



## Diagnostic urethroscopy: A five-year review of indications and findings in a tertiary hospital in Nigeria

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### Abstract

**Background:** Urethroscopy is defined as endoscopic visualization of the urethra and the urinary bladder for the purpose of diagnosis or treatment of diseases of the lower urinary tract.

**Objective:** To study the indications, diagnosis and complications of diagnostic urethroscopy in our hospital.

**Materials and method:** It was a retrospective descriptive study of all patients who had diagnostic urethroscopy in our hospital between January 2016 to December 2021. Institutional ethical clearance was obtained. Particulars of the patients were collected from the operating theatre register and their medical case files were retrieved. Information about the patients' bio-data, presentation, clinical/radiologic diagnosis, urethroscopic findings and its complications were extracted.

The generated data was analyzed using statistical package for social sciences (SPSS) version 21 and results presented in tables, text and figures.

**Results:** A total of 673 patients had urethroscopy/cystoscopy during the period out of which we recovered full medical records of 592 patients whose data were analyzed.

The patient's age ranges between 9 to 86 years with mean age of  $43.7 \pm 9.3$  SD years and M: F = 3.9:1. The indications for diagnostic urethroscopy were lower urinary tract symptoms [LUTS] (48.8%), bladder tumour (29.2%) and haematuria (11.1%) among others. The urethroscopic diagnoses were bladder tumour (37.8%), prostate enlargement (19.1%) and urethral stricture (6.9%) among others. The complications recorded were urethral/bladder bleeding (2.4%), urosepsis (1.4%) and urethral/bladder injury (0.3%).

**Conclusion:** Urethroscopy is a necessary tool for comprehensive practice of urology owing to its vital role in the diagnosis and treatment of different kinds of lower urinary tract diseases and it is generally a safe procedure.

Keywords: Urethroscopy, diagnosis, indications

### Introduction

Urethroscopy is defined as endoscopic visualization of the urethra and the urinary bladder for the purpose of diagnosis or treatment of diseases of the lower urinary tract. It allows for direct

visualization of the urethra, urethral sphincter, prostate, bladder neck, bladder and ureteral orifices. It is one of the common procedures performed by urological surgeons. It can be performed using rigid or flexible cystoscope in the operating theatre or as an office procedure. There are several indications for urethroscopy which are mainly diseases of the lower urinary tract such as bladder tumour, haematuria, recurrent urinary tract infections and lower urinary tract symptoms (LUTS).<sup>1</sup>

The use of endoscope has transformed the diagnosis

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and treatment of urologic diseases; its use is however limited in our environment with facilities available in only very few hospitals despite the burden of urologic diseases.<sup>2</sup>

Despite its vast use in urology, instrumentation of the urinary tract, however, is not without complications which may include pain, bleeding and infection.<sup>3</sup>

We undertook a 5-year retrospective study to document the indications, diagnostic value and complications of diagnostic urethroscopy in our hospital.

### Subjects/Materials and Method

It was a retrospective descriptive study of all patients who had urethroscopy at the urology unit of our hospital over the period covered in this study (January 2016 to December 2021). Before conducting the study institutional approval with reference number: NHREC/28/01/2020/AKTH/EC/3273 was obtained from the research ethics committee of the hospital.

Particulars of the patients who underwent the procedure were collected from the operating theatre register and their medical case folders were retrieved with the help of the record staff of the hospital. Information about the patients' bio-data, presentation, clinical/radiologic diagnosis, urethroscopic findings and its complications were extracted and entered into the already designed proforma. Patients whose procedure were incomplete and those with incomplete records were excluded.

The generated data was entered into excel sheets and analyzed using statistical package for social sciences (SPSS) version 21 and results presented in tables, text and figures. Patients were prepared preoperatively and treated for urinary tract infection [UTI] if found. No routine prophylactic antibiotic was given.

Both rigid and flexible cystoscopes were used with patients under local, regional or general anaesthesia. Predominantly the male adults had the procedure under local urethral instillation of 2% plain lidocaine (with or without plain macaine) while their female counterparts had their procedure without any form of anaesthesia. This has been the unit policy which conforms to standard practice of

diagnostic cystoscopy. General/regional anaesthesia was reserved for children and patients uncooperative under local anaesthetics. The components of the rigid cystoscope used include: sheath 22G (for adult) and paediatric sheath for children, bridge connector, telescope 0 and 30 degree, camera, light source, and monitor. And for flexible cystoscopy include the flexible cystoscope with a camera; light source and monitor. Two towers of these equipments were available in which the second serves as a back up in the event of failure of any of the equipment.

### Results

A total of 673 patients had urethroscopy/cystoscopy over the period covered by the study however, only 592 patients were analyzed whose full medical records were recovered. The age distributions of the patients found as is shown in Fig 1; Age ranges between 9 to 86years with a mean age of  $43.7 \pm 9.3$ SD years. Majority of the patients were males (Fig 2) with M: F = 3.9:1.

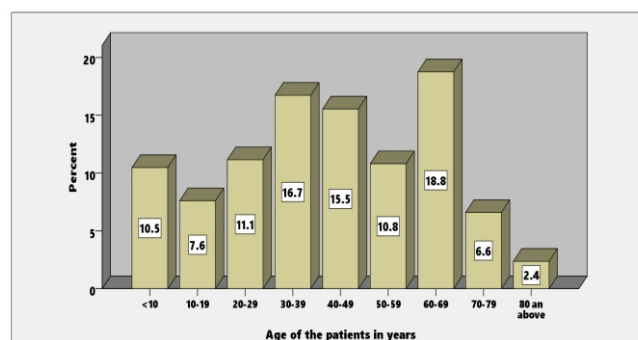
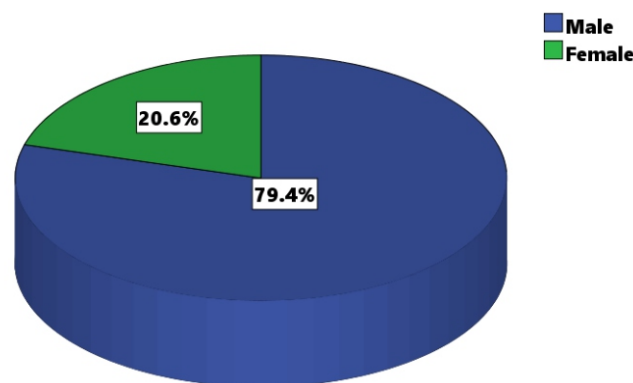


Figure 1: Age Distribution of the Patients



The various indications for the urethroscopy among the patients are shown in Table 1

Table 1: Clinical indications for urethroscopy

Indications	No of patients	Percentage
Lower urinary tract symptoms (LUTS)	289	48.8
Bladder Tumour	173	29.2
Haematuria	66	11.1
Recurrent Lower Urinary Tract Infection	24	4.1
DJ Stent Removal	20	3.4
Urinary Fistula	12	2.0
Neuropathic Bladder	3	0.5
Ejaculatory Disorders	3	0.5
Disorder of Sexual Differentiation	2	0.4
Total	592	100

Following the procedure and based on the findings a diagnosis was suggested for the patient as shown in Table 2.

Table 2: Diagnosis based on urethroscopic findings

Diagnosis	No of patients	Percentage
Bladder Tumour	224	37.8
Prostate Enlargement	113	19.1
Normal Findings	82	13.8
Urethral Stricture	41	6.9
Bladder Stone	32	5.4
Schistosomiasis	28	4.7
Bladder Neck Stenosis	23	3.9
Neuropathic Bladder	21	3.5
Posterior Urethral Valve	16	2.7
Bladder/Urethral Polyp	10	1.9
Ejaculatory Duct Obstruction	2	0.3
Total	592	100

We performed most of the procedures under local urethral instillation of plain 2% lidocaine/macaine (78.4%) while 21.6% were under general/regional anaesthesia. Similarly, majority of the procedures were done with rigid urethroscopy (81.3%) while the remaining 18.7% had flexible urethroscopy. Complications following the procedure were also recorded as shown in Table 3.

Table 3: Complications of urethroscopy

Complications	No of patients	Percentage
None	568	95.9
Bleeding (urethral/bladder)	14	2.4
Urosepsis	8	1.4
Urethral/Bladder Injury	2	0.3
Total	592	100

## Discussion

Urethroscopy is a routine procedure now in urology with a range of indications in the diagnosis and treatment of lower urinary tract diseases. Our patients' age ranged from 9 to 86 years with mean age of 43.7±9.3SD years and a male: female ratio of 3.9:1. This is similar to findings in other studies from West Africa.<sup>4,5,6</sup> The patients aged 60 to 69 years were more in number and were predominantly males; this is in keeping with the fact that symptomatic lower urinary tract obstruction has been shown to be most prevalent in the elderly and male patients.

Various indications for urethroscopy were found in our patients and during the procedure, features suggestive of the diagnosis were noted as shown in Table 1 and 2 respectively. The indications for diagnostic urethroscopy among our patients were predominantly (>80%) LUTS, clinical or radiological diagnosis of bladder tumour and haematuria, these are common urologic presentations among our patients. The findings are similar to report from other studies across West Africa.<sup>4-8</sup> Following the procedure and based on the intraoperative findings, bladder tumour was the commonest pathology among our patients (37.8%). The finding shows high prevalence of bladder tumour among our patients and compared to findings from another study with similar sample size from Senegal<sup>6</sup> and this goes to confirm an earlier report in our centre which showed bladder cancer as the second most common male cancer (after prostate cancer) and 11<sup>th</sup> in females.<sup>9</sup> The high prevalence of bladder cancer in our environment has been attributed to schistosomiasis endemicity in a previous study in which chronic infestation with *Schistosoma* is a strong risk factor for squamous cell cancer (SCC) of the bladder.<sup>10</sup> Significant percentage of our patients (13.8%) had essentially normal findings on urethroscopy. Normal

cystoscopic examinations on cystoscopy may suggest a resolving pathology such as UTI. This was similar to findings from other studies.<sup>5,6</sup>

Rigid cystoscopy was performed in all our patients with haematuria and bladder tumour which allows for better bladder irrigation and a biopsy. Rigid cystoscope was also used in all our children. Despite the use of rigid cystoscope in most of our patients most were done under local lidocaine instillation owing to observation of relative tolerance among our patients.

Despite being generally safe, when all necessary precautions are taken, however, being an invasive procedure, we recorded some complications as shown in Table 3. More than 95% of the patients did not have any complications. This is similar to findings in other studies.<sup>3,11,12</sup>

### Conclusion

Urethroscopy is a necessary tool for comprehensive practice of urology owing to its vital role in the diagnosis and treatment of different kinds of lower urinary tract diseases and it is generally a safe procedure.

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