) cases were performed microsurgery. Postoperative complications identified were skin necrosis in 58 patients, penile sensation alteration in 31 patients, urethral strictures in 16 patients, erectile dysfunction in 14 patients, and urethral fistula in 8 patients. Penile skin necrosis was negatively correlated with the total number of anastomosed blood vessels ($P < 0.05$) [4].

Correlation of the number of arteries or veins repaired with skin loss did not give a clear conclusion. Skin loss was observed in patients in whom both dorsal arteries and deep arteries were repaired. The anastomosis of the deep arteries only was insufficient to prevent skin complication [3]. Wei et al. suggested that at least one dorsal artery was repaired. Even after both superficial and deep venous anastomosis, skin necrosis was occurred, suggesting that this may not be the only reason. Oedemas of the penile, prolonged

ischemia, use of heparin postoperatively have been implicated in contributing skin necrosis [3].

With the involvement of complex neuro-circulatory reflex, involving various factors, which influenced by medication, psychiatric background, and general shyness, erectile function is difficult to assess. Erectile function tests with the nocturnal penile test and prostaglandin test as early as 3 weeks following repair [5]. A consensus in the contemporary literature acknowledges that microsurgery revascularization and reimplantation of the penile structure provide early and adequate restoration of penile blood flow with the best outcome of penile reimplant survival, erectile, and voiding functions [4]. Penile replantation is not a contraindication in psychiatric patients, is superior to any presently available method of reconstruction [3].

In conclusion, traumatic penile amputation is an emergency surgical case that needs immediate treatment. Microsurgical reimplantation is the treatment of choice for penile amputation, with a minimum one of the penile vascular was successfully anastomosis.

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