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Case Report

Penile strangulation by a plastic bottle neck: a novel technique for non-metallic foreign body removal

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ABSTRACT

Penile strangulation is a rare urological emergency requiring immediate intervention to prevent ischemia, necrosis, and functional loss. We reported a 35-year-old male who presented with penile incarceration caused by a rigid plastic bottle neck. The patient's unsuccessful self-removal attempts partially fragmented the object. A novel extraction technique using a Gigli saw guided over an artery forceps under local anaesthesia enabled safe removal without significant complications. A multidisciplinary approach involving surgical, urological, and psychiatric evaluation ensured complete recovery. This report highlights a simple, low-cost, and reproducible technique for managing non-metallic penile constricting objects and underscores the importance of early intervention and holistic care in such emergencies.

Keywords: Penile strangulation, Plastic bottle, Foreign body, Gigli saw, Penile edema, Penile incarceration, Urological emergency

INTRODUCTION

Penile strangulation is an uncommon but potentially devastating urological emergency first described by Gauthier in 1755.[1,2] The condition arises when a constricting object impairs venous outflow and lymphatic drainage, leading to congestion, edema, and eventually ischemic necrosis if untreated.[3] Foreign bodies used are often metallic or non-metallic items inserted for sexual gratification, curiosity, or secondary to psychiatric illness.[4,5] Non-metallic objects such as plastic rings or bottles pose special challenges because of their rigidity and resistance to manual deformation.[6]

Numerous methods for removing constricting devices have been described, ranging from string and aspiration techniques to the use of oscillating or orthopedic saws for metallic rings.[7,8] However, literature on safe and efficient management of rigid plastic incarcerations remains limited. We presented a unique case employing a Gigli saw and artery forceps combination adapted from orthopedic surgery principles for controlled removal of a non-metallic constriction ring.

CASE REPORT

A 35-year-old married male presented to the emergency department with penile pain and swelling lasting 12 hours after inserting a plastic bottle neck for sexual stimulation. Multiple self-removal attempts using household tools had caused partial fragmentation but failed to release the constriction. There was no history of psychiatric illness, high-risk behaviour, or prior similar episodes.

Examination

A rigid plastic ring (~3 cm in diameter) encircled the penile root, more prominently on the dorsal aspect, with

marked distal edema. No ischemia, necrosis, urethral bleeding, or corporal rupture was observed. Linear abrasions from prior removal attempts were evident.

Procedure

After informed consent, the patient was transferred to the minor operating theatre. A 10 Fr Foley catheter was inserted to protect the urethra. A penile block was given using 2% lignocaine, and asepsis was maintained.

An artery forceps was gently inserted dorsally between the bottle neck and penile skin to act as a barrier.

A Gigli saw was guided over the forceps and used with slow, controlled movements to cut through the plastic (Figure 1).

Figure 1: Clinical image showing constriction of penile root by plastic bottle neck with marked distal edema.

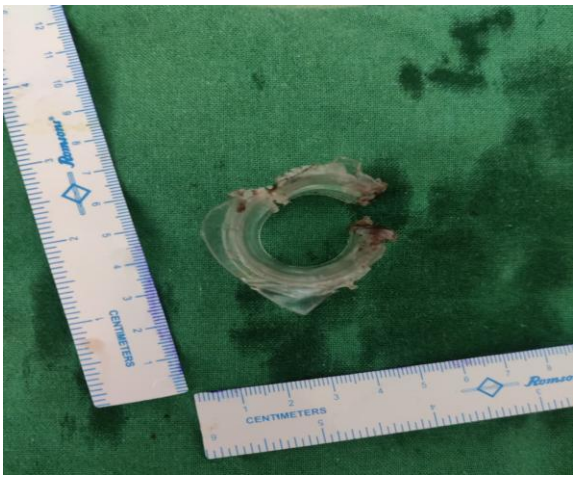

Figure 2: Post-operative photograph of removed bottle neck (~3 cm diameter) cut at two points with a Gigli saw.

The process was repeated ventrally to divide the ring completely.

Minimal heat generation ensured no thermal injury.

During removal, a superficial 2×0.5 cm laceration at the dorsal penile root occurred, which was repaired using interrupted Vicryl 2-0 sutures. The constricting ring was removed successfully (Figure 2).

Post-operative care

The patient was monitored for swelling, voiding, and tissue viability. Edema reduced markedly within 24 hours, and the Foley catheter was removed on postoperative day 1. No infection, urethral injury, erectile dysfunction, or deformity was detected at one-month follow-up.

Multidisciplinary management

Urology assisted in peri-operative supervision and follow-up. Psychiatry ruled out behavioural disorders. Forensic medicine documented the injury mechanism for medicolegal purposes

DISCUSSION

The severity of penile strangulation depends on the material, duration, and tightness of constriction. Delayed intervention may lead to ulceration, urethro-cutaneous fistula, gangrene, and even amputation.[3,9] Early recognition and removal are therefore crucial.

Metallic constrictors have been widely reported and often require powered cutting devices such as orthopedic saws or cast cutters.[7,10] However, the use of powered instruments in close proximity to the penis risks burns and soft-tissue injury. Rigid plastic foreign bodies, though non-metallic, are equally challenging to remove because standard tools may slip or melt the material.[6,11]

The Gigli saw a flexible wire saw designed for bone cutting offers several advantages. It allows manual control, produces minimal heat, and can cut through dense plastic efficiently. When guided over an artery forceps or metallic guard, it minimizes risk of skin trauma.[12] This low-cost, readily available instrument is particularly valuable in resource-limited settings.

Comparable techniques have been described for other penile incarcerations. Bhat et al reported the use of orthopedic cutters for metal rings, while Peust-Bassler et al successfully used a cast cutter.[3,10] Rao et al described manual removal of a plastic bottle neck without anesthesia but noted risk of laceration.[6] More recent studies by Sharma et al and Singh et al highlight the increasing use of protective barriers and manual wire-saw techniques in similar cases.[13,14]

Classification and grading systems such as Bhat's five-grade scale help determine management urgency.[3] Our case corresponded to Grade II (edema without ischemia), where prompt removal can prevent irreversible damage.

Complications reported in literature include edema, ulceration, urethral injury, gangrene, priapism, erectile dysfunction, and penile fibrosis.[1,3,9,15] The current case had only a minor laceration, reflecting the precision and safety of the adopted method.

Psychiatric evaluation forms an integral component of care. Studies show a significant proportion of patients with penile strangulation have underlying impulse-control or psychosexual disorders.[5,9,16] Although our patient denied such history, assessment was essential for prevention of recurrence.

From a medicolegal standpoint, documentation and photographic evidence (Figures I and II) are mandatory. A collaborative approach among general surgery, urology, psychiatry, and forensic departments ensures comprehensive management and legal clarity.

The Gigli-saw technique can thus be summarized as:

Safe: Minimal risk of thermal or mechanical injury.

Effective: Allows controlled division of rigid plastic.

Accessible: Common surgical instrument available in most centres.

Adaptable: Can be performed under local anesthesia, avoiding complex equipment.

This method aligns with contemporary recommendations advocating simple, reproducible solutions in low-resource environments.[12,13]

CONCLUSION

Penile strangulation by non-metallic objects is a rare but potentially devastating emergency. Early recognition, urethral protection, and a structured removal plan are essential to avoid ischemic injury and long-term dysfunction. The combination of a Gigli saw and artery forceps provides a safe, low-cost, and reproducible solution for rigid plastic constrictors, even in peripheral hospitals. Multidisciplinary collaboration and psychiatric evaluation are indispensable for holistic patient care and prevention of recurrence.

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