

An innovative surgical technique for treating penile incarceration injury caused by heavy metallic ring

S. J. Baruah, P. K. Bagchi, S. K. Barua, P. M. Deka

Department of Urology, Gauhati Medical College, Guwahati, Assam, India

ABSTRACT

Penile incarceration injury by heavy metallic ring is a rare genital injury. A man may place metal object for erotic or autoerotic purposes, for masturbation or increasing erection, and due to psychiatric disturbances are some of the reasons for a penile incarceration injury. The incarcerating injury results in reduced blood flow distal to the injury, leading to edema, ischemia, and sometimes gangrene. These injuries are divided into five grades and their treatment options are divided into four groups. Surgical techniques are reserved for the advanced grades (Grades IV and V). We describe an innovative surgical technique, which can be adopted in Grades II and III injuries.

Key words: Metallic ring, penile incarceration injury, retrieval

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INTRODUCTION

Penile incarceration injury from metallic and nonmetallic objects has been reported throughout the world since 1755. We report herein a case of penile incarceration by a heavy metallic ring and describe an innovative surgical technique for safe retrieval of the ring with the preservation of penile vascularity and erectile function.

CASE REPORT

A 17-year-old boy presented to us with a heavy metallic ring made of alloy (spare part of Maruti omni car) placed at the root of the penis for attempting masturbation [Figure 1]. The boy came after 17 hours with gross penile edema and impaired penile sensation distal to the ring. The nature of the ring was such that any attempt at cutting the ring would have been impossible. We retrieved the constricting device with the following technique.

Step 1: Corporal aspiration and warm moist pack compression is applied.

Step 2: Approximately 3 cm dorsal slit distal to the ring is made, followed by reapplication of warm moist pack compression to further reduce edema. Traction

is applied to retrieve as much skin as possible proximal to the ring. With this maneuver, the ring is displaced distally.

Step 3: With a circumcoronal incision, edematous prepuceal skin is removed, leaving behind adequate skin to allow subsequent reapproximation. Further, a warm moist pack compression is allowed for easy retrieval of the ring.

Step 4: Reapproximation of skin [Figure 2].

The patient had a smooth postoperative recovery. At 2 and 12 months follow-up, the penile Doppler study and uroflowmetry were normal.

DISCUSSION

Penile incarceration from metallic and nonmetallic objects has been reported throughout the world since 1755. The largest series reported is by Dakin in 1948.^[1] Men present between ages 15 and 56.^[1] Various metallic strangulating objects like wedding ring, metal plumbing cuff, bullring, hammer-head, and plastic bottleneck have been reported in various literatures.^[2,3] Patient present to the clinic at widely diverse times after penile incarceration, ranging from 3 h to 1 month.^[1] Our patient was a 17-year-old boy with penile incarceration, due to heavy metal ring placed at the root of the penis of 17 hours duration. There was a gross penile edema up to the root of the penis and an impaired penile sensation. Hence, it was categorized as a Grade II injury as per the gradation scheme by Bhat AL *et al.*^[5]

Grade I: Edema of distal penis. No evidence of skin ulceration or urethral injury.

For correspondence: Dr. S J. Baruah Department of Urology, Gauhati Medical College, Guwahati-781 032, Assam, India. E-mail: saumar_baruah@rediffmail.com



Figure 1: Penile incarceration due to a heavy metallic ring at the root of the penis

Grade II: Injury to skin and constriction of corpus spongiosum but no evidence of urethral injury. Distal penile edema with decreased penile sensation.

Grade III: Injury to skin and urethra but no urethral fistula. Loss of distal penile sensation.

Grade IV: Complete division of corpus spongiosum leading to urethral fistula and constriction of corpus cavernosa with loss of distal penile sensation.

Grade V: Gangrene, necrosis, or complete amputation of distal penis.^[5]

Management of such a condition can be a challenge to the treating urologist. Treatment of urinary retention is a preliminary step. If the urethra is intact, a Foley catheter is recommended for Grades I and II, while suprapubic catheterization is recommended for Grades III-V trauma.^[1]

There was no micturition disturbance in our patient. Treatment for penile incarceration can generally be divided into four groups:^[1]

1. The string technique and its variants, with or without aspiration of blood from the glans;
2. Aspiration techniques;
3. Cutting devices; and
4. Surgery.

Bucy first utilized the string technique in 1968 to remove a metal ball bearing device from an incarcerated penis. The string technique (string cord, umbilical tape) with glans drainage has been successfully employed for Grades I-III injuries.^[1] Aspiration technique utilizes multiple punctures of the distal penis with 18-gauge needles into the subcutaneous tissue to drain lymph with subsequent decompression.^[1] Surgery is reserved for Grades IV and V injuries with wide



Figure 2: Final appearance of the penis after retrieval of the ring

tissue debridement and partial thickness cutaneous grafts.^[4] When infected gangrene of the penis sets in, partial or total amputation of the penis is done. The surgical technique described in this case allowed for easy retrieval of the ring, and can be carried out for Grades II and III injuries when other options are of no use. Long-term follow-up with Micturating Cysto-Urethrogram (MCU) and Uroflowmetry is necessary. We followed up the case at 2 and 12 months with Doppler study and uroflowmetry.

CONCLUSION

Penile incarceration from metallic object is a rare presentation, and requires urgent intervention to prevent complications. Our surgical technique is easy, effective, and can be recommended in retrieving heavy metallic ring causing Grades II and III penile incarcerating injuries.

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