MAR Gynecology & Urology (2023) 5:4

Case Report

Penile Strangulation Due to Metal Ring Complicated by Skin Necrosis, Case Report

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Received: 31 May 2023

Published: 15 June 2023

Keywords: *Penile Entrapment, Penile Ring, Penile Skin Gangrene, Penile Skin Graft.*

Abstract

Penile entrapment from a metal ring placed at the base of the penis is a rare, but important clinical dilemma encountered in urology.

Prolonged placement of the ring carries a very high risk of ischemic and permanent injury to penile and scrotal structures. (1)

Urologist should be aware of the prevalence of metal ring use, their potential complications and the proper surgical approach to their save removal. we present a case of penile strangulation with penile metal ring for 26 hours prior to presentation complicated by penile shaft skin gangrene.

Introduction

Penile ring strangulation can be presented as a urological emergency. Metal rings in theory increase penile engorgement during sexual activity. Detumescence may facilitate removal, however delayed removal led to edema which make it removal challenging and then tissue injury with ischemia and necrosis can be a devastating complication (2)(3). Common ring materials of plastic, Teflon, or rubber, which are more amenable to surgical removal. Some penile rings are composed of titanium/metallic alloy, of heavy density, and can withstand common management strategies. Various techniques have been described for removing constricting devices including lubricants, coiled strings/gauze, needle aspiration, and cutting of the ring itself (5). Here we report our approach to a case of penile strangulation with metal penile ring requiring surgical treatment.

Case Report

A 24-year-old man with no significant medical or psychiatric history presented to our emergency room (ED) with a 26-hour history of strangulated penis. The patient placed his penis through a metallic ring for sexual enhancement and then he was unable to remove the ring. The ring measured one centimetre (1 cm) in thickness. The patient complained of lower abdominal pain, paraesthesia of the glans penis and weak stream. On physical exam, the patient was found to have severe swelling of his penis and dark discolouration distal to the ring, which was placed at the base of his penis as seen in figure (1).

Figure 1 Severally oedematous penis with penile shaft skin necrosis

Attempts to remove the ring under penile block using lubrication, string technique with aspiration was unsuccessful (2)(5). Then the patient was taken to operative room (OR) for general anaesthesia for more attempts with invasive options.

Further attempts with Gigli saw and orthopaedic pin cutter which were failed. Electric saw was used and it was effective and appeared to make progress in cutting the ring at 3 and 9 o'clock. However, due to increasing heat around the ring as a result of using electric saw continuous irrigation by cold saline was started and it was very effective in decreasing the temperature around the ring to protect the skin of penis from a burn. The oedema of the penis and the darkness of the skin colour started to decrease immediately after ring removal. The patient was admitted to the floor and treated with intravenous antibiotic (iv) and daily dressing with gauze bandage socked with silver sulfadiazine and wrapped by crepe bandage. Necrotic tissue was debrided in daily bases figure (2).

Foley catheter was inserted for more protection from urine irritation and decrease the risk of infection. daily dressing and debridement were continued until necrotic skin replaced by granulation tissue. Figure (3). In the fifth day post the event the patient reported a spontaneous morning erection. Two weeks later plastic surgery has consulted for possible skin graft.

Partial thickness skin graft has been harvested from thigh skin successfully and the patient eventually did will with a very good cosmetic and functional result so discharged home.

Figure: 2 a necrotic tissue at the shaft of penis

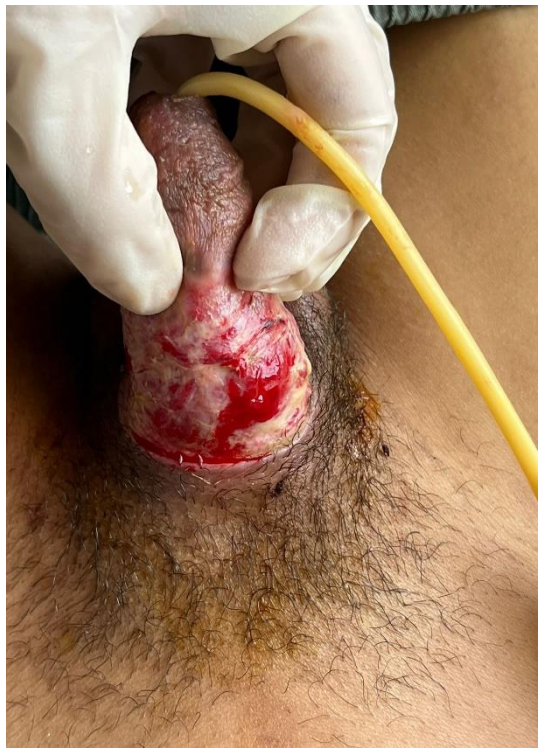

Figure 3 fibrine and granulation tissue

Discussion

Penile strangulation presents as a urologic emergency usually brought on by the patient for enhancement of sexual function. Presentation is often likely delayed due to embarrassment. Treatment requires prompt removal of the constricting device to allow for return of blood flow and relief of urinary obstruction. Early success with removal of the constricting ring will limit the ischemia time and subsequent sequelae of necrosis and loss of function, represented in erectile and urinary function. In our case the delayed presentation due to embarrassment resulted in skin necrosis of penile shaft with intact glans, corporal Bodys, urethra and preservation of erectile function.

A five-stage grading system was developed by Bhat et al. The spectrum of severity on the Bhat scale ranged from Grade I causing edema of the distal penis, to Grade V presenting with gangrene, necrosis, or complete amputation (Table1). Approaches to remove the constricting devices have a wide range of options, which can depend on the device composition and size, as well as degree of edema/strangulation.

There have been reports demonstrating use of needle aspiration, electric tools, saws, industrial bolt cutters, and assistance maintenance staff.

A five-stage grading system was developed by Bhat et al

Grade I	Distal penis edema. No evidence of skin ulceration or urethral injury.
Grade II	Distal penile edema with decreased sensation. Injury to skin, constriction of corpus spongiosum. No urethral injury.
Grade III	Injury to skin and urethra, without urethral fistula. Loss of distal penile sensation.
Grade IV	Complete division of corpus spongiosum leading to urethral fistula and constriction of corpus cavernosum with loss of distal penile sensation.
Grade V	Gangrene, necrosis, or complete amputation of penis.

Table 1 Penile strangulation classification system by Bhat et al.

Mechanical methods of device removal should be preferred over electrical/thermal devices to reduce the possibility of burn injury as well as urethrocutaneous fistulas or urethral strictures (3)(4), however, we recommend continuous irrigation with cold normal saline to cool the device while using the electrical saw to prevent any thermal injury to the underlaying structures.

Conclusion

Penile strangulation presents as a urological emergency, and if not managed as soon as possible, it can lead to ischemic complications such as necrosis, gangrene of the strangulated organ or sexual and urinary dysfunction. No standard approach can aide in removal as each case differs. Tools unfamiliar to the surgeon and the assistance of other departments in an institution may be needed for prompt management and reduction of the strangulation time. Mechanical methods of removal may be preferred to avoid any injury from thermal/electrical burns. Cooling with normal saline is recommended while using electrical saw.

References

1. Maruschke M, Seiter H.. [Total infarction of the penis caused by entrapment in a plastic bottle]. *Urologe A*. 2004;43:843–844. [article in German] [PubMed] [Google Scholar]

2. Noh J, Kang TW, Heo T, et al. Penile strangulation treated with the modified string method. *Urology*. 2004;64:591. [PubMed] [Google Scholar]

3. Bhat AL, Kumar A, Mathur SC, et al. Penile strangulation. *Br J Urol*. 1991;68:618–621. [PubMed] [Google Scholar]

4. Acimi S. Penile strangulation by hair. *Pediatr Surg Int*. 2014;30:729–732. [PubMed] [Google Scholar]

5 .Paonam S, Kshetrimayum N, Rana I. Penile strangulation by iron metal ring: A novel and effective method of management. *Urol Ann*. 2017;9:74–76. [PMC free article] [PubMed] [Google Scholar]

6.Zhang J., Wang X., Li Z., Zhang J., Zhang X., Xing N. Penoscrotal strangulation caused by a steel ring: a case report. *Sexual Medicine*. 2017;5(2):e131–e133. doi: 10.1016/j.esxm.2017.02.004. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

6. Talib R. A., Canguven O., Al Ansari A., Shamsodini A. Treatment of penile strangulation by the rotating saw and 4-needle aspiration method: two case reports. *Archivio Italiano di Urologia e Andrologia*. 2014;86(2):138–139. doi: 10.4081/aiua.2014.2.138. [PubMed] [CrossRef] [Google Scholar]

7. *11th edition of Campbell-Walsh Urology. Penile strangulation*

8. Purnell S, Lam C, Pinder D, Ahagotu C, Coleman P. Successful removal of metal rings causing penile strangulation. *IOSR J Dental Med Sci.* 2016;15:110–3. [Google Scholar]