

Management of Post-traumatic and Iatrogenic urethrocutaneous fistula in children (a case series of seven patients)

Ibrar Khan, Muhammad Asif Qureshi, Syed Husnain Abbas, Mahmood Shaukat

Abstract

This is a retrospective study of seven patients with post-traumatic and iatrogenic urethrocutaneous fistula of penile urethra, excluding complication of hypospadias surgery. It was conducted in the Paediatric Surgery Department, Jinnah Hospital Lahore from June 2014 to January 2017. The patients ages ranged from three to twelve years. All the patients were managed by repairing the fistula in three layers electively at 3 months from the date of initial presentation. They remain well with no complaints except one with a recurrence. The complications of circumcision can be avoided by preventing circumcision by non-doctors and quacks.

Keywords: Trauma, Urethrocutaneous fistula, Distal urethra.

Introduction

Urethrocutaneous fistula (UCF) after hypospadias repair is a common complication.^{1,2} Iatrogenic urethrocutaneous fistula may occur after circumcision and urethral surgery.³ Post-circumcision urethrocutaneous fistula is seen almost exclusively after circumcision performed by untrained staff or non-medical personnel.^{4,5} Few cases are reported in literature, in which longstanding indwelling urethral catheter lead to a urethrocutaneous fistula.⁶ UCF can also result from a direct impact on the urethra, blunt or penetrating penile or perineal injuries.^{7,8} Rarely stone disease can cause such complications.⁹ Overall, traumatic injuries of the distal penile urethra are not very common. Generally in trauma, the most common part of urethral injury is the bulbar and membranous urethra.¹⁰

Case Series

In this study we reviewed seven patients with post-traumatic and iatrogenic urethrocutaneous fistula excluding fistulae after hypospadias repair. The duration of the study was from June 2014 to January 2017. It was conducted in the Paediatric Surgery Department Jinnah Hospital Lahore. The patients' age at presentation ranged

from three to twelve years. The interval between injury and presentation was from five days to ten years. The age at time of injury was between one and half to five years. The size of fistula was from three to six millimeters. All the patients were admitted through the outpatient department (Table).

One patient, of age four years, had a distal penile injury resulting from a fall on a sharp metallic grill. The fistula size was about three millimeters and was located in the distal penile shaft. He was seen on the fifth day of injury, complaining of urine leak from a small hole ventrally in distal penile shaft. He was catheterized for ten days and then the catheter was removed. The fistula tract had matured. He micturated through normal meatus as well as from the ventral fistula.

Three patients had a post circumcision fistula. In all cases the circumcision was performed by a non-professional in rural settings. Age at circumcision was from one and half to two years. In all cases, neither local nor general anaesthesia or any sedation was used. There was history of prolonged bleeding after circumcision in two children. The wound was initially covered with ash. Later on parents observed urine leak from ventral side during micturition. The fistula size was between three and five millimeter. Two patients, who presented after circumcision done in a rural setting, had a thread tied as tourniquet around the distal shaft for haemostasis for a prolonged period. It was covered with blood stained bandages in one case. The dressing was soaked with urine. He was passing urine ventrally proximal to the tourniquet. A circumferential groove was formed by the thread. This case was seen on twenty ninth day of circumcision. The other patient (age four years) with again a thread around distal shaft, presented on thirty fifth day of circumcision. Ventral urethral wall had sloughed off partially. He was passing urine through a fistula proximal to the thread tied as a tourniquet. Distally glandular urethra was patent.

The last patient aged five years, had a hair encircling the penis at the coronal level. Deep circumferential groove was formed by the hair acting as a tourniquet. Urine leak noted by his parents was the reason to seek medical help.

.....
Department of Pediatric Surgery, Allama Iqbal Medical College, Jinnah Hospital, Lahore.

Correspondence: Ibrar Khan. Email: surgeon313@hotmail.com

Table: Table shows patients data.

Patients	Cause of insult	Age at injury/ Circumcision	Interval b/w incidence and presentation	Age at presentation	Size of fistula (mm)	Prolonged Bleeding	Recurrence
Pt 1	Fall on metallic grill	4 years	5 days	4 years	3	No	No
Pt 2	Circumcision	2.5 year	2 years	4.5 years	4	Yes	No
Pt 3	Circumcision	2 years	10 years	12 years	5	Yes	Yes
Pt 4	Circumcision	1.5 years	2 years	3.5 years	3.5	No	No
Pt 5	Circumcision + tourniquet	3 years	29 days	3 years	6	Yes	No
Pt 6	Circumcision + tourniquet	4 years	35 days	4 years	4	Yes	No
Pt 7	Encircling Hair	5 years	10 days	5 years	3	No	No

Technique

Delayed repair in all cases was done under general anaesthesia. Prophylactic antibiotics, ceftriaxone 50 mg/kg was given at induction of anaesthesia. The pubic, penile and perineal regions were properly cleaned and scrubbed before operation. The operative field was painted with pyodine solution from upper abdomen to mid thighs. Drapes were placed, exposing only penile region. A stay suture, silk 4/0 on around bodied needle, was taken from the glans vertically. A silicon catheter was placed in bladder per urethra. A tourniquet was applied at the base of the penis. The fistula was marked and an elliptical incision was made around it. The skin around the fistula was undermined. Dartosfascia pedicled flaps were dissected. The fistula was repaired using Vicryl 6/0 on around bodied needle, by turning down the edges of the urethra. The edges were completely inverted in water tight fashion. The suture line was covered by dartospedicled flaps, taking care not to superimpose the suture line. A rotational skin flap was brought over the dartos flap as a third layer. Bipolar diathermy was minimally used for haemostasis. The tourniquet was removed and bactigrass dressing was placed, covered by gauze dressing. Dressing was changed on the second post-operative day. The catheter was retained for seven days.

All the seven patients were managed on the same standard protocol. There was recurrence of fistula in one of the seven patients. Six of the seven patients voided through normal meatus with good stream. They were followed up for one year. No stenosis has been observed in any case.

Discussion

In our patients the repair was done over an indwelling catheter. The hospital stay was two days on an average. There was recurrence in one patient. The rest of patients had a good outcome. Post-traumatic and hair acting as a tourniquet resulting in urethrocutaneous fistula is less

frequently reported in literature. Kothari et al. reported a case in which an impacted urethral stone resulted in a UCF. It was repaired by simple closure in two layers.⁹ Penile crush injuries resulting in UCF have been reported in literature, in which usually the fistula is repaired after suprapubic urinary diversion.⁷ Complications of circumcision have been reported in several parts of the world. Ikuerowo et al. had repaired post circumcision UCF in 31 patients. Modified Mathieu's repair was done in 18 patients, simple closure in 9 patients and modified Snodgrass in 5 patients. Suprapubic urinary diversion was done in 13 patients (10 modified Mathieu's repair, 2 modified Snodgrass and 1 in simple closure). Recurrence was noted in 8 patients. (7 modified Mathieu's repair and 1 modified Snodgrass repair).³ Nyamsogoro et al. reviewed the record of 48 children with complications of circumcision which ranged from bleeding to glans amputation and death of a child. In those forty eight children fifteen had UCF and twelve children had glans amputation and one child died from excessive haemorrhage.⁴ Circumcision is a simple procedure and such complications are less likely to occur when performed by properly trained doctors. Reviewing our operation register 354 circumcisions had been performed in our unit from June 2014 to January 2017. One hundred and thirty eight out of three hundred and fifty four children were circumcised under general anaesthesia and 216 were circumcised under local anaesthesia. No child developed any complications.

Conclusion

Iatrogenic urethrocutaneous fistula, excluding those as a complication of hypospadias surgery, is not common after circumcision and occurs in inexperienced hands usually,⁵ which should be addressed properly. In case of contamination, infection or oedema adequate time should be allowed for these to settle. To avoid the complications of circumcision awareness campaigns should be carried out for parents in the community to prevent circumcisions by non-doctors and quacks.

Disclaimer: None to declare.

Conflict of Interest: None to declare.

Funding Disclosure: None to declare.

Consent: Informed written consent had been taken from all the patients for surgery and reporting the cases for research purpose.

References

1. Srivastava RK, Tandale MS, Panse N, Gupta A, Sahane P. Management of urethrocutaneous fistula after hypospadias surgery - An experience of thirty-five cases. *Indian J Plast Surg* 2011; 44: 98-103.
 2. Murphy JP. Hypospadias. In: Holcomb G, Murphy JP. *Ashcraft's pediatric surgery*. 5th ed. Philadelphia: WB Saunders; 2010, 775-90
 3. Ikuerowo SO, bioko MJ, omisanjo OA, Esho JO. Urethrocutaneous fistula complicating circumcision in children. *Nigerian J Clin Pract* 2014; 17: 145-8.
 4. Nyamsogoro R, Mteta A. Treatment of complications of circumcision in tertiary care institution in Tanzania. *Ann Afr Surg* 2012; 9: 8-11.
 5. Mckony CA, Aboud M. Post-Circumcision Urethro-Cutaneous Fistula: The Key to Successful Reconstruction. *East Central Afr J Surg* 2006; 11: 118-20.
 6. Hong YK, Yu YD, Kang MH, Lee SR, Park DS, Oh JJ. A Case of Urethrocutaneous Fistula: A Forgotten Segment of a Broken Urethral Catheter. *Urol Case Reports* 2014; 2: 59-61.
 7. Obi AO. Traumatic urethrocutaneous fistula: Case review and literature review. *Afr J Urol* 2013; 19: 198-201.
 8. Cerwinka WH, Block NL. Civilian gunshot injuries of penis: the Miami experience. *Urology* 2009; 73: 877-80.
 9. Kothari PR, Kumar T, Jiwane A, Bhusare D, Kutumbale R, Kulkarni B. Traumatic urethral fistula. *Pediatr Surg Int* 2002; 18: 509-10.
 10. Holland AJ, Cohen RC, McKertich KM, Cass DT. Urethral trauma in children. *Pediatr Surg Int* 2001; 17: 58-61.
-