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# Penile Strangulation By A Metallic Encircling Body in A Child: An Emergency

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## Abstract

Penile strangulation is a rare pediatric emergency among children. Its usually anaccidental event than intentional. We report a case of 4yr old boy with accidental insertion of metallic encircling body onto the penis as an act of play. As per Bhat et al classification it was a grade 2 and was managed by string technique with no complications.

**Keywords:** Penile Strangulation; Metallic Encircling Body; Management; String Technique.

## Case Report

We report a case of penile strangulation in a 4yr old boy. The child was brought to the private OPD at 10pm in the night by the parents with complains of inserting a metallic screw on to the penis as an act of play ( act of curiosity). On examination child had Injury to skin with Distal penile edema with decreased penile sensation, but no evidence of urethral injury (grade 2 of penile injury as per Bhat et al classification[3]). Foley's catheter was inserted and the screw was removed by the string technique with no significant damage to the penis.

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## Discussion

Penile strangulation also called penile incarceration is very rare emergency in pediatrics. Penile strangulation injuries range from simple penile engorgement to ulceration, necrosis, urinary fistula, or even gangrene[1] . Strangulation injuries of the penis can occur by self-infliction or accidentally. Self-inflicted strangulation is usually the result of self-mutilation or sexual stimulation more seen in adults and adolescent age group; however accidental strangulation may also occur in children[2]. The most common cause of penile strangulation among children are hair tie next is rubber bands. These injuries are graded by Bhat et al as follows[3]:

- Grade I. Edema of distal penis. No evidence of skin ulceration or urethral injury.
- 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 sensations.
- Grade IV. Complete division of corpus spongiosum leading to urethral fistula and constriction of corpora cavernosa with loss of distal penile sensations.
- Grade V. Gangrene, necrosis, or complete amputation of distal penis.

Silberstein et al.,[4] simplified grading system proposed by Bhat et al., by dividing it into two broad categories. Low grade injuries corresponds to Grade 1-3 injuries and most of the time requires no further intervention after removal of encircled object, while High grade injuries corresponds to Grade 4,5 injuries and require surgical intervention.This grading helps in management. The management mainly includes urinary retention treatment, removal of the cause. Foley's catheter is recommended for grade I and II while suprapubic aspiration in higher grades. Removal techniques are of four types string techniques with or withour aspiration of blood from glans, cutting techniques, aspiration techniques, and surgical techniques[5,3,6].

*String Technique*

Flatt[7] devised string technique for removal of rings from traumatized fingers while Bucy used it to first in 1968 to remove a metal ball bearing from an incarcerated penis[8]. Turgor needs to be relieved first following to it a string needs to be passed proximally below the ring. The string can be a thread, Intravenous drip[9], suture[10], etc. The proximal end of the suture is lifted so that the encircling object is gently gently over the edematous penis[11,12]. Some authors have chosen to aspirate blood from glans before starting or during string procedure. String technique is effective in grade 1-3 injuries[5].

*Cutting Devices*

Cutting methods are often the first method for dividing an encircling device that cannot be removed with sequential compression. Its mainly a surgical procedure. Grade 1-3 can be treated by this technique provided appropriate cutting tools are available[5].

*Aspiration Techniques*

Aspiration of congested blood from penis by using 18-gauge needle insertion into the corpora or glans. Multiple punctures of distal penis also aids in relieving the edema and thus aids easy removal. Its usually combined with other technique. This technique is useful in grade 2 and 3 injuries[5].

*Surgery*

Surgical technique by dorsal slit, removal of edematous prepuce skin or degloving with circumcoronal incision, retrieval of ring and subsequent approximation can be used in grade 2-3 injuries[1], concurrent or delayed skin grafting can be done if defect is large due to skin excision. Advanced grade injuries can be treated with wide tissue debridement of devitalized tissue and partial thickness cutaneous graft. Penile amputation with re-implantation using microsurgical technique for grade IV and V has been suggested[13]. In case of gangrene of penis partial or total amputation of penis can be done[1]. After care: closely examine the penis for vascular or tissue injury, which can be confirmed by colour Doppler if necessary. Heparinization if any injury is noted.

Complications are directly related to duration and grade of incarceration include[11,3,1,]: urinary retention, urethral stricture, urethral fistula, skin ulcerations; decreased or loss of penile sensation, priapism, gangrene of penile skin and subcutaneous tissue, gangrene of penis. Complications noted in two patients of our series were skin necrosis and urethral fistula. Long term follow-up with micturating cysto-urethrogram and uroflowmetry if necessary.

## Conclusion

Prompt recognition, urgent decompression of involved tissue is the key of penile strangulation thus preventing from morbidity.

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