



# **Urethral Prolapse in Prepubertal Girls in Port Harcourt, Nigeria: A Multicentre Study**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

**Background:** Urethral mucosa prolapse is a rare condition mainly seen in prepubertal girl with racial predilection for black girls.

**Methodology:** This was a multicenter 7-year retrospective analysis of 27 cases of urethral mucosa prolapse treated at the university of Port Harcourt teaching hospital and private health facilities in Port Harcourt from 2011-2018. Relevant information extracted from the case files include age, clinical presentation, examination findings, treatment modality and post-operative complications. Data was entered and analyse using SPSS version 25 and results were presented in simple percentages and frequency tables

**Results:** The institutional prevalence of urethral prolapse was 0.14%. The commonest presenting complaint was blood stains on the underwear in 23 (85.2%) patients while all patients presented with the characteristic 'doughnut sign' of a circumscribed fleshy mass surrounding the urethral meatus. All patients had intact hymen. Surgery was the primary treatment modality in 24 (88.9%) cases while conservative medical management was carried out in three (11.1%) patients. The

success rate for surgical management was 100% and 33.3% for medical treatment. The commonest post-operative complication was dysuria reported in 7 (25.9%) cases and acute urinary retention was reported in one (3.75) patient.

**Conclusion:** Urethral mucosa prolapse is a rare but important condition in prepubertal girls presenting with vaginal bleeding due to the suspicion of sexual abuse. Surgical treatment offers better outcome amongst the studied population.

*Keywords: Urethral mucosa prolapse; clinical evaluation; surgical treatment; conservative treatment.*

## 1. INTRODUCTION

Urethral mucosa prolapse (UP) is a rare but important clinical condition commonly seen in prepubertal girls characterized by the protrusion of the distal mucosa of the urethra through the external urethral meatus [1,2]. It has racial predilection for black girls with a reported incidence of 1 in 3000 [1]. It results from the poor attachment of the two layers of the smooth muscles of the distal urethra [3]. Characteristically, urethral mucosa prolapse presents as a circumferential soft mass with the external urethral meatus at the centre of the mass. This characteristic appearance is commonly referred to as the 'doughnut sign' [1,4].

The main predisposing factor is the reduced or lack of oestrogen commonly seen in the prepubertal period. Other predisposing factors include trauma, straining, urinary tract infection, causes of increased intra-abdominal pressure such as chronic cough [3]. The commonest observation in patients with this condition is perineal bleeding or staining of the underwear with blood which expectedly raises the suspicion of sexual abuse [1,5]. This buttresses the importance of proper clinical evaluation and diagnosis in order to allay such anxieties. Other presenting complaints include vaginal irritation, dysuria and urinary retention. Controversies do exist regarding the treatment of UP [3,5-7]. Some authorities are inclined towards conservative management which include the use of sitz baths and oestrogen cream while other authorities are strong proponents of surgical intervention [3-7]. Surgery usually involves excising the prolapse, redundant mucosa tissue and suturing the urethral mucosa to the muscle layer or ligating the prolapse mucosa over a Foley catheter or reduction of the prolapse mucosa under general anaesthesia [3,4,8-10]. Surgery is generally well tolerated with post-operative urinary retention as the main complication [4,9]. This complication can effectively be managed with prolonged catheterization and analgesics.

The purpose of this retrospective, multicentre study was to determine the prevalence, clinical features, treatment modality and treatment outcomes of urethral mucosa prolapse in prepubertal girls in Port Harcourt

## 2. METHODOLOGY

This was a retrospective analysis of cases of urethral mucosa prolapse managed at the gynaecology department of the university of Port Harcourt teaching hospital and cases treated at private clinics in Port Harcourt by the paediatric surgeon. Sixteen cases of UP were treated in the gynaecology department over a 7-year period from 2011- 2018 while 11 cases were treated in 4 private facilities in Port Harcourt over the same period by the lead author who is a pediatric surgeon. Permissions were obtained from the heads of the department of gynaecology and medical records of the University of Port Harcourt teaching hospital as well as heads of the private hospitals for the use of hospital records solely to extract information for the purpose of this research. All the case files of patients with urethral mucosa prolapse occurring in prepubertal girls were selected for the study. Fig. 1 shows a typical urethral mucosa prolapse in an eight-year old girl. Information extracted from the case files were age, presenting complaint, clinical findings, treatment modality and outcome, and complications from treatment. Surgery was essentially for those with severe symptoms while medical treatment was reserved for those with mild symptoms. Treatment was regarded as successful if there was no recurrence of prolapse within the follow up period. Surgical technique involves passing an absorbable suture from the 12 to 6 o'clock position and from 3 to 9 o'clock position at the base of the prolapse mucosa, thereafter the redundant mucosa tissue is excised just distal to the stitches. A loop of each of the stitch within the urethral opening is pulled and cut and the resulting 4 pieces are each tied in turn at the 12, 6, 3 and 9 o'clock position thus approximating the urethral mucosa to the surrounding tissue. This procedure can be



**Fig. 1. Urethral mucosa prolapse in an eight year old girl**

performed with or without a urethral catheter insitu. A catheter is usually retained for 24 to 72 hours after the procedure to avoid urinary retention. Data were entered and analysis using SPSS version 25 (NY Arnold, USA) with results presented in simple percentages and frequency tables.

### **3. RESULTS**

There were 16 cases of urethral mucosa prolapse managed at the University of Port

Harcourt teaching hospital with 2,996 gynaecological admissions within the study period giving an institutional prevalence of 0.14%. Eleven cases of urethral mucosa prolapse were also treated by the lead author in various private hospitals in port Harcourt within the study period. The most affected age group was 4 – 6 years constituting 55.5% with a mean age of 6.4±2.6 years. Blood stain on the under wear was the commonest presenting symptoms in 23 (85.2%) while inability to pass urine was reported in 6 cases (22.2%). All cases had

periuethral fleshy mass on clinical evaluation with the mass surrounding the urethral opening while bleeding was observed in 23 (85.2%) cases. Conservative management was instituted for 3 (11.1%) patients while surgical management was carried out in 24 (88.9 %) cases as the primary mode of treatment. Among the 16 cases treated in the gynaecological department 3 had conservative management while 16 had surgery while the 11 cases managed by the paediatric surgeon all had surgical intervention. Conservative management involved sitz bath and use of estrogen cream. One (33.3%) out of the three cases on conservative treatment had successful outcome whereas two (poor response to treatment) eventually had surgical intervention with good outcome. Excision of the urethral prolapse with suturing of the urethral mucosa to the muscle layer was the surgical intervention performed and no patient had reduction of the prolapse under anaesthesia. Dysuria was the main postoperative complication which was reported in 7 (25.9%) cases and one (3.7%) patient had acute urinary retention. None of the patients treated had urethral stenosis, urethral stricture or recurrence during the follow up period.

**Table 1. Age distribution**

Age	Frequency	Percentage
1-3	0	0
4-6	15	55.6
7-9	7	25.9
10-12	5	18.5
Total	27	100

**Table 2. Symptoms of urethral mucosa prolapse as reported**

Symptoms	Frequency	Percentage
Blood stain on underwear	23	85.2
Difficulty in urinating	13	48.1
Painful micturition	12	44.4
Inability to pass urine	6	22.2

**4. DISCUSSION**

This study has further buttressed the rarity of urethral mucosa prolapse as only 16 cases were recorded in a tertiary health facility over a seven-year period giving an annual prevalence of approximately 2 cases per year and an institutional prevalence of 0.14%. Hillyer et al.

[10] reported an annual prevalence of 1.47 from the 34 cases of UP treated over a 23-year period which was slightly lower than the yearly number of cases reported in this study. All the patients treated were black African girls and previous studies have reported this condition to be commoner among Blacks than Whites [1,3]. The most common age range in this study was 4-6years with a mean age of 6.4 which is slightly higher than the mean age of 5.3years reported by Adebisi et al. [9]. These age findings support the fact that hypoestrogenism is the reason for UP commonly seen in prepubertal girls and postmenopausal women than in women of reproductive age [3].

**Table 3. Clinical findings**

Clinical features	Frequency	Percentage
Periuethral fleshy mass	27	100.0
Oedematous urethra	27	100.0
Normal vagina/intact hymen	27	100.0
Bleeding from the prolapse	23	85.2

The commonest presenting complaints was the observation of blood stains on the underwear of these patients and this understandably raises the suspicion of sexual abuse. Therefore, careful examination of the perineum to exclude sexual abuse and thus to allay anxiety and confirm diagnosis is imperative in the evaluation of these patients. As suggested by Abhulimhen-lyoha et al. [1], practitioners must be aware that UP though rare is an important cause of vaginal bleeding among prepubertal girls to avoid the unfortunate consequences of a misdiagnosis of sexual abuse.

Diagnosis in this study was easy as all cases presented with the characteristic ‘doughnut’ shaped oedematous periurethral mass. Other less frequent symptom was bleeding from the mass observed in 85.2% of cases. Similarly, Holbrook et al. [3] reported periurethral mass as the commonest finding followed by bleeding. It is good practice to always examine the hymen which was observed to be intact in all the patients in this study thus excluding the possibility of sexual abuse. This does not necessarily imply that a non-intact hymen indicates sexual abuse especially in places where female genital mutilation is commonly practiced [9]. Also, note that there are several forms of sexual abuse and thus an intact hymen

may not exclude sexual abuse and thus careful examination of the perineum including the anal region under a good source of light is extremely important.

Obviously, the preferred mode of treatment in this study was surgical as only three cases of conservative management were recorded. This was necessitated by the observation that most patients had severe symptoms as only mild cases were offered conservative management. This view was supported by other researchers [3,5,7,8]. Yi et al. advocated for surgical excision for severe cases and conservative management for those with mild symptoms of smaller size of mass with less bleeding while Hillyer is of the opinion that all cases should be managed surgically with shorter post-operative hospital stay as surgery is associated with better outcome and is relatively safe [8,10]. Similarly, in the case series conducted by Igwebueze et al. [4], also advocated for surgery as the treatment of choice because it is the most effective in relieving symptoms. The success rate following surgery was 100% in this study whereas medical/conservative managed yielded 33.3% success rate. The two cases that failed to respond satisfactorily to medical intervention were successfully treated surgically. Similarly, to findings by Adesiyun et al. [9] there was no case of recurrence in all patients who were surgically managed. Surgical intervention offers better outcome amongst the studied population.

Dysuria was the main post-operative complication documented in this study and was managed effectively with analgesics. Urinary retention was reported in one patient in this study and similarly Adesiyun et al. [9] also reported a case of post-operative urinary retention as the only post-operative complication. Igwebueze et al. [4] also reported acute urinary retention as the only post-operative complication. Lack of catheterization following, too early removal of urinary catheter or post-operative pain may be responsible. This complication can easily be managed with catheterization and analgesics.

## 5. CONCLUSION

Urethral mucosa prolapse is a rare but important condition in prepubertal girls presenting with vaginal bleeding due to the suspicion of sexual abuse. Therefore, proper evaluation and diagnosis is imperative to allay anxiety. This study demonstrated a 100% success rate with surgical management.

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

## CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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