



Trauma and reconstruction

Penile incarceration with weight plate: An unusual case with review of literature

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ABSTRACT

Penile incarceration from constricting metallic or non-metallic objects is a urological emergency which warrants immediate interventions to prevent undesirable sequelae. Various methods such as aspiration technique, string methods, cutting devices and surgery has been described in the literature but each case needs individualized approach due to lack of consensus in the management. We report a case in a 24-year male who incarcerated his penis with a metallic weight plate weighing around 3 kg. To our knowledge this is the first case reported in the literature where a heaviest constricting object was successfully removed via circumcoronal incision.

1. Introduction

Penile incarceration by metallic or non-metallic foreign object is a rare urological emergency which requires emergent urologic management to prevent potentially devastating complications. The underlying causation for incarceration could be to delay ejaculations, to enhance sexual drive or suffering from psychiatric disorders like Body Dysmorphic Disorders. Various metallic (wedding ring, nut, ball bearing, washer and piece of pipe) and non-metallic (plastic bottle, bottlenecks, rubber bands and plastic rings) objects have been used for penile incarceration. But, interestingly, a metallic object i.e. weight plate used with motive of strengthening penis resulting in incarceration has not been reported till date in the literature. We successfully managed a rarest of rare case in which a gym trainer incarcerated his penis with weight plate measuring 3 kg and was managed successfully via circumcoronal incision.

2. Case

A 24-year old male patient was brought in emergency with excruciating pain in penis for the past 2 h. As per the history given by the patient, he has been a gym trainer by profession since two years. He was

under this delusion that just as with regular exercises, his lean body can be transformed into well muscularized one likewise, his penis would also modify into strong and sizeable one. So, the patient inserted his flaccid penis inside the weight plates of approximate 3 kg in weight. This was followed by self-stimulation to erect the penis to lift the weight plate. As soon as the partial erection was achieved he felt mild pain and noticed swelling in the penis distal to the plate but he ignored and in excitement continued stroking for full erection. After sometime, when intensity of pain and swelling increased in penis, he tried to remove the weight plate but couldn't do so. He panicked and decided to visit the doctor in emergency accompanied with relatives after 2 h.

On examination, the penis was incarcerated with the weight plate at the base. It was grossly oedematous but there was no major change in the color of skin (Fig. 1(a)). Immediately, lignocaine jelly was gently rubbed over the penis to glide off the weight plate but in vain. Then, glycerine magnesium sulphate solution was applied to reduce the swelling but this too failed. Moreover, several punctures using 25 gauge needle were made as an outlet for edema but this technique also did not work. Finally, patient was counselled for surgery and was shifted to operating room. A general anaesthesia was given and not the spinal anaesthesia as the later may interrupt the sympathetic and parasympathetic innervation of penis which might further aggravate the

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condition. First, a 14 Fr Foley catheter was successfully inserted to avoid inadvertent urethral injury (Fig. 1(b)). A circumcoronal incision was given which reduced the majority of tissue edema and congestion. This resulted in easy removal of the weight plate without any complications (Fig. 2). The patient was discharged on the next day.

3. Discussion

Penile incarceration with metallic or non-metallic objects is a rare urological emergency requiring immediate intervention to prevent long term devastating complications. Gautier et al. reported first case in 1775 following which many cases have been reported worldwide in the different age groups.¹ There are numerous reasons for incarcerations in general population such as sexual gratification, delaying ejaculations and psychiatric disorders but in pediatric population, this maneuver has been attempted for prevention of enuresis by parents or family members. However, most of authors did not highlight the cognitive ability of the parents. In our case, the foremost reason for incarceration by the fitness trainer was to strengthen his penis muscles. Although there could be multiple reasons for incarcerations, but these patients need to be evaluated for their cognitive status by psychiatrist to diagnose underlying psychiatric disorders.

For incarceration, commonly used metallic objects are nut, ball bearing, washer, wedding ring and piece of pipe whereas non-metallic objects such as rubber bands, plastic bottle and bottlenecks, plastic rings have also been reported in the literature. These constricting objects are easily placed over flaccid or partially erect penis but gradually it produces distal lymphatic and venous obstruction. It is followed by arterial flow obstruction setting off penile compartment syndrome which eventually results in tissue ischemia, necrosis and autoamputation of penis. The associated embarrassment is often the reason for late presentation with subsequent catastrophic consequences.

Penile incarceration is a urological emergency which require prompt intervention because of the associated devastating complications. Patient's detailed history including the constricting object and duration of incarceration should be obtained along with thorough physical examination assessing local tissue temperature, color, sensation, and voiding difficulty before determining the line of treatment. Bhat et al. first proposed the grading scale for penile incarceration: grade 1- distal edema only; grade 2- distal edema, skin and urethral trauma, corpus spongiosum compression, decreased penile sensation; grade 3- skin and urethral trauma, no distal sensation; grade 4-separation of corpus spongiosum, corpus cavernous compression, urethral fistula, no distal sensation & grade 5- gangrene, necrosis, or distal penile amputation.² Subsequently, Silberstein et al. proposed a simplified revised grading system which are low grade and high grade as per the requirement of the surgical intervention after removal of offending foreign body. It has

been reported that proportion of high-grade injury is higher with non-metallic objects as compared to metallic objects i.e., 77.7% & 22.2% respectively.³ The possible reason for this might be the fact that non-metallic objects are more elastic and produce more severe constriction over penis. Duration of incarceration plays a vital role in the severity of clinical presentation as well as in the outcomes. There are higher chances of high-grade injury when patients present after 72 hours as compared to presentation within 72 hours.³

The preliminary step in the treatment of penile incarceration is gaining access to the urinary tract via either per urethral catheterization or suprapubic catheterization. A Foley's catheter is recommended for grade 1 and 2 trauma while suprapubic catheterization is recommended for grade 3–5 trauma.⁴ In our case, a urethral catheter was successfully placed with some resistance. The next step is removal of the offending object for which plethora of techniques has been depicted in the literature but none of the technique is universally relevant because of the wide variety of presentations and the spectrum of incarcerating objects used.

The initial goal is prompt decompression of the distal edema of the incarcerated penis either via aspiration with needle or giving a circumcoronal incision. These methods often return the penis to the flaccid state by draining edematous fluid thereby aiding in easy removal of the offending object. Similarly, in our case circumcoronal incision relieved the edema which helped in easy removal of the weight plate. There are many conventional methods described to remove the incarcerating objects: (1) Aspiration technique (2) String method (3) Cutting devices and (4) Surgery. As per data reported in literature, string technique and aspiration procedure alone or more commonly in combination, are suitable for grade 1–3 injuries, while using cutting devices are applicable in all grades of injuries. Flatt originally described the string method, but Bucy first used these methods for removing metal ball bearing from incarcerating penis in 1968.^{4,5} Various cutting devices electronic or non-electronic along with shielding devices have been successfully used to prevent damage to the surrounding edematous tissue. Shielding devices for cutting may include laryngoscope blade, wooden and metallic tongue depressor, poly vinyl chloride plaques. The metallic object is either cut in two locations 180° apart, or by one cut and scoring of devices is done on opposite side by using an expander tool.

Post removal of the offending object, the underlying tissue should be thoroughly examined as the devitalized tissue can lead to complications such as infection, urethral fistulae, tissue necrosis, prolonged tissue recovery time and even amputation of penis. Use of color Doppler has been recommended in literatures. The potential long-term sequelae include erectile dysfunction, priapism, penile fibrosis, urethral stricture. These patients require psychiatric evaluation for assessment of behavioral disorder for better management of the cognitive impairment and

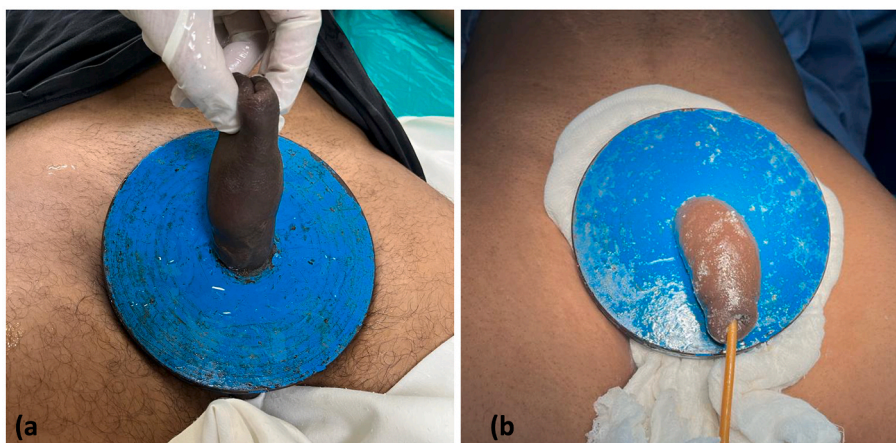


Fig. 1. a) Penis incarcerated with the weight plate b) Foley catheterization in incarcerated penis.

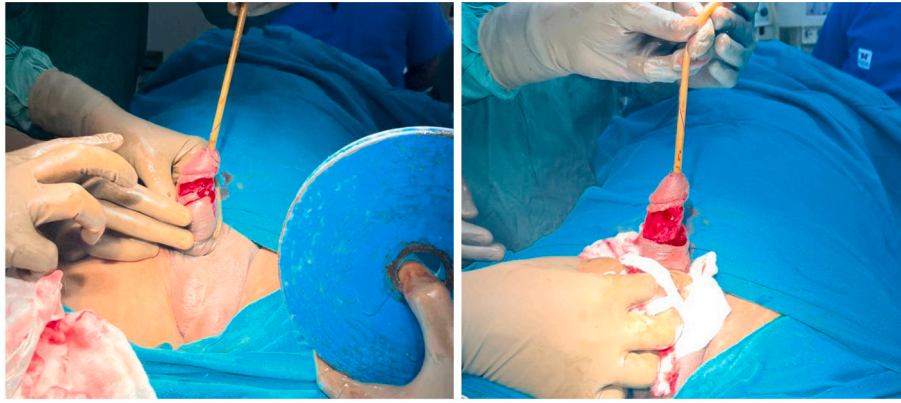


Fig. 2. Circumcoronal incision with removal of weight plate.

underlying Body dysmorphic disorder. The follow-up information on these patients is grossly under reported because of the poor patient compliance.

4. Conclusion

Penile incarceration with encircling objects is a urological emergency with dire consequences if not promptly recognized and managed. Number of techniques have been described in literature, but each case is unique due to its variable patient presentation, type of incarcerating object used and underlying psychology of the patient.

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Declaration of competing interest

Nil.

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