



Penile autoamputation with successful reimplant a case report and new preoperative mnemonic classification system: P.E.N.I.S.*

Bruno Machado*, Nicholas Scherzer, Allison Harmsworth

University of Arkansas for Medical Sciences, USA

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ABSTRACT

Genital self-mutilation is a rare condition. Psychiatric disease and accidents are the most common causes. We a case of genital amputation connected to religious delusions known as Klingsor Syndrome. Due to the scarcity of cases, each author describes the amputation injuries ununiformly, making the comparison of the cases difficult. We propose an anatomical pre-operative score: The P.E.N.I.S.* score, it is an innovative pre-operative 5-grade score that aims to standardize the injury classification. Penile self-amputations are rare; medical literature lacks standardized classification that permits comparison between cases described. The P.E.N.I.S. score can be a helpful tool to fill this current gap.

1. Introduction

Male genital self-mutilation is rare. The most common cause of genital mutilation is psychiatric disease. Other etiologies, such as accidents, punishment for behavior by a partner, family member, or friend, have also been reported.^{1,2}

2. Case report

A 54-year-old male presented to the ER with an incomplete penile amputation 1 cm distal to the penile base. The patient had a previous history of methamphetamine use, although drug testing confirmed that he had not used illegal drugs for at least 72 hours. The injury was managed under local anesthesia. Psychiatric evaluation attested he did not represent a risk to himself or society and he was discharged home.

Forty-eight hours after this episode of self-mutilation, the patient returned to the ER after a complete penile self-amputation at the same anatomical location. The penile stump was found on the scene, wrapped properly in saline gauze and put on ice and brought to the hospital. The patient was in a delusional state saying he wanted to be "purified" from his sinful thoughts. He tested negative for methamphetamine.

The re-implant procedure started 7 hours after the amputation episode. Urology and Plastic surgical teams were involved in the procedure. The anastomosis of the corpora cavernosa [CC] and the urethra was performed using a running suture with 4-0 vicryl. The termino-terminal urethral repair was performed with 2-0 Monocryl sutures,

with a 16fr foley placed after the anastomosis was complete. The left and right dorsal arteries and the deep dorsal vein were identified, and both anastomoses were performed with 8-0 and 9-0 nylon with interrupted suture; 9-0 nylon was used for the nerve anastomosis. A post-re-implant doppler showed distal blood flow to the glans.

Post-operatively, the patient received Risperidone 2mg QAM and 4mg qhs and sildenafil 20mg PO four times daily. On post-op day 3, penile edema and superficial skin necrosis was noticed, but no deep structures were involved. He also endorsed partial numbness and partial spontaneous erections. On post-op day 7, the edema had partially subsided, and the skin necrosis was delimited entirely. On post-op day 10 he was discharged. On post-op day 14, the patient had his urethral catheter removed in the clinic. He was then lost to follow-up.

3. Discussion

In 1929, Ehrich et al. published the first case report describing a penile macrosurgical reimplant.^{2,3} In 1977, Cohen and Tamai published, independently, the first description of penile reimplantation using microsurgical technique. Since then, it has become the gold standard technique.^{1,2}

Current literature recommends the re-attachment of as many microvessels and nerves as can be found. The re-anastomosis of the CC arteries is laborious and does not improve the short or long-term outcomes. Preventing venous congestion is the key to improving short-term outcomes.³

* Corresponding author. Urology Department, Slot 540 4301 W Markham St, Little Rock, AR, 72223, USA.

E-mail address: bmachado@uams.edu (B. Machado).

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Table 1
P.E.N.I.S.* amputation anatomical score.

	Grades				
	1	2	3	4	5
P (Position)	Base up to 2 cm	Between 2cm [20] from the base and 0.5 cm below the glans	≤0.5 cm proximal to the glans	Total penile amputation including one testis	Total penile amputation including both testis
E (Extension)	Partial amputation, not involving deep structures (limited to the skin)	Partial amputation involving 1/3 of the dorsal face of the penis)	Partial amputation involving partially the Urethra	Partial amputation involving the complete section of the urethra	Total penile amputation
N (Number of identifiable Stump micro-structures)	2 arteries, 2 veins and nerves identifiable.	1 artery, 2 veins and nerves identifiable	1 vein identifiable	No veins identifiable	Macerated non-viable stump or No stump
I (ischemia)	Less than 2 hours in cold ischemia	Between 2 and 6 hours of cold ischemia	More than 6 hours of cold ischemia	≤2 hours in warm ischemia	>2 hours in warm ischemia
S (Skin edges)	Regular and clean skin edges	Clean and irregular	Dirty and irregular skin edges	Dirty and skin edges partially destroyed	Dirty and no viable skin edges

In the end at the top add the letter *S* for self-inflicted or *E* for external.

The window of opportunity for a successful penile reimplant is large if the stump is preserved with cold ischemia. There are cases of successful penile reimplant even 16 hours after the amputation when the specimen is preserved appropriately.²

The most common complication is skin necrosis.^{2,4} Tuffaha et al. published an article describing the penile skin blood supply. Dye was injected in arteries that supply the penile skin and found branches from the external epigastric artery. During penile amputation, these branches retract and are often neglected during reimplantation. The authors postulated that this might explain the high rates of skin necrosis.⁴ The second and third most common complications are urethral fistula and stenosis, respectively.^{1,2} The fistulas can be re-approximated with urethral catheterization or local repair. In more complex cases, urethroplasty can be used to repair both conditions based on their extent. Dilatation or internal urethrotomy are other options to treat post-op symptomatic urethral stenosis.^{1,2}

In 1983, Bhangana, K. et al. published the most extensive penile amputation series with 18 penile reimplantation cases. From these, 13 cases (72%) resulted from an altercation between the male and his female partner, 4 cases (22%) were self-inflicted, and 1 case (6%) had indeterminate etiology. All were repaired with macro-anastomosis. The complication rate was 83%. Multiple complications happened in 50% of the patients, e.g., skin necrosis (61%), penile necrosis (5%), partial necrosis of glans (55%). Of the 18 patients, 45% were able to have sexual intercourse after the procedure, 55% were lost to follow-up.⁵

We created The P.E.N.I.S.* score that uses the affected organ name to create a mnemonic where 5 letters represent an characteristic of the amputated penis: P – Position; E – Extension; N - Number of identifiable microstructures, I – Ischemia refers to the time and type of ischemia (warm or cold) and S – Skin edges. Each parameter is graded from 1 to 5 based on the severity of the injury.^{1,3} An extra letter S or E is placed superscript at the end to identify if the injury is self-inflicted or for an external cause, respectively (Table 1). The score was based off of the RENAL Nephrometry score. Our patient would be scored: P₁E₅N₃I₃S₂^S.

The aim of this novel scoring system is to aid in the decision making process of practitioners that are considering reimplantation. A higher score would suggest successful reimplantation is less likely. While a limitation of this scoring system is that it is not validated due to the rarity of these cases, we believe this score would make an excellent adjunct to pre-operative IPSS and IIEF-5 scores to help standardize outcomes. Practitioners might also consider the patient’s functional status and reasoning for amputation when deciding whether to attempt reimplantation or creating a perineal urethrostomy.

4. Conclusion

Penile amputation is a rare traumatic event and should be treated with early replantation to maximize long-term functional outcomes. More standardized publications are still required in this field, preferably using validated instruments for outcome measures.

The absence of uniformity in the literature of validated tools, e.g., IIEF-5 and IPSS, makes the comparison of outcomes difficult. To standardize outcomes, we propose the application of the questionnaires above and the use of a new preoperative P.E.N.I.S.* score.

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