

EARLY EXPERIENCE WITH ENDOUROLOGY AT LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY TEACHING HOSPITAL, OSOGBO

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ABSTRACT

Background: Endourological practice has revolutionized the diagnosis and the management of patients with various urologic abnormalities. But the level of practice in developing countries is unusually low, basically due to lack of necessary equipment and experienced trained manpower.

Objectives: To present our initial experience with endourological procedures in a tertiary hospital in Nigeria with emphasis on the indications, complications and challenges encountered.

Setting: The endourological section of our urology unit is new with some facilities for lower urinary tract endoscopes. A lot of the patients with various urological disorders who had endourological procedures were used in this study.

Materials and Methods: A prospective analysis of records of all patients who had diagnostic and therapeutic endourological procedures in our practice from September 2004 to December 2006 was carried out. Indications for the procedure, type of anesthesia, type of irrigation fluid used and complications and challenges encountered during the procedure were noted.

Results: 201 medical notes were available for review. A total of 204 procedures were carried out, representing twenty five percent of the total urological procedures done by the unit during the study period. The commonest indication for an endourological procedure was bladder outlet obstruction with benign prostate hyperplasia responsible in 108.0 (53.7%) of cases followed by cancer of the prostate in 36.0 (17.9%) and urethral stricture in 18 (9%) of cases. The commonest form of endourological procedure performed was urethrocystoscopy which constituted 89.6% while the second most common procedure was urethroscopy alone (9.0%) mainly for patients with urethral stricture. There were three complications, acute urinary retention, epididymo-orchitis, and haematuria, following the procedure.

Conclusion: Endourological procedures have refined and improved the management outcome of diverse urological procedures with minimal complications.

Key Words: Endourology, Indications, Complications

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INTRODUCTION

Endoscopic urologic surgery began with attempts to shine light into the bladder using the light of an oil lamp and head mirror, rather like the use of old-fashioned laryngologists¹. There is hardly any part of the urinary tract that can not be visualized with an endoscope. Urological diagnosis is thus more precise than that in other fields of clinical medicine². Effective visual inspection of the lower urinary tract has been possible since 1877 when Nitze invented his cystoscope³. A second leap forward in urological endoscopy came with the introduction by Hopkins of the rod lens telescope and fibre-optic illumination³. This permitted the development of a family of endoscopes which allow the urologist to visualize the

upper and lower urinary tracts for diagnosis and treatment. Since September 2004 we started using endourological procedures in the management of urological disorders. A total of 204 procedures were carried out, representing 25% of the total urological procedures done during the study period. This report details the indications, complications challenges encountered during the various endourological procedures carried out from September 2004 to December 2006.

PATIENTS AND METHODS

A prospective analysis of our experience with endourology in the Urology unit, Department of Surgery, Ladoke Akintola University Teaching Hospital, Osogbo was done. Information regarding the age, sex, indications for endourological procedures, type of irrigation fluid, type of anesthesia

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and complications encountered analyzed. Most of the procedures, 85%, were done under local anesthesia using xylocaine gel while the rest were done under caudal (9%), spinal (3%) and general anesthesia 3%. Nearly all the procedures (98.5%) were done using clean lukewarm water except in 1.5% of cases where glycerine was used.

RESULTS

There were 204 procedures in 201 patients, comprising 192 males and 9 females. These patients had two procedures each. The male: female ratio is 30:1 and the age range is 21 to 90 years with a mean age of 58.31 years. We carried out essentially lower urinary tract endoscopy. The forms of endourological procedure performed were urethroscopy which constituted 89.6%, urethroscopy alone (9.0%) mainly for patients with urethral stricture and transurethral resection of the prostate (TURP). Some of the indications were bladder outlet obstruction with benign prostatic hyperplasia responsible in 108.0 (53.7%) of cases followed by cancer of the prostate in 36.0 (17.9%) and urethral stricture in 18 (9%) of cases (table 1). Twenty one (10.4%) of the procedures were because of haematuria. The other indications were urethral injury, cancer of the cervix, and bladder calculi each constituting 1.5%. Two patients (1%) had their procedures delayed until they were more clinically stable because they presented with urosepsis from acute prostatitis. Acute urinary retention, epididymo-orchitis, and haematuria were the complications in 3 (1.5%) of the patients (table 2).

Table 1: Indications for Endourological Procedures.

Indications	Frequency (Number of patients)	Percentage
Bladder calculi	3.0	1.5
BPH	108.0	53.7
Ca Cervix	3.0	1.5
Ca Prostate	36.0	17.9
Haematuria	21.0	10.4
Ca Bladder	3.0	1.5
Urethral injuries	3.0	1.5
Urethral strictures	18.0	9.0
VVF/RVF	6.0	3.0
Total	201	100

Table 2: Complications.

Complications	Frequency (No. of patients)	Percentage
Acute urinary retention	1	1.5%
Epididymo-orchitis	1	1.5%
Haematuria	1	1.5%
Total	3	4.5%

DISCUSSION

Uro-Endoscopic surgery utilizes instruments that permit the surgeon to operate within the genitourinary tract without making a skin incision⁴. Endourological practice has revolutionized the diagnosis and the management of patients with various urologic abnormalities. Major endoscopic surgery can be accomplished safely with adequate light, adequate irrigating capacity, and proper use of the electrosurgical unit and other sources of energy. Percutaneous access to the upper urinary tract is the high point of endourologic practice. The combination of rigid and flexible endoscopes with ultrasound or electrohydraulic lithotripsy allows virtually all stones to be treated by percutaneous means⁵. But the level of practice in developing countries is unusually low, basically due to lack of the necessary equipments and expertise. Endoscopic surgery began with attempts to shine light into the bladder using the light of an oil lamp and head mirror, rather like the use of old-fashioned laryngoscopes¹. The first urologic endoscopy was done in 1806 by Bozzini and it was cystoscopy^{3,6}, while in 1912 Young performed the first recorded ureteral endoscopy⁷. Today there is no part of the urinary tract that can not be visualized with an endoscope. Urological diagnosis is thus more precise than some other fields of clinical medicine².

Cystoscopy is indicated in almost every patient with urinary symptoms³. Indications for cystourethroscopy include haematuria, follow-up of lower urinary tract cancer, need to obtain anatomic information regarding the bladder, prostate or urethra and the need to gain access to the lower or upper urinary tract⁸. In this study the commonest indication was bladder outlet obstruction with benign prostatic hyperplasia responsible in 53.7% of cases followed by cancer of the prostate in 17.9% urethral stricture in 9% of cases, while 10.4% of the procedures were because of haematuria. The least common indications were urethral injury, cancer of the cervix and bladder calculi each constituting 1.5%.

Endoscopic techniques have extended into the ureter and renal pelvis where small caliber endoscopes are used^{9,10}. At the moment we have no ureteroscope. Endoscopy has been used to evaluate and manage filling defects¹¹⁻¹³ (due to tumour, calculi etc) in the upper urinary tract and chronic unilateral haematuria¹⁴⁻¹⁶. Spencer and Stream¹⁷ reported a rare case of a diverticulum located along and draining into the roof of the urethra in a woman that was successfully managed endoscopically.

Almost all our endourological procedures were done with lukewarm water which is clear, cheap and universally available¹⁸. Normal saline can be used in simple cystourethroscopies but it is more expensive than water. But 1.5% glycine solution is the irrigation fluid preferred by most urologists because it gives

clear vision, is iso-osmolar, non-haemolytic and non electrolytic. This was used in only 1.5% of our patients who had TURP. The major contraindication to cystourethroscopy is genitourinary infection especially acute cystitis and prostatitis, as instrumentation in this setting may precipitate urosepsis⁸. Only 1% of our patients had their procedures delayed because of urosepsis from prostatitis, but had cystourethroscopy when the urosepsis was controlled.

Complications of endoscopic procedures include bleeding, perforation, infection, urinary retention, ureteral and urethral strictures⁸. The major complications recorded were acute urinary retention, epididymo-orchitis and haematuria in 1.5% of patients. The patient who had acute urinary retention was catheterized and had open prostatectomy later. The epididimorchitis was managed with antibiotics, analgesics and scrotal support with good response while the haematuria resolved on conservative management. The general rate of intraoperative complications was 3.6% in 2735 retrograde semirigid ureteroscopy procedures done by Geavlete¹⁹. Ureteroscopic injury was the commonest form of complications reported by John and Pearle²⁰ in their study on the complications of ureteroscopy. Most lower tract endoscopies in adults can be carried out using 1% to 2% intraurethral lidocaine (xylocaine) for local anesthesia in an office or outpatient surgical setting^{8,21}. In this study most of our procedures, 85%, were done under local anesthesia using 2% xylocaine gel while the rest were done under caudal (9%), spinal (3%) and general anesthesia (3%). Ritenberg et al²¹ performed ureteroscopy with local anaesthesia and without sedation in 30 patients while in another study by Vogeli and his colleagues, 302 ureteroscopic procedures were commenced with local anaesthesia²² and 133 completed without the use of general or regional anaesthesia. Okeke has performed transurethral resection of the prostate using only caudal anaesthesia²³.

Incomplete armamentaria with inadequate manpower and relatively high cost of the procedure (because of general low socio-economic class of the populace) have hampered the management of our urologic patients, teaching and research in our institution.

In conclusion, our initial experience with endourological procedures involves mainly diagnosis of lower urinary tract disorders. We hope the standard of practice with more therapeutic and upper urinary tract endoscopic procedures will improve in the nearest future.

REFERENCES

1. **Blandy JP.** Urological instrumentation: Mundy A R, Fitzpatrick JM, Neal DE et al eds. In *Scientific Basis of Urology* 1st Ed. Isis Medical Media Ltd U.K. 1999; 296-300.
2. **Osegbe DN.** Symptoms ,Examination, Investigations and Instrument in Urology: Badoe EA., Archampong EQ., da Rocha-Afodu J.T eds .In *Principles and Practice of Surgery Including Pathology in the Tropics*. 3rd ed. Ghana Publishing Coporation. 2000; 850-884.
3. **Philip Clark.** Cystoscopy and Urethroscopy in Operations in Urology. Longman Singapore Publishers. 1985. Ch. 1. p. 3-27.
4. **Charles`CW, Juan PL, Richard KB.** Endoscopic Surgery of The Lower Urinary Tract and Laparoscopy: Mike BS, Robert DO, Richard KB eds. in *Handbook of Urology Dianosis and Therapy*. 3rd ed. Lippincott Williams and Wilkins Philadelphia 2004 Ch. 12 p. 188-205.
5. **Ronald EA, David SW, Richard KB.** Urinary Calculi and Endourology: Mike BS, Robert DO, Richard KB eds. in *Handbook of Urology Dianosis and Therapy*. 3rd ed. Lippincott Williams and Wilkins Philadelphia 2004 Ch. 14 p. 232-248.
6. **Nitze M.** Eine neue Beobachtungs und Untersuchungsmethode fur Harnrohre. Harnblase und Rectum. Wien Med Wochenscher 1897; 29: 649-52.
7. **Young HH, McKay RW.** Congenital valvular obstruction of the prostatic urethra. Surg Gynecol Obstet 1929; 48: 509.
8. **Charles `CW, Richard KB.** Instrumentation of The Lower Urinary Tract : Mike BS, Robert DO, Richard KB eds. in *Handbook of Urology Dianosis and Therapy*. 3rd ed. Lippincott Williams and Wilkins Philadelphia 2004 Ch. 5 p. 63-78.
9. **Huffman JL, Bagley DH, Lyon ES.** Extending cystoscopic techniques into the ureter and pelvis. Experience with ureteroscopy and pyeloscopy. JAMA 1983; 250: 2002-5.
10. **Lyon ES, Bagley DH, Huffman JL.** Ureteroscopy and ureteropyloscopy . Urology 1984 Aug; 23: 29-36.

11. **Gerber GS, Lyon ES.** Endourological management of upper tract urothelial tumors. *J Urol.* 1993; 150:2-7.
12. **Blute ML, Segura JW, Petterson DE, Benson RC Jr, Zincke H.** Impact of endourology on diagnosis and management of upper urinary tract urothelial cancer. *J Urol.* 1989; 141:1298-301.
13. **Politis G, Griffith DP.** Ureteroscopy in management of ureteral calculi. *Urology.* 1987; 30:39-42.
14. **Yazaki T, Kamiyama Y, Tomomasa H, et al.** Ureteropyeloscopy in the diagnosis of patient with upper tract hematuria: an initial clinical study. *Int. J Urol.* 1999; 6:219-25.
15. **Kumon H, Tsugawa M, Matsumura Y, Ohmori H.** Endoscopic diagnosis and treatment of chronic unilateral hematuria of uncertain etiology. *J Urol.* 1990; 143:554-8.
16. **Blute ML, Segura JW, Patterson DE.** Ureteroscopy. *J Urol.* 1988; 139:510-2.
17. **Spencer WF, Strem SB.** Diverticulum of the female urethral roof managed endoscopically. *J Urol.* 1987; 138:147-8.
18. **Sargin H, Akman Y, Yazicioglu A, Cetin S.** Effects of distilled water and mixture of sorbitol mannitol irrigation fluid on fluid - electrolyte balance on patients undergoing transrectal prostatectomy. *Int. Urol & Nephrol* 1997; 29:575-580.
19. **Geavlete P, Georgescu D, Nita G, Mirciulescu V, Cauni V.** Complications of 2735 retrograde semirigid ureteroscopy procedures: a single-center experience. *J Endourol.* 2006; 20:179-85.
20. **Johnson DB, Pearle MS.** Complications of ureteroscopy. *Urol Clin North Am.* 2004; 31:157-71.
21. **Rittenberg MH, Ellis DJ, Bagley DH.** Ureteroscopy under local anesthesia. *Urology* 1987;30:475-8.
22. **Vogal TA, Mellin HE, Hopf B, Ankermann RR.** Ureteroscopy under local with and without intravenous analgesia. *Br J Urol.* 1993; 72: 161-4.
23. **Okeke LI.** Experience with caudal block regional anaesthesia for transurethral resection of the prostate gland. *West African Journal of Medicine.* 2002; 21:280-1.