



Good outcome of surgical treatment for contaminated penile wound due to a fall from stairs: a case report

Neil Patel^{1^}, Nirja Kaka^{1^}, Pradeep Sharma^{2^}, Neha Mahajan^{2^}, Rehnuma Ansari^{2^}, Yashendra Sethi^{2^}

¹Department of Medicine, GMERS Medical College, Himmatnagar, India; ²Department of Surgery, Government Doon Medical College, Dehradun, India

Contributions: (I) Conception and design: Y Sethi, P Sharma, R Ansari, N Mahajan; (II) Administrative support: P Sharma, N Mahajan; (III) Provision of study materials or patients: N Patel, Y Sethi, R Ansari, P Sharma, N Mahajan; (IV) Collection and assembly of data: Y Sethi; (V) Data analysis and interpretation: N Patel, N Kaka, Y Sethi; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Yashendra Sethi, MBBS. Department of Surgery, Government Doon Medical College, Dehrakhas, Patelnagar, Dehradun PIN-248001, India. Email: yashendrasethi@gmail.com.

Background: Penile trauma due to the associated stigma poses a diagnostic challenge. The causes of isolated penile injuries include zipper injuries (mainly in children), falls, burns, during fellatio, self-mutilation (Klingsor syndrome), and rarely purposeful forceful bending of the erect penis (Taqandand). Delayed management of penile trauma might increase the risk of infection, rarely leading to sepsis acutely or structural and functional disabilities in the long run. We believe our report is the first to contribute data on a patient with a delayed presentation of contaminated penile wound who recovered well with prompt management.

Case Description: A traumatic laceration of the penis due to a fall from stairs is extremely unexpected. Here we present the case of a 14-year-old boy who slipped from the stairs and got an isolated American Association for the Surgery of Trauma (AAST) Grade-1 ventrolateral penile skin laceration. He took home remedies for 10 days before reporting with a contaminated wound. The patient was first managed conservatively with antibiotics [Amoxycyclav 625 mg thrice daily (TDS) and Metronidazole 400 mg TDS], wound care, and then treated surgically, helping wound repair. He recovered well after the treatment and retained normal urinary and sexual function.

Conclusions: Penile trauma is severely under-reported due to the stigma associated with it. Early diagnosis and prompt management are imperative to limit complications. A detailed history helps to evaluate the exact cause and check out possibilities of sexual assault. Appropriate management in tandem with patient education and an attempt to de-stigmatize the interaction helps favorable long-term outcomes.

Keywords: Case report; penis; trauma; laceration; contaminated wound

Received: 01 September 2022; Accepted: 25 April 2023; Published online: 08 May 2023.

doi: 10.21037/acr-22-60

View this article at: <https://dx.doi.org/10.21037/acr-22-60>

Introduction

Background

Penile trauma is uncommon and extremely under-reported, due to the stigma associated with it. Most injuries occur in the erect penis, with the erect state being anatomically

more susceptible; however, flaccid penis injuries form a minuscule proportion of the total penile injuries (1). The most common causes of isolated penile injuries include zipper injuries (mainly in children), falls, burns, during fellatio, self-mutilation (Klingsor syndrome), and rarely purposeful forceful bending of the erect penis (Taqandand)

[^] ORCID: Neil Patel, 0000-0002-4702-8583; Nirja Kaka, 0000-0003-4379-9265; Pradeep Sharma, 0000-0002-9668-0017; Neha Mahajan, 0000-0003-0627-0100; Rehnuma Ansari, 0000-0002-4976-6504; Yashendra Sethi, 0000-0003-0345-3876.

(1-4). Determining the cause of the injury can often be challenging owing to hesitancy and inconsistent patient history. All penile injuries have the risk of disfigurement, sexual dysfunction, or urethral injury, depending on their anatomical location and severity (5). Penile injuries are often challenging to manage as there is a significant stigma surrounding these injuries, which can lead to a delayed presentation. Moreover, the increasing rates of sexual crimes pose a diagnostic ordeal. The patients present as a test of the rapport and interview skills of the healthcare provider, especially for the pediatric age group (6). The suspicion of sexual assault must always be resolved, but other traumatic injuries cannot be overlooked either. Although penile injuries are seldom life-threatening, an appropriate and well-timed intervention can significantly reduce long-term sexual or urethral complications and subsequent psychological distress (5).

Rationale and knowledge gap

Most cases of penile trauma, especially open wounds, present immediately after injury. It is not rare for boys to have isolated penile injury. Most are avoidable if parents are aware and vigilant (7). We present a case where the

patient presented late due to the stigma of penile injury with a contaminated penile wound but recovered well due to prompt management.

Objective

Herein, we present a rare case of isolated American Association for the Surgery of Trauma (AAST) Grade-1 penile skin laceration on the right ventrolateral surface due to a fall on stairs in a 14-year-old boy presenting on day 10 of injury with a contaminated wound. We present the following case in accordance with the CARE reporting checklist (available at <https://acr.amegroups.com/article/view/10.21037/acr-22-60/rc>).

Case presentation

A 14-year-old boy slipped from his stairs and got a penile skin laceration with minor abrasions on other parts of his body. The penis was uncircumcised. The boy did not inform the parents about the injury and took the medicines from a local chemist shop; the parents were updated only after a week when he started crying due to pain. As they realized that there was no improvement in pain and the wound looked unhealthy, they reported to the tertiary hospital on day 10 of injury. A detailed history and physical exam were done. The pulse rate was 78/min; the respiratory rate was 16/min; the blood pressure was 124/76 mmHg. The parents and the boy were interviewed individually in private to ensure the exclusion of any assault. A detailed local examination was done to assess the extent of the injury. The glans and urethra were safe, there was no active bleeding, and the wound was superficially extending up to the areolar tissue layer and not passing the buck's fascia. The patient was diagnosed with an isolated AAST Grade-1 skin laceration on the right ventrolateral surface of the shaft of the penis. The wound was contaminated, so the patient was managed conservatively with antibiotics [Amoxycyclav 625 mg thrice daily (TDS) and Metronidazole 400 mg TDS] and analgesics [Ibuprofen and Paracetamol taken as needed (SOS)], and a clean dressing was done on the first day of reporting. The patient was managed surgically after 3 days, suturing the wound with inverting and interrupted sutures in 2 layers using vicryl 3-0 for fascia and silk 3-0 sutures for the overlying skin. This was done under penile nerve block and local infiltration using plain lignocaine (without adrenaline) (*Figures 1-3*).

A detailed investigation profile and all markers for disease

Highlight box

Key findings

- The stigma, associated with penile trauma, may lead to delayed presentation and inadequate management. The case gained good outcome with antibiotics and surgical treatment for a delayed presentation of isolated AAST Grade-1 ventrolateral penile skin laceration in this report.

What is known and what is new?

- Although penile injuries are seldom life-threatening, an appropriate and well-timed intervention can significantly reduce long-term sexual or urethral complications and subsequent psychological distress.
- Thorough history-taking, prompt diagnosis, and treatment are crucial for reducing sequelae and excluding sexual assault. Meanwhile, a psychological/emotional component and injuries to nearby structures resulting from penile injuries needs to be addressed.

What is the implication, and what should change now?

- The clinicians need to determine the cause, take prompt management in tandem with patient education, and attempt to de-stigmatize the interaction to help with favorable long-term outcomes even in cases of penile trauma that present late.



Figure 1 Laceration penile injury.



Figure 2 Local anesthetic application done at the root of the penis and around the wound.

exclusion were done, but there were no significant findings. The red blood cell (RBC) count was 6.6 million/mm³, the white blood cell (WBC) count was 10,200/mm³, and the platelets were 350,000/mm³. A urethrogram couldn't be done due to limited patient resources, but no urethral injury was suspected on clinical examination (and urinalysis showed no traces of blood). The sutures were removed after 12 days. The patient was followed up weekly for the next month and showed no complications. The patient recovered well and sustained normal urinary and sexual function.

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient's parent for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.



Figure 3 Wound after sutures.

Discussion

Key findings

A 14-year-old boy slipped from the stairs and got an isolated AAST Grade-1 ventrolateral penile skin laceration. He took home remedies for 10 days before reporting with a contaminated wound. The patient was first managed conservatively with antibiotics and wound care and then treated surgically, helping wound repair. He recovered well after the treatment and retained normal urinary and sexual function.

Strengths and limitations

We believe our report is the first to report a patient with a delayed presentation of penile trauma who recovered well with prompt management. It is an isolated finding and cannot be relied upon for the population. An observational study may be needed to be conducted on a similar cohort (if available) to generalize the result.

Comparison with similar researches

While most similar case reports show a good recovery

Table 1 AAST injury severity scale for the penis

Grade	Details
Grade I	Cutaneous laceration/contusion
Grade II	Buck's fascia (cavernosum) laceration without tissue loss
Grade III	Cutaneous avulsion/laceration through glans/meatus/cavernosal or urethral defect <2 cm
Grade IV	Cavernosal or urethral defect \geq 2 cm/partial penectomy
Grade V	Total penectomy

AAST, American Association for the Surgery of Trauma.

regarding urinary and sexual function, most reports are of patients presenting immediately after the injury. Most cases of penile trauma present acutely after the injury. It is not rare for boys to have isolated penile injury. Most are avoidable if parents are aware and vigilant (7). Penile trauma presents a variety of obstacles to the reconstructive urologist, ranging from abrasions to total emasculation. Penile trauma can result from road accidents, iatrogenic trauma, self-amputation, electrocution, burns, dog bite, zipper injury, and mother's hair strangling etc. and presents a difficult challenge to diagnose and manage (8). Our case was different in being a late presentation with contaminated wound.

Explanations of findings, implications and actions needed

The penile injuries in the pediatric population, though uncommon, require an adroit approach. The causes of penile injuries include but are not limited to accidental lacerations, degloving injuries, circumcision injuries, iatrogenic trauma, animal bites, electrocution, penile manipulation (taqaandan), zipper injuries, and penile strangulation (8). These injuries vary large, including the intensity of damage, functional impacts, and psychiatric impacts (9). The most accepted scaling system to optimally evaluate these injuries is AAST Organ Injury Scaling, which categorizes these injuries into various grades depending on the degree of anatomical disruption (*Table 1*) (10). The mobility, anatomy, and position of the penis protect it, especially in children. Adults are more prone to injuries, majorly in the erect penis as a product of sexual trauma. Though rare, sexual trauma in adolescents can never be overlooked and must be excluded. Immediate wound care must be done, and any signs of infections (fever, chills, etc.) must be evaluated. Most of the time, physical examination can help rule out the involvement of tunica albuginea

or corpus cavernous and exclude the need for diagnostic evaluation.

Management

The authors recommend ruling out urethral involvement in any case of penile injury. If the urethral injury is suspected, the urethra must be imaged before urethral instrumentation. If no blood or hematoma is present, urethral injury can be ruled out (11). Penile fracture is diagnosed clinically, and a correct history is central to the diagnosis; it involves rupture of tunica albuginea with symptoms: tenderness, ecchymotic shaft, penile discoloration (ecchymotic/eggplant), and rapid flaccidity (12). fWe can use ultrasonography (USG), computed tomography (CT), and magnetic resonance imaging (MRI) to confirm the diagnosis with different sensitivities. MRI is the most superior of all, while USG may miss some fractures concurrent with a large hematoma (12-15).

The course of management is based on the nature and extent of the injury. Uncomplicated and superficial injuries, not involving tunica albuginea can be managed conservatively/non-surgically. If primary closure is possible, closure in two layers allows adequate hemostasis (16). In case of circumferential degloving injury, there can be lymphedema of the distal part, hence all skin till the coronal sulcus should be excised (17). In cases involving tunica albuginea and/or corpus cavernosum or cases with urethral involvement surgical management has a superior outcome than conservative (18).

The complications of penile trauma vary based on the extent of the injury. Erectile dysfunction, Peyronie's disease (19), high flow priapism, pseudodiverticulum, and fistula are common complications in injuries involving tunica albuginea or corpus cavernosa while superficial injuries can result in wound infection, penile disfigurement, wound contracture, and painful intercourse (3,20).

Penile injuries and the stigma

The embarrassment around the injuries in the reproductive area can have significant social, interpersonal, and psychological implications for the patients (as well as parents in pediatric cases). The looming suspicion of sexual assault and inherent shame can present as a rather awkward experience, which more often than not leads to delayed presentation and inadequate management.

The importance of counseling

Encouraging and establishing a strong patient-physician

relationship is key to optimal patient care and prevention of recurrence and complications. Open-ended discussions promoting unhindered/follow-up evaluation can significantly impact the patients' quality of life and minimize psychological and social discomfort. Sex education and normalizing the talk about gender differences and creating a scientifically equipped environment for discussion at school and home can largely help eliminate the said stigma.

Conclusions

Penile trauma is severely under-reported. Early diagnosis and prompt management are necessary to limit complications. Traumatic penile injuries rarely present in isolation and frequently accompany injuries to nearby structures and a psychological/emotional component too, which needs to be addressed. The evaluation of penile injuries in the pediatric age group can be particularly challenging and necessitates painstaking history taking and appropriate investigations. Appropriate management in tandem with patient education and an attempt to destigmatize the interaction helps favorable long-term outcomes.

Acknowledgments

Funding: None.

Footnote

Reporting Checklist: The authors have completed the CARE reporting checklist. Available at <https://acr.amegroups.com/article/view/10.21037/acr-22-60/rc>

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <https://acr.amegroups.com/article/view/10.21037/acr-22-60/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient's parent for publication of this case report and

accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

Open Access Statement: This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

References

1. Perovic SV, Djinic RP, Bumbasirevic MZ, et al. Severe penile injuries: a problem of severity and reconstruction. *BJU Int* 2009;104:676-87.
2. Oranusi CK, Nwofor A. Traumatic penile injuries: Mechanisms and problems of treatment in a tertiary institution in Nigeria. *Niger J Clin Pract* 2014;17:763-6.
3. Krishna Reddy SV, Shaik AB, Sreenivas K. Penile injuries: A 10-year experience. *Can Urol Assoc J* 2014;8:E626-31.
4. Wyatt JP, Scobie WG. The management of penile zip entrapment in children. *Injury* 1994;25:59-60.
5. Negro CL, Destefanis P, Bosio A, et al. Avulsion of the penile skin: a conservative approach. *Urologia* 2010;77 Suppl 16:21-4.
6. Hobbs CJ, Osman J. Genital injuries in boys and abuse. *Arch Dis Child* 2007;92:328-31.
7. Pant N, Singh S, Pandey A, et al. Isolated Penile Injury in Boys: Accident, Negligence, or Abuse? *J Indian Assoc Pediatr Surg* 2021;26:177-81.
8. Djordjevic ML, Bumbasirevic MZ, Krstic Z, et al. Severe penile injuries in children and adolescents: reconstruction modalities and outcomes. *Urology* 2014;83:465-70.
9. Khaireddine B, Adnen H, Khaled BM, et al. Surgical reimplantation of penile glans amputation in children during circumcision. *Urol Ann* 2014;6:85-7.
10. Moore EE, Moore FA. American Association for the Surgery of Trauma Organ Injury Scaling: 50th anniversary review article of the Journal of Trauma. *J Trauma* 2010;69:1600-1.
11. Lynch TH, Martínez-Piñero L, Plas E, et al. EAU guidelines on urological trauma. *Eur Urol* 2005;47:1-15.
12. Kasaraneni P, Mylarappa P, Gowda RD, et al. Penile fracture with urethral injury: Our experience in a tertiary care hospital. *Arch Ital Urol Androl* 2019;90:283-7.

13. Dell'Atti L. The role of ultrasonography in the diagnosis and management of penile trauma. *J Ultrasound* 2016;19:161-6.
14. Sokolakis I, Schubert T, Oelschlaeger M, et al. The Role of Magnetic Resonance Imaging in the Diagnosis of Penile Fracture in Real-Life Emergency Settings: Comparative Analysis with Intraoperative Findings. *J Urol* 2019;202:552-7.
15. Suzuki K, Shimizu N, Kurokawa K, et al. Fracture of the penis: magnetic resonance imaging of the rupture of the corpus cavernosum. *Br J Urol* 1995;76:803-4.
16. Furr J, Culkin D. Injury to the male external genitalia: a comprehensive review. *Int Urol Nephrol* 2017;49:553-61.
17. Chang AJ, Brandes SB. Advances in diagnosis and management of genital injuries. *Urol Clin North Am* 2013;40:427-38.
18. Muentener M, Suter S, Hauri D, et al. Long-term experience with surgical and conservative treatment of penile fracture. *J Urol* 2004;172:576-9.
19. Patel DP, Christensen MB, Hotaling JM, et al. A review of inflammation and fibrosis: implications for the pathogenesis of Peyronie's disease. *World J Urol* 2020;38:253-61.
20. Isiguzo CM, Onah II, Okorie GM. Early morning erectile pain in post burn penile contracture – When is appropriate surgical correction indicated? A case report. *Burns Open* 2017;1:25-8.

doi: 10.21037/acr-22-60

Cite this article as: Patel N, Kaka N, Sharma P, Mahajan N, Ansari R, Sethi Y. Good outcome of surgical treatment for contaminated penile wound due to a fall from stairs: a case report. *AME Case Rep* 2023;7:29.