

Burden and Management of Urethral Stricture in a Newly Established Urology Unit of a Tertiary Hospital

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ABSTRACT

Background: Urethral stricture is a common urologic disease affecting mostly adult males. It constitutes a significant burden in the practice of urology. **Objectives:** The objective of the study is to assess the burden and management outcome of urethral stricture in our hospital. **Materials and Methods:** This is a retrospective study of patients managed for urethral stricture in our hospital between 2015 to 2019. Medical records of the patients were retrieved, basic demographic and management information were extracted, entered into proforma and analyzed. **Results:** A total of 86 patients were treated for urethral stricture over the period, the medical records of 77 patients were retrieved and analyzed. The 86 patients constitute 34.5% of all urologic surgeries performed in the hospital within the period. All were males aged 19-90years (53.6±9.01SD years). Acute urinary retention (AUR) was the commonest presentation (44.2%), others presented with lower urinary tract symptoms and chronic urinary retention. Most common complication was urinary tract infection (28.6%). Urethritis was the commonest risk factor (46.8%). Most patients were diagnosed with short segment stricture (54.4%). Recurrence rate was 26%. **Conclusion:** Urethral stricture constitutes significant workload for urologist where patients commonly present with complications. Urethritis remains the predominant risk factor for urethral stricture among our patients.

Keywords: Urethral stricture, Burden, Management, Tertiary Hospital

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INTRODUCTION

Despite changes in its presentation and risk factors, urethral stricture (US) has remained a common urologic disease globally with increasing prevalence being reported especially among males of over 65 years of age [1,2]. In Nigeria and west African sub-region, urethral stricture is seen predominantly in the 4th and 5th decade of life [3, 4, 5, 6]. Urethral stricture denotes narrowing and loss of distensibility of the urethra due to scarring of the corpus spongiosum and the urethral epithelium. [7,8] Contraction of the scar reduces the urethral lumen with subsequent development of lower urinary tract symptoms. In certain cases, there is complete obliteration of the urethral lumen leading to urinary retention necessitating suprapubic cystostomy. [8,9] In estimation, the prevalence of urethral stricture in industrialized countries is around 0.9%. [9] The prevalence of urethral stricture disease in the United states of America (USA) is estimated between approximately 200/100,000 in younger men to >600/100,000 in men older than 65. [2] Similarly, in the United Kingdom (UK) it has been estimated to be between 10/100,000 in younger men to 100/100,000 in men older than 65 years [2] In sub Saharan African, the definite prevalence is not known, however various reports from hospitals across Africa showed US constitute huge disease burden in the region [10]

A good clinical history and physical examination is essential to diagnosis of urethral stricture. However, retrograde urethrography (RUG) with/ without micturating cystourethrography (MCUG) remains the gold standard investigation while urethrosonography, computerized tomography (CT), and magnetic resonant imaging (MRI) are presently seen as adjuncts to RUG. [2, 11]

The treatment options for urethral stricture are urethral dilatation, internal urethrotomy and urethroplasty. Amongst these, urethroplasty remains the gold standard today with far more long term success rate and cost effectiveness [8]. Chance for cure may be up to 90-95% for excision and anastomotic urethroplasty and 73- 90.5% for augmented urethroplasty. [2,8]

We undertook a retrospective study to document the burden, presentation and management of urethral strictures in our hospital. This is in an environment with poor access to health care services and where no previous study on urethral stricture has been done.

MATERIALS AND METHOD

It was a retrospective descriptive study of all patients who were managed for urethral stricture at the urology unit of our hospital over the period covered in this study (January 2015 to December 2019). Before conducting the study institutional approval was obtained from the research ethics committee of the hospital with reference FMCY/HREC/20/92.

Particulars of the patients treated for urethral strictures over the period covered by the study were retrieved from the theatre register and their medical information was collected with the help of the record staffs of the hospital. Information about the patients' bio-data, presentation, risk factors, investigations done, initial treatment, definitive treatment and outcome of the treatment including complications were extracted and entered into the already designed proforma.

The generated data was entered into excel sheets and analyzed using Statistical package for social sciences (SPSS) version 21

The results were presented in tables and figures.

RESULTS

A total of 86 patients were treated for urethral stricture over the period, this constitute about 34.5% of total number of urologic patients treated. Only the case files of 77 patients were retrieved and analyzed. The age distribution of patients found is as shown in Fig 1

The age ranges from 19 – 90 years; most common age group was 61 – 70 years with a mean age of 53.6 ± 9.01 SD years. All the patients in our study were males; who are mostly farmers and traders. The distribution of the patients based on their occupation is shown in Fig 2.

Majority of our patients presented with complications of urethral stricture in an emergency setting; 44.2% presented with acute urinary retention (AUR), 7.8% with chronic urinary retention (CUR) while 39% presented with lower urinary tract symptoms (LUTS). In about 9.1% of patients the urinary retention (UR) was relieved elsewhere and presented to our facility with supra pubic catheter in situ. Previous history of poorly treated purulent urethritis was the risk factor in 36 (46.2%) patients. Others including urethral trauma are as shown in Table 1.

Majority of our patients (92.2%) had SPC as an immediate treatment; while the remaining (7.8%) had urethral dilatation before the definitive management.

Some associated complications on presentation in our patients include urosepsis (28.6%), Fournier's

gangrene (5.1%), watering can perineum (6.5%), and renal impairment (1.3%).

Sites of stricture were recorded and presented in Table 2. Length of stricture was short segment (≤ 2 cm) in 54.5%, the remaining (45.5%) patients had long segment stricture (>2 cm).

Excision and anastomotic urethroplasty was the predominant option of treatment in our patients (45.5%), others were various options of augmented urethroplasty as shown in Fig 3.

Stricture recurrence at 6 months occurred in 26% of our patients.

Factors identified as risk factors for the recurrent stricture among our patients were: post traumatic urethral stricture (resulting from PFUDD) – 10.4%, long segment strictures (post inflammatory) – 7.8%, early catheter removal (less than 3 weeks' post-surgery) – 3.9% and no identified risk factor in 3.9%.

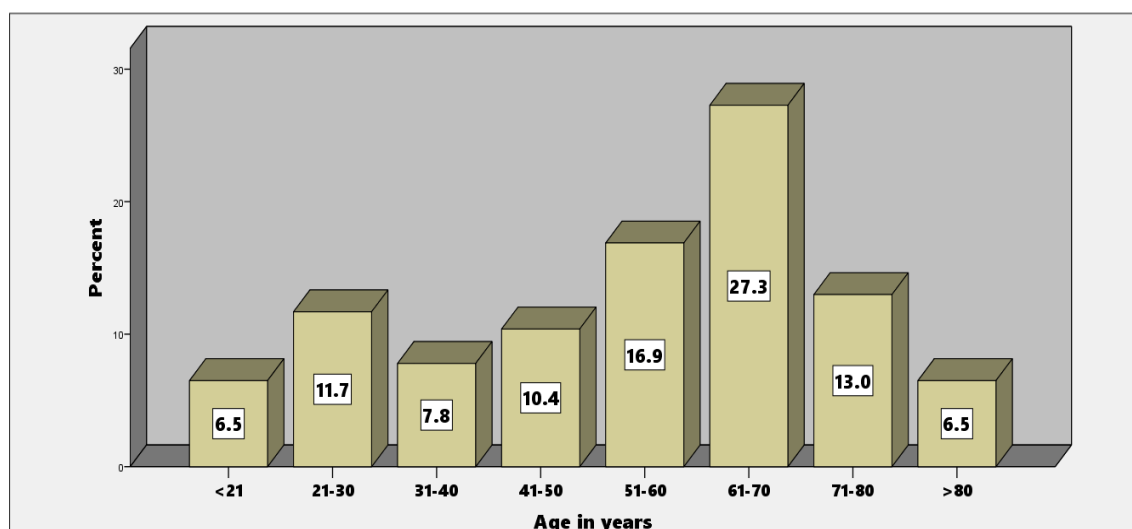


Figure 1: Age distribution among patients with urethral stricture.

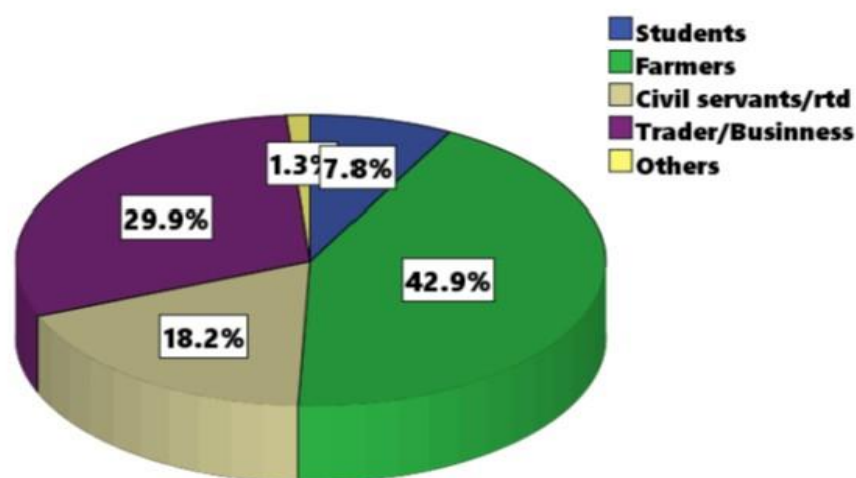


Figure 2: Distribution of the patients based on their occupation.

Table 1: Risk factors for urethral stricture among our patients

Stricture site	No of Patients	Percentage
Bulbar	40	51.9
Membranous	19	24.7
Penile	5	6.5
Peno- bulbar	10	13.0
Pan anterior urethra	3	3.9
Total	77	100.0

Table 2: Sites of urethral stricture among our patients.

Risk Factors	No of Patients	Percentage
Urethral Trauma (RTA/Fall)	18	23.4
Catheterization Trauma	5	6.5
Prolong Catheterization	6	7.8
Purulent urethral discharge	36	46.8
Previous urethral surgery	2	2.6
Falling Astride	3	3.9
Others	7	9.1
Total	77	100.0

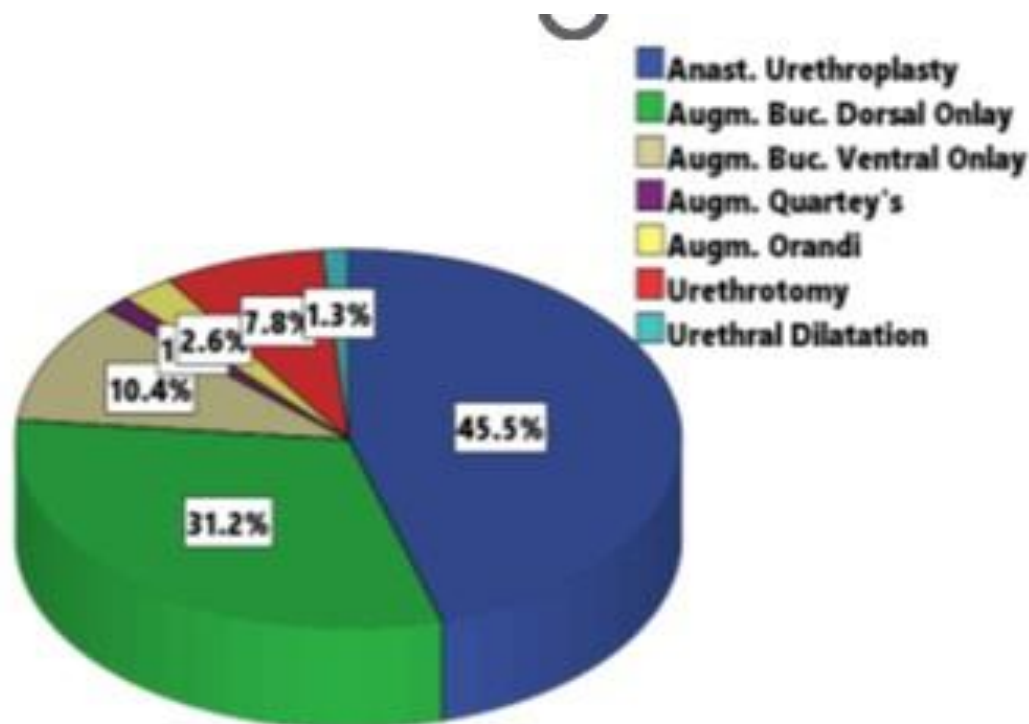


Figure 3: Treatment Modalities of urethral strictures among our patients.

DISCUSSION

Urethral stricture constitutes significant load to Urology practice particularly in developing countries where there's poor access to quality healthcare worsened by poverty and low literacy level. Mean age of our patients was 53.6 ± 9.01 SD years with more than 50% of all the patients aged between 41- 70years. Other studies done in Africa such as the one by Awajimijan NM, et'al [11] and Barnard A, et' al [12] reported similar mean age among their patients. The risk factors for urethral stricture have been reported to vary from one environment to another particularly in developing countries. In our patients post inflammatory

strictures are commonest accounting for about 54.6% (post urethritis- 46.8%, prolong catheterization- 7.8%) followed by post traumatic strictures accounting for 33.8%. This is similar to findings from the same regions such as the ones by Ibrahim G A et'a l [13], Abdulsalam K et'al [14] and Ngaroua NJE,et'al [15] but differs with findings from other parts of Nigeria.[16, 17, 18] The difference observed might be due to poor attitude to early and appropriate treatment of urethritis among our patients resulting in chronic progression of the disease. While people from other parts of Nigeria particularly from urban areas have predominantly post traumatic stricture.

Urethral stricture clinically presents with LUTS predominantly obstructive voiding symptoms and

with disease progression patient may presents with complications such as urinary retention, recurrent urinary tract infection, watering can perineum and renal impairment among others.^[4]

Majority of our patients presented in urinary retention, hence required emergency suprapubic cystostomy (SPC). Other complications recorded among our patients on presentation include urosepsis, Fournier's gangrene, watering can perineum, and renal impairment. Obstruction to the flow of urine results in the urinary stasis and recurrent urinary tract infection and consequent urosepsis, Fournier's gangrene and urethro-perineal fistulae (watering can perineum). The renal impairment also results from the urinary obstruction (obstructive nephropathy).^[7] The presence of these complications are associated with long standing disease and tends to have poorer outcome.^[19] Olajide et al^[20] reported similar complications among their patients at presentation (urethrocutaneous fistula, urinary retention, bladder/urethral calculi, chronic renal impairment and significant urinary tract infection). In up to 75.3% of our patients, the stricture involves the anterior urethra out of which more than 51.9% was found in the bulbar urethra. The fact that majority of our strictures were post inflammatory explains the predilection to the bulbar region, this is similarly reported by Ibrahim G A et'al,^[13] Abdussalam K et'al^[14] and Dakum N K.^[16] Several factors were considered in the choice of treatment option for urethral stricture; these include the size, site and number of strictures. Others are the degree of spongiofibrosis, expertise of the surgeon, available resources and patient choice.^[2, 8] Most of our patients were treated by excision and anastomotic urethroplasty (45.5%), others by augmentation urethroplasty (using buccal graft and penile skin). Few patients were managed by urethral dilatation and none by endoscopic treatment (direct vision internal urethrotomy), this is because there were no facilities for endoscopic treatment in our centre during the period covered by this study. Anastomotic urethroplasty has been the gold standard for urethroplasty and this is performed in majority of our patients who also happen to have

short segment stricture. This is also the findings from other studies.^[13, 14, 20] Recurrence of stricture was the commonest complications observed among our patients. Incidence of urethral stricture recurrence ranges between 2% to 36.4% with 75% occurring within the first 6 months of surgery.^[1,3] Recurrence results in a more difficult stricture in subsequent treatment and worsen patient outcome.

We recorded recurrence in 26% of our patients at 6 months' post-operative and this will likely be higher with increasing post treatment duration. Similar high recurrence rate was also reported from other studies.^[14, 16] The recurrence was commoner in strictures resulting from PFUDD, long segment strictures (post inflammatory), and in post-operative early removal of urethral catheters. The higher recurrence rate in posterior urethral stricture (mainly affecting the membranous urethra) and long segment strictures were similarly reported in studies by Hussain A et'al^[22] and Bello J^[23] respectively. The recurrence in this group of strictures may be attributed to the advanced operative treatment required such as pubectomy with occasioned difficult anastomosis.

CONCLUSION

Urethral stricture constitutes significant workload for urologist in our centre where patients present with various form of stricture-related complications. Urethritis was the commonest risk factor among our patients with most of the strictures being short segment and located at the bulbar urethra making the most common surgical procedure being excision and anastomotic urethroplasty. At six months, majority of our patients had no reported recurrence.

Recommendations

More public education and enlightenment on prevention and treatment of urethritis in this environment will significantly reduce urethral strictures.

Government should ensure the availability and accessibility to affordable and quality drugs for the management of urethritis.

Measures to curb motor vehicle accidents and other forms of trauma will also reduce the occurrence of post traumatic urethral strictures.

Limitations

The study being a retrospective one makes it difficult to access some patients records while some patients lost to follow up hence losing some data that would have made the results more representative.

Competing interests

We declare we have no competing interests and no funding was received for the study.

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Abbreviation

- AUR Acute urinary retention
 C/S Civil servants
 CT Computerized tomography
 CUR Chronic urinary retention
 LUTS Lower urinary tract symptoms
 MRI Magnetic resonant imaging
 PFUDD Pelvic fracture urethral distraction defect
 RUG Retrograde urethrogram
 SPC Suprapubic cystostomy
 UTI Urinary tract infection