



Penetrating scrotal injury due to a bamboo stick in a child: A case report and literature review

Latif Dar^a, Alhareth Baarimah^{b,*}, Saleh Al-Ghamdi^a, Saeed Alshahrani^a

^a Department of Pediatric Urology, Abha Maternity and Child Hospital (AMCH), Abha, Saudi Arabia

^b Department of Urology, International Medical Center (IMC), Jeddah, Saudi Arabia

ABSTRACT

The penetrating scrotal trauma is rare in children. Due to low incidence of penetrating scrotal injuries in children, the evaluation and management of this type of injuries has not been well described. To prevent the long term sequelae and complications all such injuries require a prompt surgical exploration and management. We are reporting a five-year-old boy with a penetrating injury in his scrotum due to a bamboo stick. After the stabilization and lab and radiological workup patient was subjected to surgical exploration. In spite of the severity of the trauma the testis and the spermatic cord were spared of any injury.

1. Introduction

The penetrating scrotal injuries are rare in children. Most of the Genito-urinary and scrotal trauma is seen in age group of 15–40 years.^{1–5}

In children the incidence of scrotal trauma is about 1% and a vast majority of these injuries are blunt scrotal and testicular injuries.⁴ In recent years the frequency is increasing due to increase in motor vehicle accidents and physical violence among children.¹ Due to low incidence of penetrating scrotal injuries in children, the evaluation and management of this type of injuries has not been well described. We report the case of a five-year-old boy with penetrating scrotal injury.

2. Case presentation

A 5 year old boy was brought to ER with a penetrating injury in scrotum due to a bamboo stick. He had fallen down from a height of 3 m over a bamboo stick which got penetrated into his scrotum. On arrival in ER, he was conscious and oriented. His GCS was normal and he was hemodynamically stable. He was complaining of pain in scrotum. He had no abdominal pain, no distention of abdomen and no hematuria. His

abdomen was soft with localized mild tenderness in left iliac region. On local examination, a bamboo stick was seen penetrating from his left hemi-scrotum going into the left inguinal region. The upper tip of the stick was felt near the left anterior superior iliac spine. There was no active bleeding. Left testis was non tender and normal in consistency. The right hemi-scrotum was normal. The penis was normal with no blood at the tip (Fig. 1).

The labs were normal. Urine analysis didn't show any hematuria. A CT scan of abdomen, pelvis and external genitalia was done. The stick was seen penetrating from the left hemi-scrotum and going about 10 cm in a subcutaneous and intramuscular tract up to the left anterior superior iliac spine. The testis was normal and vas and vessels were intact. There was no penetration of the abdomen or pelvis. The doppler US of the testes revealed intact vasculature (Fig. 2).

A broad-spectrum antibiotic, analgesic and tetanus prophylaxis was given. An emergency scrotal and left inguinal exploration was performed. The stick was removed with ease and wound was thoroughly irrigated with normal saline. The anterior wall of the left inguinal canal was seen damaged and was repaired. The scrotal wound was debrided and cleaned. Testis was found normal and was fixed in a sub-dartos pouch. Wound was primarily closed and a Penrose drain put in. Post

* Corresponding author.

E-mail address: alhareth.adnan@gmail.com (A. Baarimah).

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Fig. 1. Image of penetrating scrotal injury with a Bamboo stick at presentation. 1a. Image showing a hollow Bamboo stick penetrating the Left hemi-scrotum, the tip can be seen reaching the anterior superior iliac spine.

operatively, patient received iv antibiotic and analgesics for three days. Drain was removed on second post op day. Patient was discharged on fourth post op day. On follow-up his wound had healed well and there were no complaints (Fig. 3).

3. Discussion

Penetrating scrotal injuries are rarely seen in children. In adults the common etiologies are gunshot wounds, stab injuries, motor vehicle accidents, war injuries, bomb blasts and self-inflicted wounds. In children the most common cause is fall from height over a sharp object, animal bites and accidental injuries.^{1,4}

The penetrating scrotal trauma can include testes, spermatic cord, urethra and penis. The injury can also extend into the anal canal and rectum. The iliac vessels, femoral vessels and nerves are also at risk in such type of injuries. The potential for complications and long-term sequelae is huge and may include the loss of testis, urethral strictures, neurovascular complications resulting in ischemia and sensorimotor abnormalities of lower limb. Thus, the need for a complete systemic evaluation can not be overemphasized.^{2,5}

Guidelines from adult and pediatric Genito-urinary trauma suggest a thorough clinical and radiological evaluation of these patients.² After initial resuscitation and control of any active bleeding, a broad-spectrum antibiotic and tetanus booster should be administered. The lab investigations should include Urine analysis and stool guaiac which may suggest any urethral and anorectal injury.⁴ The physical examination should include digital rectal examination to exclude any anorectal injury. All peripheral pulse of lower limb should be assessed and sensorimotor examination of the lower limb performed, which may suggest a neurovascular injury. The local examination should focus on any blood at the meatus which is indicative of a urethral injury. The penile and scrotal hematomas may suggest a corporal or testicular rupture. If there is a bleeding per rectum, procto-sigmoidoscopy should be done to rule out any rectal injury.^{1,3}

A careful physical examination should be followed by imaging and radiographic examination. A Doppler US evaluates the integrity of testis and its blood flow. CT scan of abdomen, pelvis and external genitalia will provide anatomical details of the injury. A retrograde urethrogram can be performed if the physical examination suggests a urethral injury.⁴

Although there are no definite guidelines described in literature for the management of pediatric penetrating scrotal injuries, the surgical exploration is required in almost all of these injuries. The goals of such exploration include complete hemostasis, an assessment of the extent of the damage inflicted, debridement of all nonviable tissues, thorough irrigation of the wound and in case of testicular injury, testicular salvage should be attempted.^{2,5}

In adults and adolescent with penetrating scrotal injury a high rate of testicular injury and loss has been reported.⁴ In children, it seems that the testes are spared in these types of injuries. In our case, in spite of the

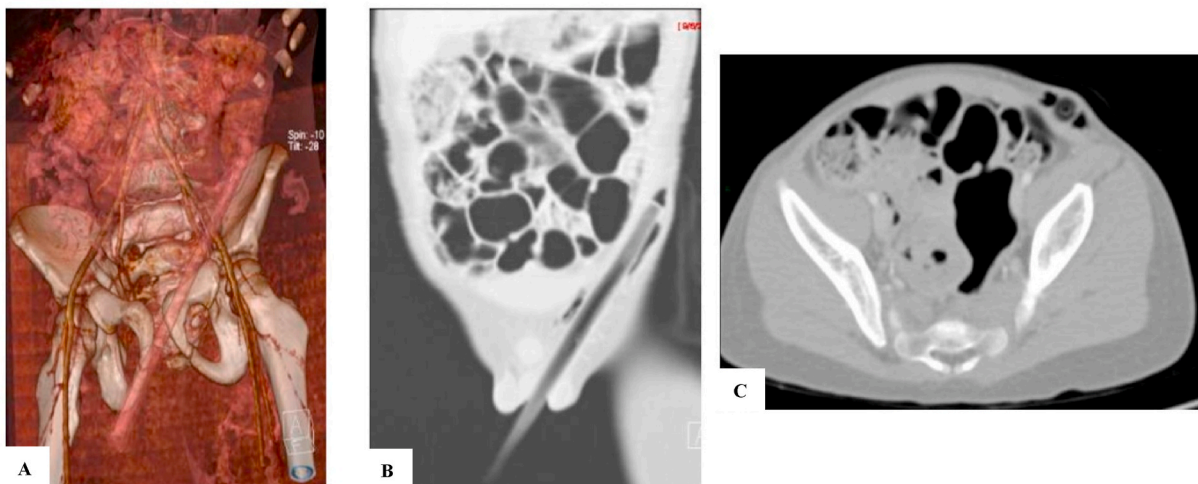


Fig. 2. Image showing Contrast enhanced CT scan before surgery. 2a. Three dimensional CT showing the Bamboo stick penetrating the left hemi-scrotum. The tip is seen reaching up to the left anterior superior iliac spine. The major vessels are spared. 2b. Coronal section showing the tract taken by the hollow air-filled Bamboo stick. 2c. Transverse section- Hollow Bamboo-stick seen in left inguinal region with some air along the tract.

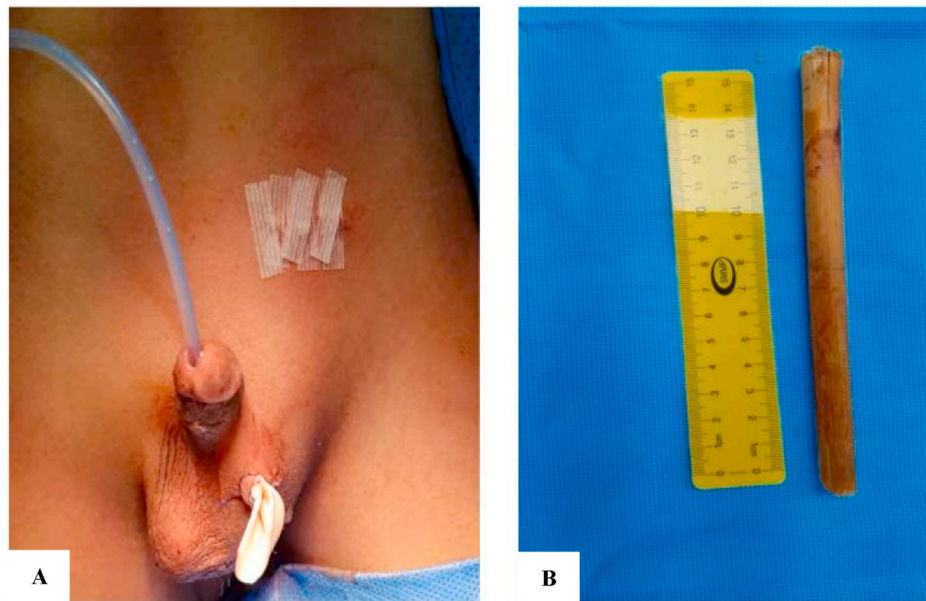


Fig. 3. Post op images. 3a. Wound was primarily closed and a Penrose drain put in. 3b. Bamboo stick after extraction.

severity of trauma, the testis and the spermatic cord were spared of any injury. Polinrungi et al. reported a case in which testis and spermatic cord were normal.¹ In their report of two cases with penetrating scrotal injury, Ofori et al. concluded that in spite of the gravity of injury, penetrating scrotal trauma may spare the testis and the scrotal contents.³ The reason for sparing of testis and spermatic cord include mobility of the testis within the scrotum, the strength tunica albuginea provides to the testis and active cremasteric reflex in children.⁵

These patients should be closely followed to rule out any late complications and sequelae. Our patient did not have any such complications on follow up.

4. Conclusion

Although the penetrating trauma to scrotum and testes is rare in children, it requires a prompt surgical exploration and management. In

spite of the severity of injury, the testes and the spermatic cord may be spared in such type of injuries.

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