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Penile Thread Tourniquet Syndrome beyond Infancy: A Case Report and Review of Age-Related Variability

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Abstract

Penile Thread Tourniquet Syndrome (PTTS), a rare variant of Penile Tourniquet Syndrome (PTS), is a paediatric urological emergency characterized by external constriction of penis by hair or thread, often leading to necrosis, ischemia, and oedema. An urethro-cutaneous fistula, urethral transection, and penile amputation are possible outcomes of this disorder if left untreated. Though commonly reported in infants, this case details a rare occurrence in a 10-year-old male. A circumferential thread at the penoscrotal junction caused localized infection and oedema without urethral damage. Surgical intervention and conservative management resulted in a favourable outcome. This case emphasizes the need for clinical vigilance in a typical age groups and rare causes of penile injury.

Keywords: penile thread torniquet syndrome (PTTS), penile torniquet syndrome (PTS), penile injury, thread strangulation

Introduction

Penile tourniquet syndrome (PTS) is a very rare condition typically attributed to a hair coil wrapped around the sulcus coronarius of the penis [1]. It occurs predominantly in circumcised boys aged 0-6 years [2]. Ischaemia, necrosis, urethrocutaneous fistulas, gangrene, and even auto-amputation are among the most dangerous side effects of PTS [3]. Though hair tourniquets have also been observed on the clitoris, labia, and digits, this phenomenon primarily affects male circumcised individuals [4]. This report highlights a rare case of thread-induced PTS in a 10-year-old male, which is a less typical age for presentation.

Case presentation

A 10-year-old circumcised male presented to the Emergency Department at Ayub Teaching Hospital, Abbottabad, with penile swelling, redness, and mild pain. The patient's father claims that he experienced penile swelling, which the parents unintentionally noticed while changing his clothes because the child did not initially report any symptoms. The patient was unaware of what was causing his symptoms. On frequent inquiry, it was after more investigation, no history of trauma, insect bites, or comparable incidents was found. He reported normal urinary voiding.

Initially assessed by a general practitioner (GP) in the local area, the swelling was misdiagnosed as an allergic reaction. Despite receiving prescribed medications, there was no improvement in symptoms. Therefore, the patient was referred to a Tertiary care hospital.

Upon careful examination by the Urology team, a thread was found tightly wrapped around the penoscrotal junction, leading to oedematous swelling and a circumscribed laceration at the base of the penis. The area appeared inflamed, and purulent discharge was noted, indicating an ongoing infection. The patient was shifted immediately to the operating theatre, where the thread was carefully removed and dead tissue debrided under local anaesthetic (Figure 1). Patient was catheterized and at the time, there was no urethral involvement appreciated. Wound care was initiated, including daily dressing with povidone-iodine and normal saline.

Intravenous antibiotics and analgesics were administered to manage infection and pain. The patient was closely monitored for signs of tissue viability and possible complications such as necrosis, urethral involvement, or persistent swelling.

Figure 1: Post-Operative image of an infected circumferential wound.

The patient's wound showed significant improvement with conservative management. He was discharged home with instructions for continued wound care, oral antibiotics, and analgesics. A follow-up appointment was scheduled after three weeks to ensure complete healing. Long-term follow-up is advised in such cases to monitor for late complications such as meatal stenosis, scarring, or psychological distress. Continued observation ensures early detection of delayed sequelae and supports full functional recovery.

After being closely questioned, the father denied any outside intervention. The child had no history of behavioural problems, and their psychological inadvertently wrapped the thread around the penis while playing or getting dressed, though the precise cause of the thread constriction was unknown. As a result, the cause was thought to be accidental and is still uncertain. Follow-up after 3 weeks, wound showed significant healing (Figure 2). No signs of infection or pus present; catheter removed, patient was able to pass urine spontaneously and sent to home.

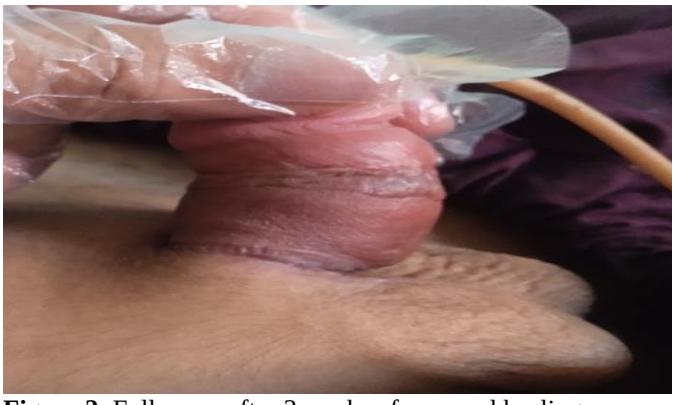

Figure 2: Follow up after 3 weeks of a wound healing.

Discussion

PTS evaluation was normal. The child may have commonly affects an infant's genitalia, toes, and fingers, among other appendicular organs [5]. Over 90% of postpartum women experience telogen effluvium, a condition that causes significant hair loss [6]. The fact that our case reports a 10-year-old, highlights that it may be overlooked in older children. Increased independence in hygiene and dressing can delay detection by parents, contributing to late presentation Several case reports have been published on this condition; however, very few have been reported from Pakistan [7]. Nonetheless, our case offers a number of unusual characteristics that can deepen our clinical knowledge of this condition. coronal sulcus as the common site for hair entrapment is often emphasised in the literature, very few, including our case, report a constriction at the base of the penile shaft, suggesting that the anatomical vulnerability of the coronal sulcus is not a prerequisite for the development of PTS [8].

Approximately 79% of documented cases use hair as the restricting substance. However, our case adds to the small pool of such recorded cases of thread-induced PTS, which have been reported seldom. Child abuse must be taken into account in certain circumstances. Some studies have suggested an association between penile tourniquet injuries and behavioural factors such as nocturnal enuresis or compulsive tendencies, where children may apply constrictive materials unknowingly. Although no such history was present in our case, recognizing this potential behavioral link is important for understanding and preventing similar incidents [9]. Our patient had no known history of mental illness or behavioural disorders. The only relevant history was of nocturnal enuresis, but there was no evidence, either admitted or observed, of intentional thread wrapping by the child or family members.

Simple cutting or unwinding of the restricting material is used to manage early cases. Surgery, however, can be necessary in cases of more advanced presentation with significant tissue damage or infection [10]. Furthermore, careful inspection in well-lit conditions and occasionally with magnification to identify the fibres is of paramount importance, as evident from this case.

Conclusion

PTTS is a urological emergency that, although rare, can lead to serious complications if not promptly identified and managed. Since prompt medical intervention for any penile anomaly can stop progression, given that situations like these might go unnoticed at the primary care level, general practitioners, especially those in outlying areas, should consider this diagnosis, especially when working with low socioeconomic communities. Public awareness and parent education regarding this uncommon condition are essential, in addition to medical vigilance. This case underlines the importance of prompt recognition, thorough examination, and appropriate follow-up in paediatric patients.

Consent

Written informed consent was obtained from patient's parents who participated in this case.

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