

# Treatment of penile strangulation by the rotating saw and 4-needle aspiration method: Two case reports

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**Summary** *Introduction: The aim of this article was to describe our experience in using rotating saw and also combination of the instrument with 4-needle aspiration.*

*Methods: A comprehensive review of the literature was performed using PubMed. "Penile strangulation, -constriction, -incarceration, -entrapment" were used as search terms, and a manual bibliographic review of cross referenced items was performed.*

*Results: Search results yielded nearly 70 cases of penile strangulation caused by a variety of objects. Various instruments have been described in the literature for their safe removal, each with its own pros and cons.*

*Conclusions: Penile strangulation should be accepted as a self-induced priapism and managed as an emergency in order to preserve erectile function and to prevent penile necrosis. Surgical creativity and patience are necessary in order to have a successful outcome.*

**KEY WORDS:** Emergency treatment; Incarceration; Penis; Strangulation.

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## INTRODUCTION

Penile strangulation, which is a compartment syndrome, requires urgent treatment in order to nourish corpora cavernosa as well as corpus spongiosum. Although the appearance of this disturbance in the medical literature dates back to as early as the mid 1700s, it is on the odd occasion and has been described nearly 70 times in the English literature. Constricting rings are the most common cause of penile strangulation. They can be metallic or non-metallic and are mostly used for sexual purposes. Unless treated promptly, the rings can result in permanent and severe damage, including penile amputation. Here, we report on two cases of penile strangulation due to metallic constricting rings that presented to our emergency department with different clinical presentations and were treated surgically.

No conflict of interest declared

## CASE 1

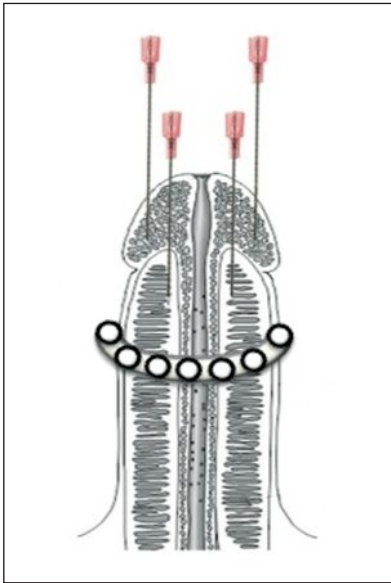
A 52-year-old man presented to the emergency department with a strangulated penis of eight-hour history. Physical examination showed a metallic ring, 2.5 cm wide and 1.5 cm thick, in the proximal part of the penis, with gross swelling and congestion distal to the ring. The patient had difficulty in voiding and urinary retention. Transurethral catheter placement was unsuccessful. By history, he was married and had erectile dysfunction due to venous leakage. After placing a ring, he was unable to remove it from his engorged penile shaft after autostimulation.

In the emergency room, removal of the ring was initially attempted using lubricants and aspiration of corporal blood from lateral sides under local anesthesia (penile block with 1% lidocaine), but was unsuccessful due to the tight ring and engorged penis. A handheld rotating saw equipped with a metallic blade was utilized for removal. A metal spatula was placed under the metal ring and the ring was continuously irrigated with cold water during the procedure. Following removal of the ring, penile detumescence was achieved in 5 minutes and the patient was able to void. The next day, he had no penile edema and no complication and he was discharged with an oral anti-inflammatory drug, antibiotic, and anti-tetanus injection. Two weeks later, the patient returned to the outpatient clinic and stated that he had no difficulty in urination or erections.

## CASE 2

A 22-year-old single man presented to the emergency department with a grossly swollen penis. He used a heavy-duty ball-bearing ring for masturbation six hours before. The ring was stuck at the coronal sulcus, causing edema of the penile shaft and glans penis.

A handheld rotating saw equipped with a metallic blade was utilized for removal of the ball bearing. However, only the outer layers (1 upper and 2 side layers) of the ball bearing could be cut and removed. Attempts to cut the inner layer failed due to its thickness (about 1-cm) and balls on it. As it appeared difficult to cut and remove the ring by available instruments without injuring the



**Figure 1.** Two needles placed in the distal corpus cavernosa and the other two in glans penis in an attempt to decrease the girth of the penile shaft and glans.

glans penis, we discontinued cutting with a saw. Then, penile aspiration was performed under local anesthesia (penile block with 1% lidocaine) by using four needles (18-Gauge), which were introduced from the glans. Two needles were placed in distal corpus cavernosa and the other two were placed in the glans penis in an attempt to decrease the girth of the penile shaft and glans immediately (Figure 1). In order to relieve skin edema, multiple needle pricks on the skin were performed. Because of the high pressure inside the skin, black-colored blood gushed out from the sites of needle insertion. Simultaneously, antibacterial liquid soap was applied under the ring to facilitate lubrication. The ring was successfully removed without clear necrosis or iatrogenic damage to the penis. However, the penile edema resolved in 24 hours. One month later, the patient had no difficulty in urination or erections.

## DISCUSSION

Penile strangulation is a rare clinical entity that is mostly caused by the patient himself for sexual purposes. Although either metal or non-metal rings are used for pleasure, the most commonly reported objects causing strangulation are metal rings. *Silberstein et al.* developed a grading system with a modification of two broad categories as low- and high-grade penile injuries (1). High-grade injuries are defined as injuries that are likely to require surgical intervention (1). The patients presented here had low-grade injuries and no surgical intervention was performed after removal of the rings.

The treatment of penile strangulation is decompression of the constricted penis to facilitate free blood flow and micriturition. Non-metallic rings can usually be removed simply by cutting the constricting object. Interestingly, high-grade penile injuries are more frequently caused by non-metallic constricting objects (1). Although metallic constricting rings placed around the penis present a challenge to urologists, various instruments may be used whenever

available, such as a string, modified string, hammer (2), Gigli saw, rotating saw (1), and electric grinder. Sometimes, combination (3) or alteration of treatment modalities might be needed as in our second case. Penile aspiration technique in penile strangulation was first described by *Chang et al.* who used two 21-gauge butterfly needles. In our case, for the first time to our knowledge, we performed penile aspiration by using four needles in order to achieve rapid detumescence.

While protecting the patients' organ, the surgical team should be aware of potential work injuries for both the patient and staff. *Horstmann et al.* reported an eye problem in one of the medical staff (3). Other than risk for blood or fluid spillage, heavy-duty technical equipments scatter metal sparks; therefore, wearing eye-protective glasses should not be neglected.

## CONCLUSION

Penile strangulation may result from self-induced priapism and should be treated as an emergency urologic case. If the surgical team fails to remove a constricting ring, alternative treatment modalities should be considered.

**Supplementary figures, extended discussion and full list of References are posted in Supplementary materials on [www.aiua.it](http://www.aiua.it)**

## REFERENCES

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