

ORIGINAL ARTICLE

Progressive Coil Penile Tourniquet Syndrome: Single Center Experience with 26 Cases at Department of Pediatric Urology at the Institute of Kidney Diseases MTI Hayatabad Peshawar

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ABSTRACT

Objective: This study was conducted to know the causes of penile tourniquet injury, its complications and awareness about the condition to prevent its devastating outcomes.

Methods: this study was completed in five year (2017-2022) at Institute of Kidney Diseases MTI Hayatabad Peshawar. The injuries were graded 'as described by Bashir and El-Barbary.

Results: this study is composed of 26 Patients. . The mean age of patients was noted seven years (6.93years) with range 2.3years to 11years. Human hair was found constricting agent (09 patients). All of the patients were circumcised. In most patients a delay in diagnosis of more than five weeks was noted.

Conclusion: Penile tourniquet injury in children can cause devastating range of injuries from mild glans edema to penile amputation. The knowledge of such conditions/injuries can easily diagnose the condition and prevent its complications.

INTRODUCTION

Penile tourniquet or constrictive band injury brought about by an enclosing object has been portrayed occasionally in all ages¹⁻². The choking bands are tied around the penes for various reasons and different objects are used for this purpose³⁻⁴. In kids elastic bands, strings and human hair have been supposedly used to forestall nighttime enuresis or incontinence and at times as childhood experimentation⁵⁻⁷. The most widely recognized guilty party strands of flimsy maternal hair has incredible rigidity and agreements as it dries. Circumferential narrowing causes impediment of venous and lymphatic waste. Moderate edema diminishes blood vessel blood supply, possibly bringing about necrosis and Auto-removal if not immediately treated⁸. Direct injury to designs may likewise happen the corpora and urethra are particularly inclined to be crosscut because of their dainty defensive tissue layers⁹. The peculiarity happens solely in circumcised children, in spite of the fact that instances of hair tourniquets of clitoris, labia, and digits likewise happen¹⁰⁻¹¹. The deficiency of the fingers and toes by inadvertent weaving of hair is notable. Penile tourniquet condition also is overall in dissemination and has been accounted for from numerous nations including Algeria, Egypt, Britain, Germany, Jordan, Lebanon, Saudi Arabia and the US. Whether unplanned, coincidental to circumcision or purposeful, it could prompt serious confusions: urethral fistula, urethral injury, penile distortion, gangrene and and even penile amputation. It isn't generally effectively conspicuous and the doctor ought to recognize it at whatever point a kid or even a more established man, gives unexplained edema of the penis. Since hair is very fine and lies in a section of edematous and enlarged tissues, the determination can be not entirely obvious for balanitis except if explicitly considered¹². Extreme harm to the erectile tissue and urethra can result, requiring major reconstructive surgeries. The motivation behind this study is to point out this injury in small kids and to push the significance of early acknowledgment and the management.

METHODOLOGY

Between September, 2017 & September, 2022 twenty six children presented to the pediatric urology at the Institute of Kidney Disease (IKD) Medical Teaching Institute (MTI) / Hayatabad Medical Complex (HMC), with penile constrictive band injury. The medical records were reviewed retrospectively for age at presentation, circumcision, history of nocturnal enuresis, nature of constricting agent, duration before diagnosis, presenting symptoms

and signs, treatment and the outcome. The injuries were graded 'as described by Bashir and El-Barbary¹³.

Table 1: Grading of penile constrictive band injury

Grade -0	Constriction of skin without urethral injury.
Grade-1	Partial division of corpus spongiosum with urethrocutaneous fistula.
Grade -2	Complete division of corpus spongiosum and constriction of corpus cavernosum.
Grade -3	Gangrene, necrosis and amputation of the glans

RESULTS

Twenty six patients were included in this study who presented to the outdoor department of institute of kidney diseases MTI Hayatabad from September 2021 to September 2022. The mean age of patients was noted seven years (6.93years) with range 2.3years to 11 years. Human hair was found constricting agent 34.62% (09) Followed by thread 30.77% (08). In two patients it was cotton material, Out of twenty six, in 26.92% (07) patients the Causative element of constriction was nonspecific/not found. All of the patients were circumcised. In most patients a delay in diagnosis of more than five weeks was noted. Glans edema was noted in 34.62% (09) patients. In 84.62% (22) patient's urethro cutaneous fistula was noted while in remaining 15.38% (4) there was no urethracutaneous fistula. Grade-0 in injury was noted in 15.39% (04) patients, Grade-1 injury was noted in 50% (13) patients, Grade-2 injury in 26.92% (07) patients, and Grade-3 injury in 7.69%(02) patients. All the patients had history of nocturnal enuresis.

DISCUSSION

In the event that unnoticed, penile constrictive band injury can result in serious sequelae. The main instance of such a physical issue optional to human hair was accounted for by Morgenstern in 1888. From that point forward periodic reports have showed up in clinical writing portraying generally grown-up patients, some of whom were intellectually debilitated¹⁻³. In youngsters, penile strangulation might happen unintentionally by the hair of the guardian or might be a deliberate demonstration by the patient, a kin, or relatives. This injury has been once in a while detailed as a type of youngster misuse⁵. As in past reports, every one of the patients in our series were circumcised. Circumcision makes the coronal sulcus more open to the contracting specialist and might be a justification for why this injury has never been accounted for

in uncircumcised kids⁶. The degree of the harm is connected with the span of choking and the nature of the tightening object the corpus spongiosum and the penile urethra are covered by a flimsy layer of stringy tissue, and in this way, are more powerless to injury than the corpus cavernosum which is encompassed by the thick tunica albuginea^{2,6}. Moderate pressure of the penile vessels is liable for distal oedema and gangrene. The nurans might be harms resulting decrement of sensations of the glans. In the event that the choking object/material slices through the ventral part of the penis, the urethra is cut across coming about in a urethrocutaneous fistula. Human hair and string can be effectively over-looked once the swelling of the glans follows, bringing about broad injury. One Patient in this series had a postponement of 15 weeks in the diagnosis, one 14 weeks, two 13 weeks, one 10

weeks and one 9 weeks. Unexplained swelling of the glans penis with a noticeable disintegration of the coronal sulcus and erythema of surrounding tissue in a kid ought to be seen with a high file of doubt. A basic circular choking object needs to be remembered for the differential finding of penile edema in addition to other localized skin conditions (balanitis) paraphimosis, injury, contact dermatitis and bug chomps. Affirmation of the conclusion might require a careful assessment under broad sedation. Whenever analyzed early, expulsion of the tightening object and care of the local injury is all that is important. Remaking of the cut across urethra need to be postponed until the local erythema has settled and the tissues have mended. Long haul follow-up might be important to distinguish urethral injuries and conceivable sexual dysfunctions.

Table 2: History presentation and features of penile tourniquet injury

S No.	Age at Presentation	Circumcised	Constricting agent	Delay in Diagnosis	Glans Edema	UCF	Grade of Injury	Nocturnal Enuresis
1	5 year	Yes	human hair	8weeks	No	Yes	2	Yes
2	8 year	Yes	human hair	6weeks	Yes	Yes	2	Yes
3	7 year	Yes	Thread	2weeks	No	Yes	1	Yes
4	2.3 year	Yes	human hair	12weeks	No	Yes	1	Yes
5	3 year	Yes	not found	14weeks	No	Yes	1	Yes
6	8 year	Yes	not found	1.5week	Yes	No	0	Yes
7	10 year	Yes	human hair	6weeks	Yes	Yes	1	Yes
8	10 year	Yes	Thread	13weeks	No	Yes	1	Yes
9	10 year	Yes	not found	15weeks	No	Yes	3	Yes
10	3 year	Yes	Cotton	4weeks	No	Yes	1	Yes
11	5 year	Yes	human hair	1week	No	No	0	Yes
12	6 year	Yes	not found	5weeks	Yes	Yes	2	Yes
13	9 year	Yes	Cotton	1week	No	No	0	Yes
14	6.5 year	Yes	not found	7weeks	No	Yes	3	Yes
15	5 year	Yes	human hair	9weeks	No	Yes	1	Yes
16	6 year	Yes	Thread	5weeks	No	Yes	1	Yes
17	4 year	Yes	Thread	6weeks	Yes	Yes	1	Yes
18	4.5 year	Yes	Thread	7weeks	No	Yes	1	Yes
19	6 year	Yes	Thread	10weeks	No	Yes	1	Yes
20	11 year	Yes	Thread	7weeks	No	Yes	2	Yes
21	10 year	Yes	human hair	13weeks	No	Yes	1	Yes
22	10 year	Yes	human hair	2weeks	Yes	Yes	2	Yes
23	8 year	Yes	human hair	1week	Yes	No	0	Yes
24	9 year	Yes	Thread	3weeks	No	Yes	2	Yes
25	6 year	Yes	not found	4weeks	Yes	Yes	2	Yes
26	8 year	Yes	not found	5weeks	Yes	Yes	1	Yes

CONCLUSION

Penile tourniquet injury in children can result in extreme penile distortions which range from mild glans penis edema and inflamation to severe conditions like gangrene of glans and distal part of penis to complete amputation. Consciousness and knowledge of the disorder enables the diagnosis to be picked easily & early which can forestall pernicious sequelae. Management of the complications arising from this condition can be dealt in single step.

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