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# Range of Urologic Surgical Procedures in Two District Tertiary Care Hospitals in Abuja, Nigeria

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## ABSTRACT

**Objectives:** To assist the surgical workload and the spectrum of urological procedures performed by a single urologist in two tertiary referral hospitals in Abuja, Nigeria, between February 2007 and December 2008.

**Patients and methods:** Data on patient demographics and urologic procedures performed were extracted from the clinical not and operating room registers of Asokoro District General Hospital and Wuse General Hospital, two tertiary referral health facilities in Abuja.

**Results:** In total, 858 urologic surgical procedures were performed, of which 123 (14.3%) were emergency and 735 (85.7%) elective. Of the 858 patients, 852 (99.3%) were males and 6 (0.7%) were females, 657 (77.2%) were adults and 195 (23%) were children. The procedures were therapeutic in 736 (85.8%) and diagnostic in 122 patients (14.2%). Minimally invasive procedures were performed in only 30 (3.5%) of cases. The five most common procedures performed, accounting for 53.7% of the total, were difficult male urethral catheterization (186), herniorrhaphy (83), varicocoelectomy (68), exploration for acute scrotum (64) and transrectal prostate biopsy (60).

**Conclusion:** A modest number of 858 urological procedures were performed in the period under review in two health facilities where specialist urologic surgery care had just been introduced. An unexplained observation was that female patients constituted a minute proportion (<1%) of the patients treated. The small proportion of minimally invasive procedures (3.5%) was due to the lack of instruments and consumables available for uroendoscopic surgery.

**Key Words:** Urologic surgical procedures, Tertiary care hospital, Abuja Nigeria

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## INTRODUCTION

While surgical care may be delivered differently and is often modified by the cultural and technological advancement of the society, the basic art of surgery is nonetheless universal. The range of urologic procedures performed at any one health facility may depend largely on the prevalent disease burden, the regional setting of the practice, the availability of equipment with cutting-edge technology and the skills of the urologic surgeon. In resource-endowed regions of the world, urologic surgical conditions are mainly treated with minimally invasive procedures, in contrast to open extirpative and reconstructive procedures used largely in developing countries.

Urologic surgical procedures are a significant contributor to the surgical workload in any tertiary health care facility. This volume and spectrum of surgical work should be reported, especially against the background of a previously non-existent urologic service as was the case in this study. Few studies of a similar nature, mainly Japanese, have been reported in the literature[1-3]. Only one

such study has been reported from Nigeria[4]. The present study will supplement the existing literature on the subject in Nigeria.

The study was aimed at assessing the surgical workload of a urology service by describing the relative distribution of patient's age, sex, category of operations and the range of urologic surgical procedures performed by a single urologist providing surgical care in two tertiary referral hospitals in Abuja, Nigeria, between February 2007 and December 2008.

## PATIENTS AND METHODS

The operating room registers, emergency room registers and case notes of 858 patients who underwent urological procedures in two tertiary referral hospitals in Abuja, Nigeria between February 2007 and December 2008 were reviewed. The patients' sex, age, diagnosis and surgical treatment were evaluated.

Radiological services were rudimentary and purely for basic x-rays and ultrasound investigations. Manpower for stoma therapy care was non-existent and intensive care facilities were unavailable. All these factors partly determined the spectrum of procedures that could be performed, which were classified as emergency or elective, open or minimal access, diagnostic or therapeutic and adult or pediatric.

Data were analyzed using the computer program for epidemiologists WINPEPI Version 4.0[5].

## RESULTS

Of the 858 patients, 852 (99.3%) were male and 6 (0.7%) were female. Of the 852 male patients, 657 (77%) were adult and 195 (23%) were pediatric. The mean age of the adult patients was 43.8 years (range 18-72). In the pediatric age group, 18 patients were 4-12 years of age (mean 8.2 years), 148 were aged 1-47 months (mean 25.0 months) and 29 were less than a month old. The 6 female patients consisted of 5 adults and a child, with mean age 37.5 years (range 9-55 years).

The five most frequent procedures were difficult male urethral catheterization (*n*= 186), herniorrhaphy (*n*= 83), varicocoelectomy (*n*= 68), exploration for acute scrotum (*n*= 64) and transrectal prostate biopsy (*n*= 60) [Table 1].

The author personally performed 80.5% of the procedures while 19.5% were performed by medical officers under supervision. Procedures performed by medical officers under supervision were difficult male urethral catheterization (100), herniorrhaphy (53), exploration for acute scrotum (10) and exploratory laparotomy (5).

Overall there were 735 (85.7%) elective and 123 (14.3%) emergency procedures, 662 (77.2%) were performed in adults and 196 (22.8%) in children. The procedures performed in pediatric patients are shown in (Table 2).

The 123 emergencies were Fournier's gangrene debridement (5), scrotal exploration for acute scrotum (64), difficult male urethral catheterization (25) and removal of impacted urethral catheter in males (4), suprapubic cystostomy (15) and exploratory laparotomy (10). The procedures were therapeutic in 736 (85.8%) and diagnostic in 122 patients (14.2%).

Open surgery was performed in 828 (96.5%) cases, while minimally invasive procedures were performed in only 30 (3.5%) of cases. Scrotal, urethral and groin surgery made up more than 60% of all cases operated.

Five classes of surgical procedures alone accounted for close to 80% (*n*= 682) of all procedures performed. These were scrotal, penile, urethral, groin and loin procedures. When the relative number of procedures

**Table 1:** Surgical procedures performed

| Class of surgery | Procedure | N | % |
|---|---|---|---|
| Scrotal | Debridement of Fournier's gangrene | 5 | 0.6 |
| | Orchidopexy for undescended testis | 45 | 5.2 |
| | Orchidectomy | 30 | 3.5 |
| | Exploration for acute scrotum (±orchidopexy) | 64 | 7.5 |
| | Vaginal hydrocoelectomy | 56 | 6.5 |
| | Testicular biopsy | 6 | 0.7 |
| | | 206 | 24.0 |
| Rectal | Transrectal prostate biopsy | 60 | 7.0 |
| Penile | Revision circumcision | 27 | 3.1 |
| | Hypospadias repair (MAGPI) | 32 | 3.7 |
| | | 59 | 6.9 |
| Urethral | Difficult male urethral catheterization | 186 | 21.7 |
| | Removal of impacted urethral catheter | 4 | 0.5 |
| | Urethral sounding/dilatation | 8 | 0.9 |
| | Urethroplasty | 6 | 0.7 |
| | Posterior urethral valvotomy | 1 | 0.1 |
| | | 205 | 23.9 |
| Groin | Herniorrhaphy | 83 | 9.7 |
| | Herniotomy | 52 | 6.1 |
| | Varicocoelectomy | 68 | 7.9 |
| | | 203 | 23.7 |
| Suprapubic | Suprapubic cystostomy | 15 | 1.8 |
| | Retropubic prostatectomy | 40 | 4.7 |
| | Vesicolithotomy | 3 | 0.4 |
| | | 58 | 6.8 |
| Loin | Nephrectomy | 2 | 0.2 |
| | Neprolithotomy | 5 | 0.6 |
| | Pyeloplasty | 4 | 0.5 |
| | | 11 | 1.3 |
| Abdominal | Exploratory laparotomy | 26 | 3.0 |
| Minimal access | Urethrocystoscopy | 30 | 3.5 |
| | **Total** | **858** | |

**Table 2:** Surgical procedures performed in pediatric patients

| Class of surgery | Procedure | N | % |
|---|---|---|---|
| Scrotal | Orchidopexy (for undescended testis) | 45 | 23.0 |
| | Exploration for acute scrotum (± orchidopexy) | 36 | 18.4 |
| | | 81 | 41.3 |
| Penile | Revision circumcision | 27 | 13.8 |
| | Hypospadias repair (MAGPI) | 32 | 16.3 |
| | | 59 | 30.1 |
| Urethral | Posterior urethral valvotomy | 1 | 0.5 |
| | Male urethral catheterization | 2 | 1.0 |
| | | 3 | 1.5 |
| Groin | Herniotomy | 52 | 26.5 |
| Loin | Nephrectomy | 1 | 0.51 |
| | **Total** | **196** | |

performed in each category was compared between the adult and the pediatric age groups, it was observed that only in the penile category were more procedures performed in children (30.1%) than in adults (6.9%).

A total of 64 scrotal explorations for acute scrotum were performed out of which 34 were diagnostic and the rest was therapeutic.

When the distribution of diagnostic procedures was compared with therapeutic procedures for all procedure classes, it was observed that while all groin, suprapubic, loin and abdominal procedures were performed for therapy, all the rectal procedures were done for diagnosis. All 60 rectal procedures were transrectal biopsies of the prostate to investigate carcinoma of the prostate.

## DISCUSSION

A modest number of 858 urological procedures were performed, with most carried out during the last 14 months of the review period. This is against the background that the two tertiary hospitals serving about one million people had no specialist urologic service before 2007. Perhaps this urological surgical workload was a consequence of increased patient referral to the hospitals with the establishment of the urology services.

Interestingly, more than 99% of the procedures under review were performed on males. For unexplainable reasons less than one percent of the study population were females.

The Foley's urethral catheter is widely utilized in modern hospital practice and is an invaluable tool in patient care. However, inappropriate catheterization may be complicated by urethral injury and eventual urethral strictures. In our series, traumatic urethral catheterization by primary care physicians or medical officers was frequently observed. All 186 patients who had urethral catheterization in our series had failed initial attempts at the procedure by other doctors, necessitating urology referral.

In pediatric patients, herniotomy for communicating hydrocele made up the highest number of cases, followed by

orchidopexy for maldescended testicles. All circumcisions were revision procedures following complications arising from the initial attempt by other health care workers. In Nigeria circumcision is most often performed by nursing staff, community health workers and "traditional birth attendants" or "local barbers" in remote rural communities.

Meatal advancement and glanoplasty (MAGPI) was performed for distal hypospadias in 32 patients (16.3%) in our series. Although there are few reports in the literature on the incidence of hypospadias in Nigeria, Akporiaye et al recently reported MAGPI repair for 30 patients with distal hypospadias[6].

In children and young adults, the acute scrotum will usually be due to torsion of the testis or testicular appendages or epididymo-orchitis. Imaging studies have a high accuracy in differentiating between testicular torsion and epididymo-orchitis, but the effect of misdiagnosis (testicular loss) is significant. Consequently, clinical parameters rank highly in taking a surgical decision, which explains why a little over half of the patients in our series with acute scrotum underwent scrotal exploration.

Minimal access procedures ranked very low in the individual listing of procedures performed, all were urethrocystoscopy and 80% were done for diagnostic purposes. Minimal access techniques require expensive high-technology equipment and additional training. Even when the author had the training to perform these techniques, some of the equipment required for the most basic endoscopic urological procedures was only provided during the second half of the study period.

Our desire to progressively scale up minimal access surgical services over a short period to procedures like Transurethral resection of the prostate (TURP), transurethral resection of bladder tumor (TURBT) and upper urinary tract endoscopy was frustrated by the bureaucratic bottlenecks of implementation common in our society. The non-availability of endourological equipment greatly limited the scope of our minimal access procedures, the structured training we had put in place for the medical officers and consequently their exposure and competence.

While minimal access procedures may cost more than open procedures, their advantages include lower morbidity, earlier return to work, shorter hospitalization and more effective hospital bed utilization. Therefore, significant long-term benefits will accrue from investment in such minimally invasive medical technologies.

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