AJMB
eISSN: 2600-8173
https://doi.org/10.37231/ajmb.2024.8.1.722
https://journal.unisza.edu.my/ajmb
PENERBIT Universiti Sultan Zainal Abidin
Asian Journal of Medicine and Biomedicine

'Liar, liar, Pants on Fire' – Management of Genitourinary Injury Sustained Post 'Cherry Bomb' Explosion

Mohammaad Irsyadiee Mohd Saiful Segar*, Syahril Anuar Salauddin, Hamid Hj Ghazali

[1] Department of Urology, Hospital Tengku Ampuan Afzan, Kuantan

Corresponding author: syadiee_90@yahoo.com

Received: 31st October 2023 **Accepted: 22nd January 2024** **Published: 28th February 2024**

Abstract

Genitourinary injuries are one of the challenges in urology trauma care, especially in blast injury. Blast injuries usually occurred in combat or warzone settings. Nonetheless, there were rises of blast injuries in civilian settings. The case of a young gentleman was referred for complex genitalia injuries. Injuries sustained after firecrackers has been lighted and bounced into his 'sarong'. We report our experience in dealing with complex genitourinary injuries due to blast injuries. This report will highlight the importance of history, physical examination, and investigations, before a decision for exploration can be made. Exploration included, the evacuation of haematoma, debridement, reconstruction of urethra and cavernosa which severely injured. Post operative management included antibiotics, pericatheterogram and uroflowmetry in assessing post reconstructive repair.

Keyword
Genitourinary Injury; Penile Trauma; Urehtral Injury; Reconstructive Urology; Penetrating Injury

Introduction

Penile trauma comprised of 10-16% of genitourinary injury based on several single institution series [1]. Penetrating external genitalia trauma was 0.57% of all traumas. 28% of it was penile injuries, with concomitant urethra injuries occurred in 13% [2]. In ballistic injury, the penetrating wound could be superficial, however misleading and underrepresented of the actual extent of injury. Principle of treatment: immediate exploration, copious irrigation, excision of foreign matter, antibiotic prophylaxis, and surgical closure [3]. The functional outcomes were excellent [4]. A case of 29 years old male with penetrating penile trauma with concomitant urethral trauma.

Case Description

Mr M, 29 years old man, patient lighted the firecrackers - 'cherry bomb', which bounced back into his 'sarong'. Post trauma, patient sustained swelling and pain over his penis. Patient was able to urinate per urethra, with difficulty. On examination, the patient sustained superficial laceration entry wound 2 x 2 cm at ventral aspect of left corona sulcus, 1 x 1 cm laceration wound at ventral aspect of glans. No exit wound

AJMB
eISSN: 2600-8173
https://doi.org/10.37231/ajmb.2024.8.1.722
https://journal.unisza.edu.my/ajmb
PENERBIT
Universiti Sultan Zainal Abidin

observed. No urine leak seen. The patient Hb was 13.0 g / dL and other biochemical parameters were normal. Pelvic X-ray showed there were regular radiopaque foreign body at the bulbar urethra region.

During cystoscopy examination, here were 3 foreign bodies found in bulbar urethra, 10 cm from meatus, successfully removed with forceps. A huge hematoma was found surrounding almost the whole length of anterior urethra. The underlying ventral mucosa below the urethra was unhealthy. Wound debridement and urethra was primary repair and covered with rotational flap from surrounding viable tissue using absorbable 5/0. A suprapubic catheter and urinary catheter was placed. Patient was discharged on Day 5 post op.

Post operatively, pericatheter urethrogram was done, urethra integrity was restored. He was catheter free after 6 weeks. Uroflowmetry was done, Q max 21 ml/s with normal erection, and no surgical site infection. Patient sexual and urinary function had been restored.

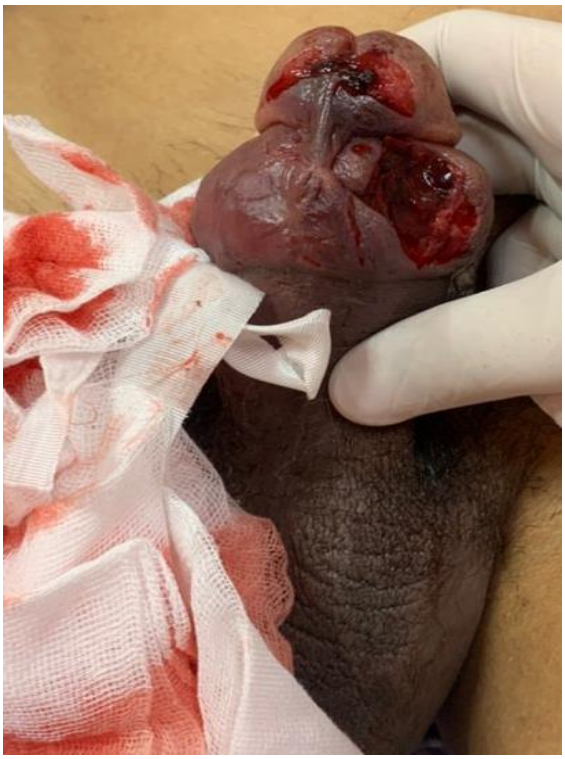

Figure 1: Jaggered wound prior to op. Patient had difficulty to urinate per urethra.

AJMB
eISSN: 2600-8173
https://doi.org/10.37231/ajmb.2024.8.1.722
https://journal.unisza.edu.my/ajmb
PENERBIT
Universiti Sultan Zainal Abidin

Figure 2: Foreign bodies removed from urethra

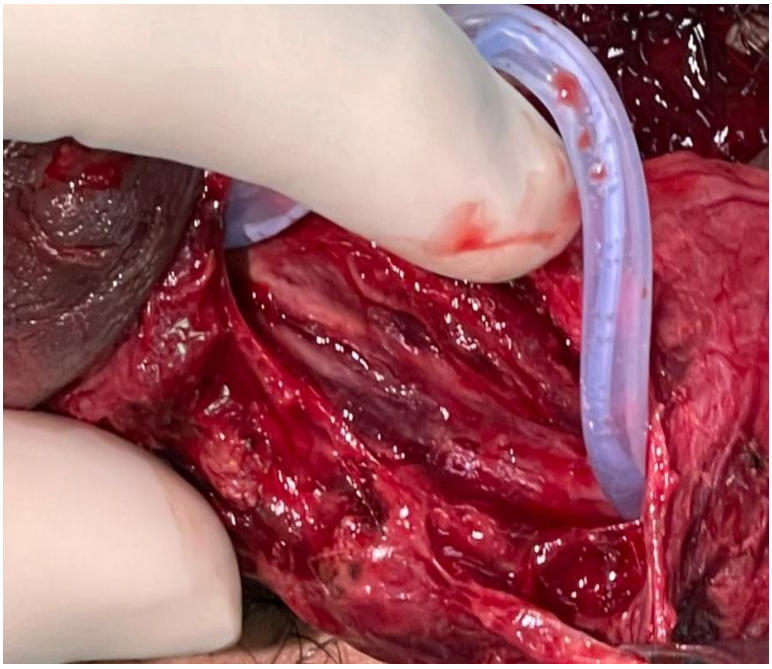

Figure 3: Corpus spongiosum destroyed with haematoma at anterior urethra extending down to bulbar urethra.

AJMB
eISSN: 2600-8173
https://doi.org/10.37231/ajmb.2024.8.1.722
https://journal.unisza.edu.my/ajmb
PENERBIT
Universiti Sultan Zainal Abidin

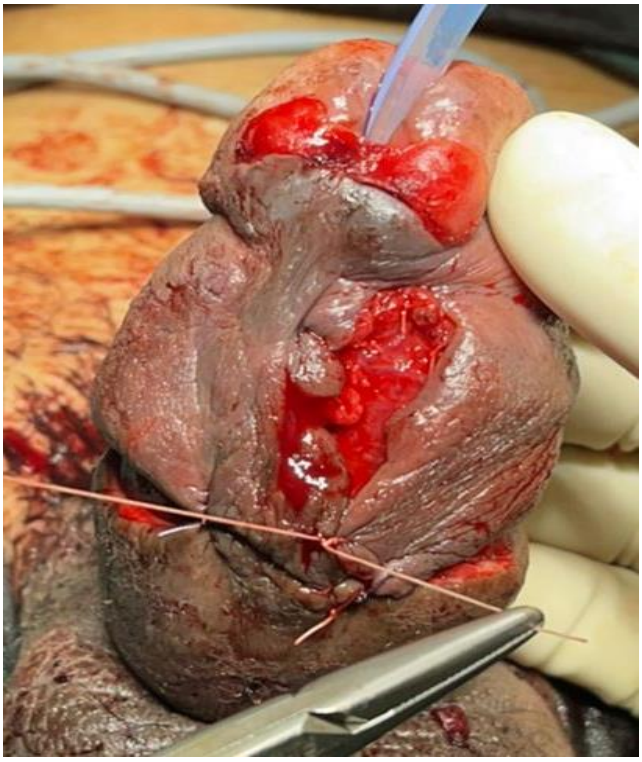

Figure 4: Rotational flap covered primary repair of urethra.

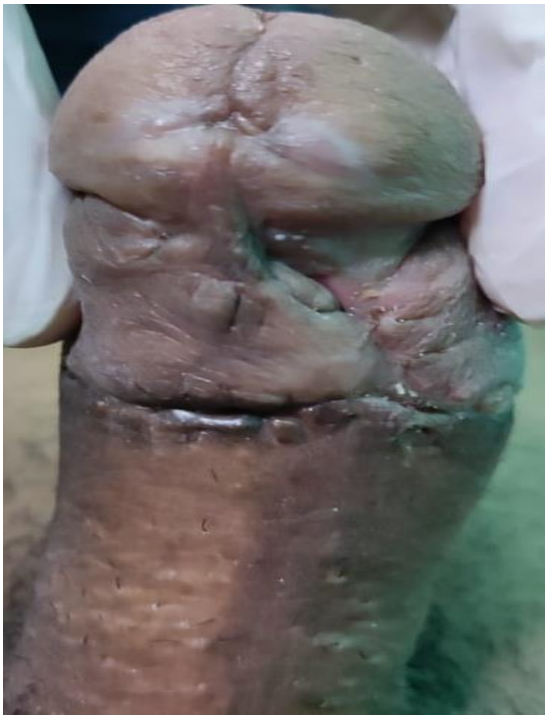

Figure 5: The wound post repair after 2 months post op. Well healed, no SSI Patient has normal erection.

AJMB
eISSN: 2600-8173
https://doi.org/10.37231/ajmb.2024.8.1.722
https://journal.unisza.edu.my/ajmb
PENERBIT
Universiti Sultan Zainal Abidin

RESULT	VALUE	UNIT
Peak Flow (Qmax):	21.0	ml/s
Average Flow (Qavg):	14.6	ml/s
Voided Volume (Vvoid):	567.0	ml

RESULT	VALUE	UNIT
Voiding Time (Ttotal):	40.7	s
Flow Time (Tflow):	37.3	s
Time to Peak Flow (TQmax):	13.2	s

Figure 6: Uroflowmetry 2 months post op. Qmax 21 ml/s (normal 15-25 ml/s)

Discussion

Penile trauma is such a rarity. Penetrating wound usually involved blast or ballistic injury [5]. In our patient, the penetrating injury was similar to ballistic injury. Damage was due to the energy transfer from the projectile to affected tissue, in deceleration manner.

In this case, the penetrating injury of penile trauma was repaired with definitive surgical repair. According to EAU [3], for penile trauma, especially involving concomitant injury of urethra, there is need to divert the urine first and for definitive repair later. This is due there is high risk of failure of repair if it was done immediately.

In this case, the patient was posted for damage control surgery, involving surgical debridement of devitalized tissues and removal of haematoma. Followed by, primary repair of urethra, primary repair of cavernosa and rotational flap of penis. The surgery was done by reconstructive urologist at the center with high volume reconstructive surgery for example urethroplasty. The outcome was great, as patient able to preserve sexual and urinary function.

Tissue damage caused by this injury could be divide into 3 key components: the prompt damage, permanent wound tract, and the extravasation zone [6].

Corporal injury should raise suspicion regarding concomitant urethra injury, although no urinary retention and urine leak [5]. The external wound for this patient was superficial and not extensive. The findings were not representative with intra operative assessment, which was extensive damage to the corporal bodies and urethra.

Prior to exploration, cystoscopy was done. Cystoscopy able to provide better assessment for urethra compared to retrograde urethrogram, as RUG has high false negative rates [7].

Debridement of necrotic tissues, preservation of viable tissue and urinary diversion are the principles for penile trauma exploration [3]. In this case, the corpus spongiosum was destroyed extending almost to bulbar

urethra. The urethra was primary repaired with absorbable and was covered with rotational flap from surrounding tissues and Bucks fascia. Penis has rich vascularity which helps in healing process.

Complications post penetrating penile trauma including psychological effects, erectile dysfunction, urethral strictures, and infertility [3].

Outcome from post penile exploration and urethra repair could be measured via 2 components: uroflowmetry and quality of erection. Our patient had good uroflowmetry assessment and regained his erection. Penile gunshot wound repaired by Kunkle et al, 15% of 63 patients had erectile dysfunction, and all were responsive to pharmacotherapy [8].

Conclusion

This case report highlights the importance of good history and thorough physical examination especially ballistic injury. In ballistic injury, there is need for high index of suspicious of the extent of the wound as the external wound could be misleading and underrepresented. The immediate exploration and primary urethral repair with rotational flap covering resulted in good recovery in term of urination and erection status, especially in the center with high volume reconstructive urology surgery.

References

1. Cerwinka WH, Block NL. Civilian gunshot injuries of the penis: the Miami experience. Urology. 2009 Apr;73(4):877-80. doi: 10.1016/j.urology.2008.10.057. Epub 2009 Feb 4. PMID: 19193421.
2. Bjurlin MA, Kim DY, Zhao LC, Palmer CJ, Cohn MR, Vidal PP, Bokhari F, Hollowell CM. Clinical characteristics, and surgical outcomes of penetrating external genital injuries. J Trauma Acute Care Surg. 2013 Mar;74(3):839-44. doi: 10.1097/TA.0b013e31827e1b8a. PMID: 23425745.
3. EAU Guidelines on Urological Trauma, European Association of Urology 2022
4. Cavalcanti AG, Krambeck R, Araújo A, Rabelo PH, Carvalho JP, Favorito LA. Management of urethral lesions in penile blunt trauma. Int J Urol. 2006 Sep;13(9):1218-20. doi: 10.1111/j.1442-2042.2006.01534.x. PMID: 16984556.
5. Goldman C, Shaw N, du Plessis D, Myers JB, van der Merwe A, Venkatesan K. Gunshot wounds to the penis and scrotum: a narrative review of management in civilian and military settings. Transl Androl Urol. 2021 Jun;10(6):2596-2608. doi: 10.21037/tau-20-1175. PMID: 34295746; PMCID: PMC8261456.
6. Stefanopoulos PK, Filippakis K, Soupiou OT, Pazarakiotis VC. Wound ballistics of firearm-related injuries--part 1: missile characteristics and mechanisms of soft tissue wounding. Int J Oral Maxillofac Surg. 2014 Dec;43(12):1445-58. doi: 10.1016/j.ijom.2014.07.013. Epub 2014 Aug 13. PMID: 25128259.14
7. Kamdar C, Mooppan UM, Kim H, Gulmi FA. Penile fracture: preoperative evaluation and surgical technique for optimal patient outcome. BJU Int. 2008 Dec;102(11):1640-4; discussion 1644. doi: 10.1111/j.1464-410X.2008.07902.x. Epub 2008 Aug 14. PMID: 18710448.
8. Kunkle DA, Lebed BD, Mydlo JH, Pontari MA. Evaluation and management of gunshot wounds of the penis: 20-year experience at an urban trauma center. J Trauma. 2008 Apr;64(4):1038-42. doi: 10.1097/TA.0b013e3180342036. PMID: 18404072.