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Case Report

Successful Microsurgical Penile Replantation Following Amputation by Assault: A Case Report

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Abstract

Penile amputation by assault or by any other cause including self-inflicted injury is a rare urological/plastic surgery trauma for which immediate replantation is required. It is a highly specialized and challenging procedure that requires microsurgical techniques due to the small blood vessels and nerves involved. We present a case who presented to us in emergency department of Burns and Plastic Surgery Center, Peshawar, Pakistan with a history of assault, resulting in amputation at the base of penis. Micro surgically, the penis was replanted. Mild to moderate edema was observed in the postoperative period for up to 4 weeks but it resolved on its own. After 6 weeks, the patient exhibited good urinary flow, morning erection and progressive sensory recovery.

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Introduction

Penile amputation is a rare surgical emergency which needs urgent management. Most common causes include self mutilation, trauma, domestic violence with traumatic circumcision being the most common cause in pediatrics population.[1] There is no set management guideline for penile amputation except urgent microsurgical replantation of the amputee (Introduced by Cohen et al. In 1977).[2] The novel PENIS Score stratified penile amputations based on 5 criteria: position along the shaft, extension through the penis, neurovascular repair, ischemia time and type, and severed edge condition and contamination[3]. . In our case we started microsurgical replantation 3 to 4 hours after ischemia.

Case Presentation:

A 23-year-old unmarried male presented to us in plastic surgery emergency with a history of assault resulting in amputation of his penis, by a group of people in his native village. He presented at our center after 2 hours of incident. On admission, he was stable and lucid, the general physical examination was unremarkable. Local examination of phallus revealed a straight cut through all penile structures, with no avulsion component and no major lacerations. There was diffuse bleeding of corpora cavernosa tissue and vascular bleeding from the dorsal vessels. His phallus was amputated at the base and the stump was retracted to the pubic area, with the testes and scrotum intact. (Fig 1). Tetanus prophylaxis was given followed by intravenous administration of Antibiotics. Patient was prepared for General Anesthesia and replantation surgery attempted after proper wash and debridement of the amputated part. A 14-Fr silicone catheter was inserted into the patient's bladder through the amputated and stump section of the urethra, and was then connected from one end to the other using a series of anastomoses with vicryl 6-0 sutures applied in two layers. Subsequently, the repair of the cavernosal bodies was carried out. The following action involved pinpointing the dorsal penile arteries, which were then micro-surgically connected to the closer end of

the arteries with 8-0 prolene sutures following the process of irrigation with lignocaine and saline mixed with heparin. Following the connection of arteries, the deep dorsal penile vein was revealed and underwent a delicate surgical connection using 8-0 prolene sutures. The nerves on each side were identified and sutured together from epineurium to epineurium with the same type of sutures. Following the repair of the nerves and blood vessels, a healthy blood circulation was noted. The surrounding Buck's fascia was brought together, and the skin was sutured with 5-0 vicryl rapide sutures.

Postoperatively, glans scoring using sterile needle and heparin soaked gauzes were placed for first 48 hours but still a venous congestion was noted which was intense at day 4 and then gradually reduced over the next 3 days. Catheter was in place for 3 weeks. At the 6 week follow-up, patient exhibited good urine flow, morning eraction and progressive sensory recovery (figure-2)

Informed consent was obtained from the patient to publish his photos and information.

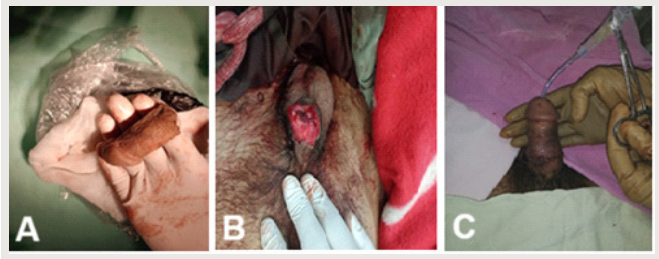

Figure 1: *(a) amputed part, (b) stump on presentation and (c) immediate post op after replant.*

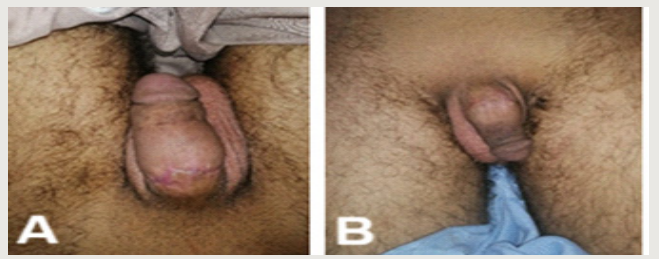

Figure 2: *(a) three weeks post op and (b) six weeks post op.*

Discussion

Penile amputation is an emergency which needs urgent microsurgical intervention. Macroscopic surgical repair as described by Ehrich et al in 1927 is less reliable as compared to microsurgical intervention as described by Cohen et al in 1977.[2] Arterial, venous anastomosis and nerve repair as well as cavernosa and urethral approximation are crucial in restoring the anatomy and physiology back to normal. Male is more prone to genital injury than a female due to the more exposed organ. Adequate treatment revolves around the mechanism of injury, time since injury and other structures and involvement of other tissues.[4] Following a replantation of penis, it was noted by Morison et al in 2017 that there is a 96% successful return of urinary function and a 77.5% return of erectile function.[5] Venous anastomosis is necessary for successful replantation but in case of venous congestion bloodletting and leech therapy is advised.[6] Cold chain of the amputated part is necessary as warm ischemia can limit the timeframe for successful replantation. However, a successful replantation even up to 24 hours has been achieved by Riyach et al.[7] Skin necrosis frequently occurs following penile re-implantation, with reports indicating it in nearly half of all cases. Possible contributing factors may involve ischemic time, postoperative edema, and congestion.[8] Several case studies have shown successful resolution of this complication through debridement and regrafting procedures.[7]

In this particular instance, as a result of prompt microsurgical artery repair and the prompt initiation of heparin scoring, there was minimal skin necrosis observed. Also erectile function was appreciable by the patient after 6 weeks post surgery.

Conclusion

Clean cut injury, timely arrival at a specialized center, preservation of the amputated part along with a trained and experienced microsurgical team plus a meticulous microsurgical technique and vigilant post operative monitoring are the key elements to any successful microsurgical penile replantation.

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Conflict of Interest: *None*

Author's Contribution

Shahzad Ahmad: Conception and design of the study, data collection, interpretation, Drafting the work Final approval of the version to be published and accountable for all aspects of the work.

Waqas Hayat: Conception and design of the study, **c**ritical revision of the article and final approval of the article to be published.

Adnan Shakeel: Interpretation of data, Manuscript Revision and final approval of the version.

Danish Khattak: Acquisition of data, Manuscript Revision and final approval of the version.

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