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Penile Trauma in a Pediatric Patient Caused by Physical Abuse: A Case Report

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ABSTRACT

Penile trauma in pediatric patients is a rare but clinically significant condition. While most cases result from accidental mechanisms such as falls or sports injuries, clinicians must maintain a high index of suspicion for non-accidental injury (NAI), particularly when the presenting history is inconsistent with the injury pattern or when the mechanism involves interpersonal violence. This case report aims to describe the clinical presentation, diagnostic evaluation, surgical management, and outcome of an 8-year-old boy who sustained penile trauma following suspected physical abuse. A descriptive observational design in the form of a case report was employed. Data were collected retrospectively from the patient's medical records, encompassing demographic information, clinical history, physical examination findings, imaging studies (ultrasonography with Doppler), treatment interventions, and postoperative outcomes. The patient presented with progressive penile swelling and pain. Imaging revealed intact *corpora cavernosa* and *corpus spongiosum*, with soft tissue oedema and fluid collection at the distal glans. Initial conservative management was insufficient, necessitating surgical intervention comprising debridement, penile reconstruction, and defect closure using a complex local flap technique combined with circumcision. Postoperatively, the patient demonstrated gradual wound healing with no signs of surgical site infection or early postoperative complications. The possibility of non-accidental injury should always be considered in pediatric penile trauma, particularly in cases with an inconsistent history or delayed presentation. Ultrasonography with Doppler is a valuable non-invasive imaging modality for the assessment of penile injuries. When conservative management is inadequate or presentation is delayed, timely surgical reconstruction using local flap techniques can achieve favorable functional and cosmetic outcomes while minimizing long-term morbidity.

Keywords: Penile trauma; Pediatric genital injuries; non-accidental injury; physical abuse; Reconstructive surgery

INTRODUCTION

Penile trauma in children is a rare urological emergency that may lead to significant functional and psychological consequences if not managed appropriately (Chung et al., 2025). Although most cases are accidental in nature, clinicians must maintain a high index of suspicion for non-accidental injury (NAI), particularly when the mechanism of injury is unclear or inconsistent with the presenting history (Pan et al., 2024).

Blunt penile trauma may result in soft tissue oedema, hematoma, or more severe structural injury such as rupture of the *tunica albuginea* (Simms et al., 2021). Early diagnosis and appropriate management are essential to preserve urinary function and future sexual function (Buscarini et al., 2024; Hardesty et al., 2024).

Globally, most cases of penile trauma in children are associated with accidental mechanisms, including falls, sports injuries, or blunt force trauma sustained during play. Nevertheless, the possibility of non-accidental injury (NAI) remains a critical concern that must not be overlooked (Cowley et al., 2018; Focardi et al., 2024). Previous studies emphasize that an inconsistent history, delayed presentation, or an atypical injury pattern should raise clinical suspicion of abuse and warrant further multidisciplinary evaluation (Al-Jilaihawi et al., 2018; Franceschetti et al., 2025; Marletta et al., 2026).

From a clinical perspective, blunt penile trauma may manifest across a spectrum ranging from mild soft tissue oedema to severe structural damage, including rupture of the *tunica albuginea* or vascular compromise. Early and accurate diagnosis plays a crucial role in

determining the appropriate management strategy (Alharbi et al., 2025; Setyati et al., 2024). Failure to correctly identify the severity of injury may result in complications such as surgical site infection, fibrosis, erectile dysfunction, or cosmetic deformity in the long term.

The diagnostic evaluation of penile trauma has evolved with the advancement of imaging modalities, particularly ultrasonography with Doppler, which is considered non-invasive, widely accessible, and effective in assessing vascular integrity and structural damage (Dell'Atti, 2016; Gómez-Bermejo et al., 2023; Ramanathan et al., 2021). These modalities enable clinicians to differentiate between cases amenable to conservative management and those requiring surgical intervention.

The clinical urgency of this case report is multifaceted. From a clinical perspective, delayed or inadequate management can lead to severe complications, including surgical site infection, fibrosis, erectile dysfunction, and cosmetic deformity (Setyati et al., 2024). From a child protection perspective, failure to recognize NAI may leave a child in an unsafe environment, thereby exposing them to the risk of continued abuse. From a medicolegal standpoint, thorough documentation and appropriate reporting to the relevant authorities are essential obligations. Given that child physical abuse remains significantly underreported globally, each well-documented case contributes to improved clinical awareness and heightened suspicion among healthcare practitioners (Pan et al., 2024; Buscarini et al., 2024).

The novelty of this case report lies in several key aspects. First, it documents a rare case of pediatric penile trauma with suspected physical abuse in an 8-year-old boy, a demographic in which such injuries are particularly uncommon. Second, it describes the application of a complex local flap technique combined with circumcision for penile reconstruction following delayed presentation, occurring three days post-injury. Third, it provides detailed clinical, imaging, and intraoperative findings, including preoperative and postoperative photographic documentation. Fourth, it addresses the medicolegal implications and underscores the importance of a structured multidisciplinary evaluation. Unlike previous reports that focus primarily on accidental trauma or adult populations, this case report specifically addresses the intersection of pediatric urological trauma and suspected physical abuse.

Management strategies for pediatric penile trauma are largely dictated by the extent of injury. Conservative treatment is generally preferred in cases without structural disruption; however, delayed presentation, progressive swelling, or tissue necrosis may necessitate surgical management. Reconstructive surgical techniques, including debridement and local flap closure, have been reported to yield satisfactory functional and cosmetic outcomes when performed in a timely manner.

Despite the clinical significance of this condition, the literature on pediatric penile trauma — particularly cases associated with suspected physical abuse — remains limited. The majority of available evidence comprises case reports or small case series, highlighting the ongoing need for systematic documentation and analysis to advance clinical understanding and refine management protocols.

This study therefore aims to report a case of penile trauma in a pediatric patient with suspected physical abuse, to describe the clinical findings, management approach, and surgical reconstruction outcomes, and to discuss the implications for clinical practice. This report is intended to contribute to the existing literature and provide clinicians with insight into the importance of early recognition, comprehensive evaluation, and individualized management strategies in cases of pediatric genital trauma.

RESEARCH METHOD

This study employed a descriptive observational design in the form of a case report to provide a detailed and systematic description of the clinical presentation, diagnostic evaluation, management, and outcome of a pediatric patient with penile trauma. The subject of this study was an 8-year-old male patient who presented with penile swelling and pain following blunt genital trauma. The patient was referred from a secondary hospital and admitted for further evaluation and management. Data were collected retrospectively from the patient's medical records, including demographic information, clinical history, physical examination findings, laboratory results, imaging studies, treatment interventions, and postoperative outcomes.

Clinical evaluation included detailed history taking to identify the mechanism of injury and assess the possibility of non-accidental trauma. Physical examination focuses on local genital findings such as swelling, tenderness, and signs of tissue damage. Supporting investigations were conducted using ultrasound and Doppler imaging to evaluate the integrity of the corpora cavernosa, corpus spongiosum, and surrounding soft tissues. The management approach was determined based on clinical and imaging findings. Initial treatment involved conservative management, including wound care, antibiotic therapy, and supportive measures. Due to inadequate clinical improvement and progressive tissue involvement, surgical intervention was performed. The procedure included debridement, penile reconstruction, and defect closure using a complex local flap combined with circumcision. Postoperative evaluation focuses on wound healing, infection signs, and early complications such as necrosis or urinary disturbance. Follow-up observations were conducted to assess clinical outcomes and recovery progress. This study adheres to ethical principles in medical research, ensuring patient confidentiality and anonymity. Informed consent was obtained from the patient's guardian prior to publication of this case report.

RESULT OF AN DISCUSSION

An 8-year-old boy presented with progressive penile swelling and pain following blunt genital trauma. The patient had no urinary symptoms, and voiding function remained normal throughout the course of illness.

Ultrasound and Doppler evaluation demonstrated normal corpora cavernosa and corpus spongiosum without evidence of structural disruption. However, soft tissue edema in the suprapubic region and fluid collection at the distal glans penis were identified.

Initial conservative management was performed but did not result in adequate clinical improvement. Surgical intervention was subsequently undertaken, including penile reconstruction, debridement, and defect closure using a complex local flap combined with circumcision.

Postoperatively, the patient showed gradual wound healing without signs of infection. No early complications such as wound dehiscence, necrosis, or urinary disturbance were observed.

1. Patient Identity & Background
    a. Name = AF
    b. Age = 8 years
    c. Gender = male
    d. Previous medical history = none
2. Chief Complaint & History of Present Illness
    a. Trauma chronology = Patient referred from Meuraxa Regional Hospital, Banda Aceh, after penile trauma. The patient was initially running around playing in the yard with his

friends. Then, the patient climbed a tree, slipped and fell. For no apparent reason, the patient's friend hit the patient with a wooden block on the patient's genital area.

b. Symptoms = The patient complains of penile swelling accompanied by pain; the swelling is felt to be getting bigger over time. The pain is felt continuously and worsens when the penis is moved. The patient also complains of an occasional fever. He denies nausea and vomiting. He has a history of urinary retention (-), red urine (-), pain during urination (-). Currently, the patient can urinate spontaneously with a production of 1500cc / 24 hours with a clear yellow appearance.

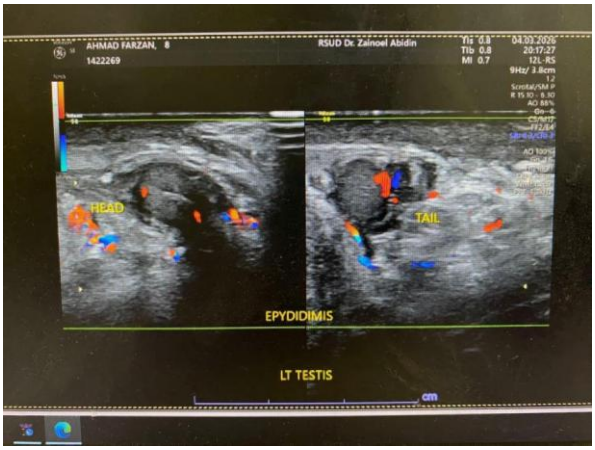
c. Time from incident to arrival at hospital = 01/03/2026 incident, 04/03/2026 hospital admission

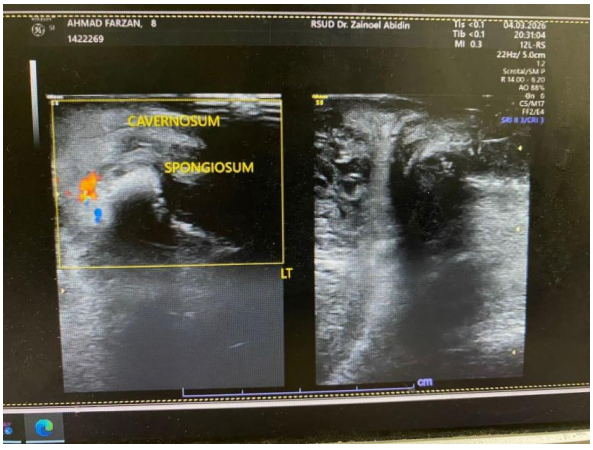
3. Physical examination

Local findings =

4. Supporting investigation

USG / MRI / urethrogram = USG Penis and penile Doppler; Bulbus Cavernosum and spongiosum appear normal, no solid or cystic masses are visible, soft tissue edema is visible in the suprapubic region, fluid collection is visible in the distal glans penis





Lab = normal

5. Diagnosis

   Penile Trauma ec Physical Abuse

6. Management

   a. Conservative = Compress the wound with 0.9% NaCl / 3 hours, Scrotal support, Change the bandage with honey, evacuate the clot daily, treat the open wound with antibiotic ointment, IV Ceftriaxone 250mg / 12 hours, IV Metamizole 250mg / 8 hours, IV Omeprazole 40mg / 24 hours, Sulfadiazine ointment
   b. Type of procedure = Penis Reconstruction + Deridement + Defect Closure with Local Flap Complex + Circumcision
   c. Action time = 03/18/2026

7. Outcome

   - Post-operative conditions
   - Follow-up (erectile function, complications, etc.)

Discussion

Penile trauma in pediatric patients is a rare clinical entity, and its management remains challenging due to limited evidence and the need to preserve long-term functional outcomes. While most cases are accidental, the possibility of non-accidental injury must always be considered, particularly when the mechanism involves interpersonal violence or is not entirely consistent.

In this case, the reported history raises concern for possible physical abuse, which carries important clinical and medico-legal implications. Early recognition of such cases is crucial not only for appropriate medical treatment but also for ensuring patient safety and initiating further evaluation when necessary.

Blunt penile trauma typically results in soft tissue injury such as edema, hematoma, and localized fluid collection without disruption of the tunica albuginea. This is consistent with the findings in our patient, where imaging showed preserved integrity of the corpora cavernosa and corpus spongiosum. Ultrasound with Doppler serves as a valuable, non-invasive modality for assessing vascular integrity and identifying injuries that may require surgical intervention.

Conservative management is generally recommended in cases without structural damage. However, several factors in this case including delayed presentation, progressive swelling, and the presence of tissue defects likely contributed to the need for surgical management. Delayed treatment has been associated with increased risk of complications such as infection, fibrosis, and poor cosmetic outcomes.

Surgical intervention in the form of debridement and reconstruction using a local flap was performed to restore tissue integrity and prevent further complications. Local flap techniques are particularly advantageous in penile reconstruction, as they provide well-vascularized tissue coverage, promote faster healing, and reduce the risk of infection and tissue necrosis.

The favorable postoperative outcome in this patient, demonstrated by gradual wound healing without signs of infection, supports the effectiveness of timely surgical reconstruction in selected cases. Adequate debridement combined with appropriate wound care and antibiotic therapy likely contributed to the absence of postoperative complications.

This case highlights several important considerations: the need for thorough evaluation of pediatric genital trauma, the importance of considering non-accidental injury, and the role of individualized management strategies. Early surgical intervention, when indicated, can result in good functional and cosmetic outcomes while minimizing long-term morbidity.

CONCLUSION

Penile trauma in pediatric patients is a rare condition that requires careful and systematic evaluation, including consideration of non-accidental injury. Imaging modalities such as ultrasound play an important role in assessing the extent of injury and guiding management decisions. While conservative treatment may be appropriate in cases without structural damage, delayed presentation and progressive tissue involvement may necessitate surgical intervention. In this case, penile reconstruction using a local flap resulted in favorable outcomes, as demonstrated by gradual wound healing without signs of infection. Early recognition, appropriate selection of management strategy, and timely surgical intervention are essential to achieve optimal functional and cosmetic outcomes while minimizing complications.

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