

Original Research Article

Audit of lower urinary tract endoscopic procedures in Borno, North-Eastern Nigeria

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ABSTRACT

Background: Endourology which includes lower urinary tract (LUT) endoscopy, is an important component of standard urological practice worldwide. The objective of our study was to audit the LUT endoscopic procedures performed in Borno, a state in north-eastern Nigeria and share our experience.

Methods: We, retrospectively reviewed the Lower urinary Tract endoscopies performed in Borno state over 9 years, from January 2012 to December 2020. Data related to LUT endoscopies were extracted from the patients' clinical notes and operation theatre registers of the 2 focused hospitals in Borno where endourology procedures were performed (University of Maiduguri Teaching Hospital and Royal specialist hospital maiduguri) and then analyzed. Urology patients who did not undergo LUT endoscopy were excluded.

Results: We analyzed the data of total sum of 201 patients for the 2 hospitals, which represented the sample size for the study. Mean age of patients was 47.2years, with male to female ratio of 3.5:1. Bladder tumor with or without haematuria (31.3%) was the commonest indication for LUT endoscopy, seconded by removal of ureteric double J stents (23.4%). Urethrocystoscopy (74.0%) was the commonest procedure performed predominantly under local anaesthesia, for both diagnostic and therapeutic purposes.

Conclusions: We reported LUT endoscopies in Borno which was commonly indicated in bladder tumors presenting with or without haematuria. Urethrocystoscopy is the commonest procedure. As we get more endourology equipment in the public hospital many of our patients will benefit from these minimally invasive procedures in both lower and upper urinary tract diseases.

Keywords: Endoscopy, Endourology, Lower urinary tract, Urethrocystoscopy

INTRODUCTION

Endourology is an important component of standard urological practice globally.¹ The developed world have enormously advanced in minimal access surgery, which is a gold standard in current urological practice. Impact, no surgical speciality has been more radically changed by the advent of endoscopy than urology.² In developing countries like Nigeria, although slow, but progressive development in endourology has been observed in a previous study.³

Endourological practice is low in our country due to deficiency of equipment, personnel, and funding, particularly in the typical public hospitals, and where it is readily available at private practice, the average Nigerian cannot afford the exuberant cost of this services at private setting.⁴

Anatomically, the lower urinary tract (LUT) comprises of the bladder and urethra in both sex. Although the prostate and seminal vesicles in the male are not strictly involved in the conduction of urine from the bladder to the

exterior, but due to their intimate relation with male urethra (both topographically and functionally), they are conventionally regarded as part of lower urinary tract in the male.⁵

The objective of our study was to Audit the LUT endoscopic procedures performed in Borno and share our experience.

METHODS

In this retrospective study, we analysed the data of patients who had Lower Urinary Tract (LUT) endoscopic procedures performed on them in University of Maiduguri Teaching Hospital (UMTH) and Royal Specialist Hospital (RSH) Maiduguri between January 2012 to December 2020. These two are the main Hospitals where endourology procedures were done in Borno, a State in north-eastern Nigeria. This study was approved by the ethics and research committee of the hospitals. Data were obtained from the clinical notes of the patients and operation theatre registers of both hospitals.

Urology patients that have not undergone endoscopic procedures were excluded from the study. Information obtained from the data were the demographic parameters, indications for LUT endoscopies, the types of endoscopic procedures performed, day case or inpatient surgery, the types of anaesthesia used and the aim of surgery, either as diagnostic or therapeutic. Data analysis was done using statistical package for the social sciences (SPSS), version 20.0.

Equipment used for these procedures were Rigid cystoscope set (Hawk and storz brand), stone punch, flexible biopsy forceps, Monopolar resectoscope set and 30-degree telescope (Vega brand), bipolar resectoscope set size 25Fr (Storz brand) and pneumatic lithotripsy set (Nidhi brand) connected to oxygen cylinder as a source of compressed air and other components of the endoscopy tower. Majority of procedures were done using sterile water at room temperature as irrigation fluid, while the few cases were done using normal saline including the bipolar transurethral resection of the prostate. About 80% of the procedures were done by a single leading urologist.

RESULTS

In this study, we analysed the data of total sum of 201 patients who had lower urinary tract endourology done in the two hospitals (56% at UMTH and 44% at RSH), out of which 143 (71.1%) are males and 58(28.9%) were female, with male to female ratio of 3.5:1. The youngest and oldest patients were 2.5 years and 98 years old respectively, with mean age of 47.2 years. The median age range was 50-59 years as shown in Table 1.

Table 1: Frequency distribution of the age range.

Age range (years)	Frequency	Percentage
0-9	4	1.9
10-19	9	4.5
20-29	28	13.9
30-39	25	12.4
40-49	32	15.9
50-59	49	24.4
60-69	27	13.4
70-79	16	8.0
80-89	8	4.0
90-99	3	1.5
Total	201	100.0

The commonest indication for LUT endoscopy was assessment and biopsy of bladder tumor as shown in Table 2.

Table 2: Indications for LUT endoscopy in Borno.

Indications for endourology	Frequency	Percentage
Bladder tumor with or without haematuria	63	31.3
Bladder tumor resection	2	0.9
Haematuria of unknown cause	24	11.9
Ureteric double J stents removal	47	23.4
Ureteric double J stents insertion	3	1.5
Treatment for short segment urethral strictures (post-traumatic)	7	3.5
Urethral tumor	2	0.9
Urethral wart	1	0.5
Bladder calculi	5	2.5
Cancer of cervix staging	1	0.5
Recurrent urethral stricture, following scrotal skin flap augmented urethroplasty.	1	0.5
Urine incontinence	3	1.5
Benign prostate hyperplasia (BPH)	30	14.9
Bladder neck stenosis	7	3.5
Anejaculation	2	0.9
Contracted bladder	1	0.5
Posterior urethral valve (PUV)	1	0.5
Anterior urethral valve	1	0.5
Total	201	100

Table 3: Frequency Distribution of the age range.

Types of endourology procedures	Frequency	Percentage
Urethrocytoscopy	149	74.0
Urethroscopy	3	1.5
Monopolar trans-urethral resection of prostate (M-TURP)	15	7.5
Bipolar trans-urethral resection of prostate (B-TURP)	11	5.5
Trans-urethral resection of bladder tumor (TURBT)	2	1.0
Cystolitholapaxy	2	1.0
Pneumatic lithotripsy of bladder calculi	3	1.5
Direct vision internal urethrotomy (DVIU)	14	7.0
Resection of obstructed ejaculatory ducts	1	0.5
Combined chromotubation of vas deferens with urethrocytoscopy	1	0.5
Total	201	100

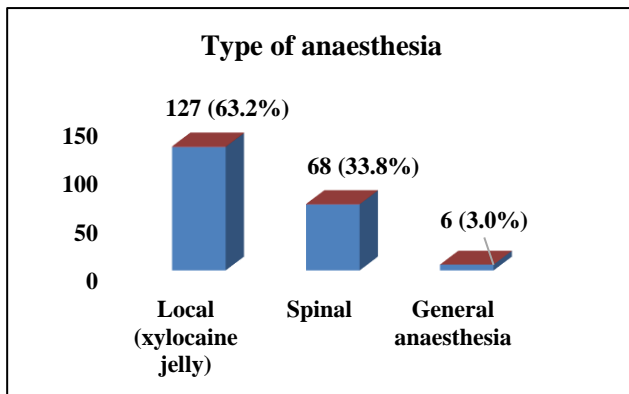


Figure 1: Type of anaesthesia used in the LUT endoscopy.

About 50.7% of all the procedures were done as diagnostic, which was marginally higher than the therapeutic procedures (49.3%). Urethrocytoscopy was the commonest procedure performed as shown in table 3, this comprised of both diagnostic, and therapeutic (for example, tumor assessment and removal of double J stents) procedures. Local anaesthesia using xylocaine was the commonest type as shown in Figure 1. Majority of procedures (73.6%) were performed as day cases, while the rest were done as in admitted patients. We observed

prominent complications in 4 of our patients in form of epididymorchitis in 3 post-TURP cases, and one uncontrolable haemorrhage during TURP.



Figure 2: (2A and B) Bladder tumor involving right posterior-lateral wall and posterior wall respectively (2C) Bleeding BPH (2D) Double J stenting of right ureter (2E) “Hair ball” at the site of recurrent urethral stricture (2F) Urethral stricture 2G Prostatic chips from TURP (2H, I) Exposed vas deferens shortly before injection of dye (chromotubation) and prostatic urethra and verumontanum stained with dye after chromotubation respectively. (2J) DVIU for bladder neck stenosis.

DISCUSSION

Urinary tract endoscopy is an integral part of urology patients management and is commonly performed by urologists.⁶ In this study, our mean age of 47.2years (5th decade) was lower than earlier reports of mean ages corresponding to 6th decade, this could probably be due to the smaller sample size in our series.^{3,6,7} Sex wise, male patients dominated in our study, similar to most of the previous reports. Our commonest diagnostic indication for LUT endoscopy was bladder tumor presenting (31.3%), this could be due to very high number of bladder tumor cases we see particularly in the northern part of Nigeria as compared to the south, studies in the southern Nigeria revealed commonest indications as bladder outlet obstruction from prostate enlargement.^{3,4,8,9}

Another studies by Mwashambwa et al in Tanzania revealed haematuria as the commonest indication, but even in their studies, 66% of these patients with haematuria were later found to have bladder tumor.¹⁰ Our second leading indication was removal of double J stents by urethrocytoscopy. We don't have equipments for upper tract endoscopy, hence all our upper tract diseases were managed by open surgeries during which all the double J ureteric stents were placed, except for 3 cases as shown in Table 2, who had double J stents inserted cystoscopically as a conservative management for renal calculi, one of them was a case of renal stone in pregnancy, which was earlier reported by the same author of this index research.¹¹

The commonest procedure in our series was urethrocystoscopy, which were done for both diagnostic and therapeutic purposes (either for biopsy of bladder tumor, removal or insertion of double J stents, bleeding BPH, removal of foreign body and assessment of incontinence with contracted bladder as shown in table 2), similar observations were made in many centres in Nigeria, this is not a surprise because urethrocystoscopy, is the easiest and first learning curve on endourology to trainee urologists and young urologists.^{1,3,4,6,12}

In this multicentre study, we used rigid urethroscopes for the endoscopy in both theatres, similar to the multicentre study of Oranusi et al in which they used rigid urethroscopes in all their patients.¹³ However, where flexible urethroscope is available as in the study of popoola et al, this procedure can be done conveniently at urology clinics without unnecessary waiting list for surgery.⁷ TURP (comprising of both Monopolar and Bipolar) was the seconding procedure performed, these facilities were procured in the last 3 years of study under review. Our total number of 26 TURPs in 3years is quiet small when compared with previous studies in different region of Nigeria.¹⁴ Cost of open prostatectomy is very cheap when compared to TURP. Persistence of “Boko Haram crisis” in our region have worsen the economic hardship, this might be the reason for the low patronage by patients for the TURP, slow learning curve of the surgeon was another reason observed.

One of the rare procedures in our report was “combined chromotubation of vas deferens with urethrocystoscopy”, this was done to assess the patency of the ejaculatory ducts in a patient with anejaculation and suspected ejaculatory duct obstruction. However the ducts werefound to be patent evidenced by staining of the prostatic urethra by the methylene blue dye during urethrocystoscopy. Another rare case we diagnosed was the presence of hair ball at in the urethra at site of recurrent stricture following skin flap augmented urethroplasty. Figure 2 displays the endoscopic pictures of some of our procedures.

Because of the short duration of procedures, most of our urethrocystoscopies and urethroscopies were conveniently done under local anaesthesia, except for the cases that required double Jstent insertion which were done under spinal anaesthesia, similar to previous reports.⁶ Our major procedures like TURP, TURBT, DVIU, cystolitholapaxy and pneumatic lithotripsy were done under spinal or general anaesthesia.

Boiled sterile water at room temperature was used as irrigation fluid in most our cases. It was elevated at 60 centimetres above the patient in other to reduce the risk of Transurethral resection syndrome. Sterile water is easily prepared, affordable and very popular in Nigeria and beyond.¹⁴⁻¹⁷ The 3 cases of post- TURP epididymorchitis were managed conservatively, while the case with uncontrolable haematuria during TURP was

converted to open prostatectomy with satisfactory post operative conditions.

Limitation

Our study has small sample size compared to the 9 years of this study under review, this can improve when the endoscopy equipments and expertice are provided by the government in the public hospitals with pocket friendly charges for the surgeries.

CONCLUSION

Urinary tract endoscopy is an integral part of standard urological practice. Bladder tumor with or without haematuria was the commonest indication for LUT endoscopy in Borno, and urethrocystoscopy was the commonest procedure performed. As we see a lot of bladder tumors in our region, these equipments are crucial in the early diagnosis of malignancies and other urological diseases.

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