

## Original Paper

### Childhood urethral mucosa prolapse: outcome of surgical treatment

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#### Abstract

**Background:** Urethral mucosa prolapse before menarche and so in the child is an uncommon entity that affects the distal urethra and is rarely diagnosed. It is associated with significant morbidity and there is a danger of urethral loss if appropriate treatment is not initiated promptly. We have reviewed our experience managing these children over a ten year period.

**Results:** All the patients were native African girls with ages 3-9 years and an average age of 5.3 years. The clinical presentation was i. genital bleeding 75%, ii. genital swelling 25% and iii painful micturition in 41% of cases. Two (16%) of the 12 patients, had had some form of female genital mutilation. Of the 9 patients that had urine culture in their preoperative evaluation, 4 (44.5%) of them had their urine culture positive for bacterial growth. Sitz bath was the only form of non surgical treatment offered to 3 (25%) patients. The 12 patients had surgical excision of the prolapsed mucosa; 7 (58%) patients had four quadrant excisional technique, 4 (33%) and 1 (8%) patient(s) had excision without a catheter insitu and excision with a catheter insitu respectively. Post operative urinary retention occurred in one patient. There was no case of recurrence during the 6 months follow-up period.

**Conclusion :** Though a rare condition, surgical management of premenarcheal urethral mucosa prolapse is associated with good outcome.

**Keywords:** Urethral prolapse, children, Female genital mutilation, UTI

#### Introduction

Urethral mucosa prolapse is a condition that occurs when the mucosa protrudes through the external urethral meatus, resulting in a congested and oedematous reddish purple mass that bleeds. Urethral prolapse has an estimated incidence of 1 in 3,000<sup>1</sup>. It is seen commonly in prepubertal native African girls and postmenopausal white women<sup>1,2</sup>. It occurs spontaneously and it could be acute or chronic. Acute urethral prolapse is seen mostly in old age and in childhood<sup>3</sup>. Chronic urethral prolapse is commonly seen in old age, when atrophy causes the external meatus to gape and allow some part of the urethral mucosa to protrude as a small tumor<sup>3</sup>. The entity was described by Solinger in 1732, but yet the aetiology of this condition is still not clearly understood<sup>4</sup>. A retrospective analysis of twelve cases that were managed over ten years is presented.

Fifteen prepubertal patients were diagnosed and managed for urethral prolapse over a period of ten years (January 1995 to December 2004). A retrospective evaluation of twelve casefiles were done. Clinical presentation, pre-operative evaluation, type of surgery and outcome were analyzed. The surgeries were done under general anaesthesia. The patients were followed up for a minimum of months. Surgical excision without a catheter insitu was done by excising the redundant mucosa followed by seromucosal stitching. Surgical excision with a catheter insitu was accomplished by excising the redundant mucosa over an indwelling Foley catheter and anastomosing the mucosal edges to the skin. The four quadrant excisional technique was the procedure used in the excision of excessive urethral mucosa. In this technique, the base of the prolapsed mucosa was defined and two chromic 3/0 catgut sutures were used to transfix the urethra from side to side and the other one from up to down.

#### Materials And Methods

The redundant mucosa distal to the sutures was then excised. Through the urethral meatus, the catgut sutures were drawn out as two loops and each loop cut. The four catgut sutures now at 12, 3, 6 and 9 positions were then sutured to skin effectively achieving a mucocutaneous anastomosis.

### Result

During the 10 years study period, a total of 12 patients were seen with childhood urethral mucosal prolapse. All the patients were prepubertal African girls. The average age was 5.3 years with age range of 3 to 9 years (fig 1). The clinical presentation were genital bleeding in 9 (25%) patients and genital swelling in 3 (25%) patients. Five (41%) patients had history of painful micturition. There was no history of urinary retention or hematuria recorded in any of the patients. Examination revealed congested and inflamed circumferential mass around the urethral meatus in all the 12 (100%) patients. Nine (75%) of the 12 patients presented with evidence of bleeding p.

**Figure 1:** The arrow shows circumferential tissue prolapse through the urethral meatus in a 4 year old girl with prolapse of the urethral mucosa.



### Discussion

Prolapse of the urethral mucosa is said to occur when the rest of the urethra remains in its normal position, but the mucosa becomes loosened from its submucous attachment and is gradually extruded through the external urethral meatus<sup>5</sup>. This condition commonly occurs in girls between the ages of six months and

from the urethral mucosa. 2 (16%) of the patients had previously had Female genital mutilation (FGM) done at 7 and 13 months before prolapse. Of the 12 patients, 9 (75%) had urine culture as part of their preoperative evaluation; and 4 (44.5%) out of the 9 patient's culture grew bacteria. Three (25%) patients had prior non surgical with sitz bath but all 12 patients eventually had surgical excision. The four quadrant excisional technique was applicable to 7 (58%) patients. Excision was done without a catheter in-situ in 4 (33%) patients and with a catheter in-situ in 1 (8%) patient. It was the personal disposition of the surgeon to excise with or without the catheter in situ though most surgeons prefer to excise with the catheter in situ. Urinary retention in 1 patient was the only postoperative complication recorded in this study and was managed easily by passing a urethral catheter. There was no case of recurrence recorded at 6 months of follow-up.

eight years, and is particularly commoner in the tropics than elsewhere<sup>5</sup>. The aetiology is not clear but various predisposing factors have been identified, they are; inadequate perineal muscular attachment, episodic increase in intra-abdominal pressure, oestrogen deficiency and mucosal redundancy. High resting intra-abdominal pressure in children that are large for their age has been hypothesized by Valerie<sup>1</sup><sup>6</sup> as a cause. In furtherance to the later, Lowe<sup>7</sup> during anatomic dissection demonstrated that urethral prolapse may occur due to poor adherence between smooth muscle layer of the urethra in association with episodic increase in intra-abdominal pressure. In this review, sixteen percent of the patients had had some form of FGM. The possible explanation for FGM in the pathophysiology of urethral mucosa prolapse may be damage and or disruption to the perineal muscular attachment of the urethra as a result of this barbaric act. Also the detection of U.T.I in about half of the patients calls for a further look into the role of U.T.I in the pathogenesis of urethral mucosa prolapse; U.T.I is either the cause or due to this condition. Infection may occur in residual urine caused by defective voiding from the vicious circle of painful urethra at voiding following urethral mucosal infection.

Once the urethral mucosa prolapses, there is constriction of the prolapsed mucosa in a circumferential pattern by the muscular tone of the urethral meatus, resulting in oedema, congestion, strangulation and necrosis. The diagnosis is based on clinical feature of circumferential oedematous reddish purple tissue prolapsing through the.

**Table I** Characteristics of patients treated for urethral mucosal prolapse in the 10 years (1995 -20004).

Serial No	Age	Clinical Presentation	Urine culture	Surgical technique	Post - operation complication
1	6 years	Genital Bleeding	Sterile	Excision with catheter insitu	None
2	6 years	Genital Bleeding	Not available	Excision	Urinary Retention
3	7 years	Genital Swelling FGM	Proteus Spp	Four quadrant excision	None
4	4 years	Genital Bleeding	Sterile	Four quadrant excision	None
5	9 years	Genital Bleeding FGM	Sterile	Excision	None
6	3 years	Genital Swelling	Not available	Four quadrant excision	None
7	3 years	Genital Swelling	Klebsiella Spp	Excision	None
8	6 years	Genital Bleeding	Not available	Four quadrant excision	None
9	3 years	Genital Bleeding	Sterile	Four quadrant excision	None
10	7 years	Genital Bleeding	Proteus Spp	Excision	None
11	5 years	Genital Bleeding	Escherichi Coli	Four quadrant excision	None
12	4 years	Genital Bleeding	Sterile	Four quadrant excision	None

FGM: Female Genital Mutilation

urethral meatus. Laboratory and radiologic evaluation are not necessary in most cases<sup>6,8</sup>. Differential diagnosis to be excluded are caruncle, prolapsing urethrocele, condylomata, urethral papilloma, polyp vaginal rhabdomyosarcoma, imperforate hymen and sexual abuse (6,8).

Treatment options available are medical and surgical treatment<sup>9,10,11</sup>. Medical treatment involves the use of sitz bath, local application of antibiotics and steroids. The essence of sitz bath is to decrease swelling and oedema<sup>4</sup>. However, medical treatment is just palliative associated with high failure rate<sup>10,12</sup> and high incidence of recurrence<sup>12</sup>. Failure in medical treatment maybe due to poor compliance with sitz bath and local oestrogen therapy, also use of antibiotics locally are not successful because infection is usually not present<sup>6</sup>.

Surgical treatment is better for restoration of the functional anatomy, especially in cases of severe prolapse and necrosed mucosa<sup>6</sup>. All the twelve patients in this study were treated surgically by excision except but 3 patients had previously been treated unsuccessfully with sitz baths. There are different surgical methods in treating urethral prolapse, they include; ligation of mucosa over a catheter, cauterization of the mucosa, excision of the mucosa with a catheter insitu<sup>6,13</sup>. Other methods are; cryosurgery and reduction of prolapse through a

vagina incision, followed by suturing the circular muscle fibers around the distal urethra<sup>14</sup>.

Excision of the mucosa with a catheter insitu is most popular<sup>8</sup> however, its disadvantage is the retraction of the proximal mucosa which could make mucosal to mucosal anastomosis difficult, resulting in high risk of post-operative meatal stenosis<sup>8</sup>. In order to prevent this complication, the four quadrant excisional technique was introduced<sup>8</sup>. In this procedure, the four holding sutures at 12, 3, 6 and 9 O'clock positions, prevents the retraction of the proximal mucosa after excision and facilitates accurate mucosal approximation<sup>8</sup>. The only post - operative complication encountered in this study was urinary retention in one of the patient that had excision without a catheter insitu. There was no recurrence reported in this study.

Mothers should be advised to report to the hospital for proper evaluation, should they notice an unusual genital swelling or genital bleeding in children or young girls. Furthermore, the campaign and awareness on the dangers of FGM should be intensified in the developing world. This study reiterates the effectiveness of surgical treatment in the management of urethral prolapse in childhood. However, the role of U.T.I and FGM in the aetiopathogenesis of childhood urethral mucosa prolapse will need further studies, preferably prospective studies with large number of cases.

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