

Spectrum and Management of Urological Emergencies at Tertiary Hospital in Northwestern Nigeria

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ABSTRACT

Background: Urological emergencies are urological conditions that require immediate interventions in order to avoid morbidity and or mortality. The commonest urological emergency worldwide is acute urinary retention. The objective of this study is to review the spectrum and management of urologic emergencies in our environment. **Methods:** This is a retrospective study of patients managed for urological emergencies in our hospital from January to December, 2017. Data was collected from the case notes via a proforma, and analyzed using IBM SPSS version 20.0 for Windows. The results were reported in percentages, mean \pm standard deviation. **Results:** A total number of 173 patients were managed for urological emergencies within the study period with mean age of 45.88 ± 12.03 years and a range of 1 to 80 years. The male to female ratio was 9:1. The commonest urological emergency was acute urinary retention (40.5%) from benign prostatic hyperplasia (17.9%), urethral stricture (12.7%) and prostate cancer (5.2%). Other emergencies were acute epididymo-orchitis (13.9%), schistosomal ureteric obstruction (9.8%), gross haematuria (8.1%), urological trauma (7.5%), renal stone colic (5.7%), Fournier's gangrene (5.2%), priapism (2.3%), testicular torsion (1.7%) and others (5.3%). The interventions offered were urinary diversion \pm saline bladder irrigation (57.8%), prostatectomy (18.0%), ureteroscopy \pm double J stenting (5.2%), wound debridement (5.2%), corporal aspiration (2.3%), and orchidopexy (1.7%). Most of the patients (92.5%) were successfully managed and discharged but there was associated mortality in 2.9%. **Conclusion:** Urinary retention, acute scrotum, schistosomal ureteric obstruction, gross hematuria and urological trauma are the most common urological emergencies in our practice. Urinary diversion \pm bladder irrigation, Antibiotics therapy and prostatectomy were the commonest interventions offered

Keyword: Management, schistosomiasis, spectrum, urinary retention, urinary diversion, urological emergencies

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INTRODUCTION

Urological emergencies are urological conditions that require immediate intervention in order to avoid morbidity and mortality^{1,2}. Most of the emergencies are of benign etiology. The emergencies that are of malignant etiology are rarely encountered. These include acute cord compression from metastatic prostate cancer and malignant ureteral obstruction from cancer of the cervix². The most common urological emergencies in literature include acute urinary retention, gross hematuria, acute scrotum, and urosepsis^{1,3-6}. These emergencies may result from complications of obstructive uropathy, genitourinary infection, and trauma^{5,6-8}. There was no study done on urological emergencies in our environment. This helps in hospital planning, provide baseline data and contribute to the existing literature.

The objective of this paper is to review the spectrum and management of urological emergencies in our environment.

METHODOLOGY

This is a retrospective study of urological emergencies managed by the Institute of Urology and Nephrology, Usmanu Danfodiyo University/Teaching Hospital Sokoto from January to December 2017. Data was collected from case notes, emergency registers and theatre records and entered into a proforma and analyzed using IBM SPSS version 20.0 for Windows. The information collected included biodata, presentation, clinical features, investigation results, interventions, and outcome. The results were reported in percentages and mean \pm standard deviation. This study was approved by the Health Ethics and Research Committee of our hospital.

RESULTS

There were 1401 and 393 surgical and urological admissions in our hospital within the study period.

Table 1: Clinical presentations of patients with urologic emergencies in our Institution

Clinical presentation	Number of patients	Percentage (%)
Acute Urine Retention	70	40.4
Haematuria	66	38.1
Anaemia	53	30.6
Urosepsis	44	25.4
Uremia	39	22.5
Acute sCrotum	36	20.8
Weight loss \pm anorexia	30	17.3
Renal/ ureteric colic	10	5.8
Painful penile erection	4	2.3
Urethral discharge	2	1.2
Paraparesis	1	0.6
Total	173	100

Table 2: Spectrum of urologic emergencies in our Institution

Diagnosis	, n	%
Acute urinary retention	70	40.4
BPH	31	17.9
Stricture	22	12.7
Prostate cancer	9	5.2
Cystocele	2	1.2
PUV	2	1.2
Meatal stenosis	1	0.6
Acute scrotum	36	20.8
Epididymo-orchitis	24	13.9
Fournier's gangrene	9	5.2
Testicular torsion	3	1.7
Ureteric obstruction \pm uremia	25	14.5
Schistosomal	20	9.8
Endometriosis	2	1.1
Bilateral ureteric ligation	2	1.1
Cervical cancer	1	0.6
Gross hematuria	14	8.1
Bladder cancer	13	7.5
Renal cell carcinoma	1	0.6
Urological trauma	13	7.5
Renal	4	2.2
Bladder rupture	4	2.2
Urethra	4	2.2
Penile amputation	1	0.6
Renal colic from renal stone	10	5.7
Priapism 2° SCD	4	2.3
Acute cord compression from prostate cancer	1	0.6
Total	173	100

Key: BPH =benign prostatic hyperplasia, PUV= posterior urethral valve, SCD= sickle cell disease

Out of this, emergency urological admissions were 173 patients, accounting for 13.2% and 44.4% of the surgical and urological admissions respectively.

The mean age of the patients was 45.88 ± 12.03 years with a range of 1 to 80 years. There were 155 males (89.6%) and 18 females (10.4%) with a male to female ratio of 9:1.

The most common presentation were acute urinary retention (40.5%) and haematuria (38.1%). Other presentations are shown in Table 1.

The commonest urological emergency was acute urinary retention (40.5%) from benign prostatic hyperplasia (17.9%), urethral stricture (12.7%) and prostate cancer (5.2%). Other emergencies are shown in table 2. Acute on chronic urinary retention was present in 8.7% of the patients.

Laboratory investigations and abdominopelvic ultrasound revealed pyuria (40.5%), anemia (30.6%), uremia (22.5%), hydronephrosis (12.1%), leucocytosis (9.2%), and pyonephrosis (1.2%).

The commonest organism isolated in the patients with urosepsis was Escherichia coli (72.2%). Other organisms isolated were Klebsiella pneumonia (11.1%), Staphylococcus aureus (11.1%) and Candida albicans (5.6%).

Table 3: Definitive Treatment of the Patients

Treatment	n	%
Open prostatectomy	31	18.0
Urethroplasty	26	15.1
Ureteroneocystostomy	25	14.6
Chemoradiation	13	7.5
Androgen Deprivation Therapy	10	5.8
SCrotal/penile wound closure± flap and graft	9	5.2
Ureteroscopy + lithotripsy	5	2.9
Radical cystectomy + urinary diversion	2	1.1
Transurethral resection of bladder tumour	2	1.1
Percutaneous nephrolithotomy	2	1.1
Endoscopic valve ablation	2	1.1
Neo-glanulo-meatoplasty	1	0.6
Nephrectomy	1	0.6
Orchidopexy	1	0.6
Not done	42	24.3
Total	173	100.0

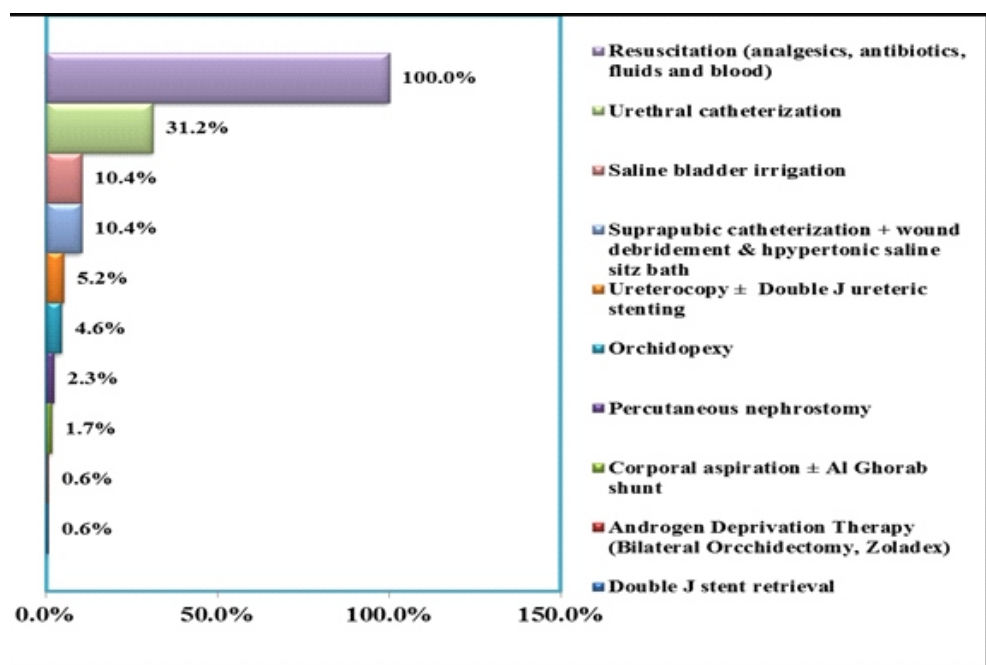


Figure 1: Emergent treatment for patients with urologic emergencies

The commonest emergency interventions offered were urinary diversion ± bladder irrigation with normal saline (41.6%) and ureteroscopy ± double J ureteric stent insertion (10.4%). Other details of the treatments offered are shown in Figure 1.

Patients with haematuria had urethroscopy + biopsy and histology revealed bladder cancer in 54 patients (31.2%). Squamous cell carcinoma was present in 31 patients (57.4%), transitional carcinoma in 19 patients (35.2%), adenocarcinoma and rhabdomyosarcoma in 2 patients (3.7%) each. The commonest definitive treatments offered were prostatectomy (18%), urethroplasty (15.1%) and ureteroneocystostomy (14.6%). Other definitive treatments offered are shown in Table 3.

The management was successful in 160 patients (92.5%) who were subsequently discharged from the hospital, 2.9% developed end stage renal disease, 2.9% had mortality and 1.7% absconded.

DISCUSSION

Urological emergencies require prompt intervention to avoid morbidity and mortality. The most common urological emergencies are acute urine retention, acute scrotum, gross hematuria, testicular torsion, Fournier's gangrene and urological trauma^{1,5,6,8}. Fournier's gangrene and urosepsis are associated with high mortality, especially in fulminant cases^{2,7}.

In the present study, urologic emergencies accounted for 44.4% and 13.2% of urologic and surgical admissions respectively. In a series by Avokoudjo *et al.*⁴ in Cotonou-Benin Republic, urologic emergencies accounted for a higher proportion of urological admissions (92.7%) but lower proportion of surgical admissions (6%). This accounted for a lower proportion of surgical admissions in a study by Traore *et al.*¹² in Ouahigouya- Burkina Faso (3.7%) and in Ife Nigeria in a study by Salako *et al.*⁶ (3.2%). The later paper studied non-traumatic emergency urological cases, which may explain the reason why

urological emergencies accounted for a lower proportion of surgical admissions in their series.

The mean age of patients in this study was 46 years, which is comparable to 45 years reported by Ibrahim *et al.*¹³ in Lagos, Nigeria. However, this mean age is lower than the one reported by Muzzamil *et al.*¹⁴ in Kano Nigeria and Traore *et al.*¹² in Ouahigouya Burkina Faso, whose subjects had a mean age of 56 years. Okeke *et al.*¹⁵ in a more recent study in Lagos reported higher mean age of 50 years in their cohort. The disparity of mean age between the various studies may be accounted for by differences in the incidence of prostatic diseases which are common in the 6th decade of life. Majority of the patients in this study were men as documented by Talreja *et al.*³ in Jaipur-India, Avakoudjo *et al.*⁴ in Cotonou- Benin Republic, and Traore *et al.*¹² in Ouahigouya-Burkina Faso. This is due to the fact that prostatic, scrotal, testicular diseases are peculiar to men. Men are also involved in urological injury due to their higher mobility in search of livelihood.

The incidence of acute urinary retention in this study of 40.4%, was lower than 48%, 49.4%, 53%, and 58% reported by Traore *et al.*¹² in Ouahigouya-Burkin Faso, Okeke *et al.*¹⁵ in Lagos- Nigeria, Atim *et al.*¹ in Abuja-Nigeria, and Avakoudjo *et al.*⁴ in Cotonou- Benin Republic respectively. The incidence of acute and acute on chronic urinary retention in the present study of 31.8% and 8.7% were higher than 21. 2% and 7.5% reported by Salako *et al.*⁶ in Ife-Nigeria but lower than 49.4% and 10.1% respectively reported by Okeke *et al.*¹⁵ in Lagos- Nigeria.

The finding of gross hematuria as urological emergency in 8.1% of the patients in this study was higher than 7.3% reported by Traore *et al.*¹² in Burkina Faso but lower than 18% and 19.5% reported by Talreja *et al.*³ in Japuir -India and Salako *et al.*⁶ in Ife respectively. Bladder cancer accounted for 81.8% of hematuria in the present study which was slightly higher than 79% reported by Traore *et al.*¹² in Ouahigouya-Burkina Faso. The commonest

histological type of the bladder cancer in this study was squamous cell. This is in keeping with a previous study in Sokoto- Nigeria by Mungadi *et al.*¹⁶, where the squamous cell carcinoma and urothelial carcinoma accounted for 65.1% and 27.9% due to endemicity of vesical schistosomiasis. Squamous cell and transitional cell carcinoma accounted for 57.4% and 38.2% in the present study.

Acute epididymo-orchitis accounted for 13.9% of patients in the present study, which was higher than 3.7% reported by Salako *et al.*⁶ in Ife-Nigeria, 2.3% by Babatunde *et al.*¹⁸ in Zaria-Nigeria and 3.9% reported by Avakoudjou *et al.*⁴ in Cotonou- Benin Republic. This might be contributed by prolonged urethral or suprapubic catheterisation in patients with bladder outlet obstruction before definitive surgery due to the long waiting list. Fournier's gangrene accounted for 5.2% of patients in the present study which was higher than 3.5% reported by Salako *et al.*⁶ in Ife-Nigeria but lower than 8.6% reported by Okeke *et al.*¹⁵ in Lagos- Nigeria. Testicular torsion accounted for 1.7% in the present study which is lower than 7.4% reported by Salako *et al.*⁶ in Ife-Nigeria, 9% by Atim *et al.*¹ in Abuja-Nigeria and 10% by Babatunde *et al.*¹⁸ in Zaria- Nigeria. Urological trauma accounted for 7.5% in the present study which was lower than 12.1% and 10% reported by Okeke *et al.*¹⁵ in Lagos and Salako *et al.*⁶ in Ife- Nigeria.

Urolithiasis was present in 5.8% of patients in the present study which was lower than 8.2% reported by Salako *et al.*⁶ in Ife- Nigeria but higher than 5.5% reported by Talreja *et al.*³ in Jaipur-India. The differences in the incidences of the various emergencies might be accounted for by the availability of other facilities that can manage those conditions successfully.

Acute ischaemic priapism accounted for 2.3% of patients in the present study which was lower than 2.6%, 2.6% and 3.0% reported by Salako *et al.*⁶ in Ife-Nigeria, Avakoudjo *et al.*⁴ in Cotonou-Benin Republic and Okeke *et al.*¹⁵ in Lagos-Nigeria respectively but

higher than 1.3% reported by Fall *et al.*²⁰ in Dakar-Senegal. The incidence might be under-reported in our study as many patients might have stayed at home or presented to herbalists due to a feeling of shyness and guilt and the involvement of external genitalia not taking into cognizance the long-term complication of erectile dysfunction. This may be improved by health education, provision of more privacy and prompt intervention to such patients.

We recorded higher incidence of ureteric obstruction (14.5%) than Babatunde *et al.*¹⁸ (5.4%) in Zaria-Nigeria. The commonest cause of ureteric obstruction (80%) in our study was schistosomal ureteric fibrosis which was contrary to the finding of Babatunde *et al.*¹⁸ in Zaria- Nigeria, where the cause was cervical cancer (53.1%). Schistosomiasis was noted to be the commonest cause of benign upper tract obstruction (28.8%) and obstructive nephropathy (7.5%) in Sokoto-Nigeria in the previous studies by Muhammad *et al.*^{10,11}.

Urosepsis was present in 25.4% of patients in the present study which was higher than 6.6% reported by Salako *et al.*⁶ in Ife- Nigeria. The predominant organism responsible for the urosepsis was *Escherichia coli* which was in keeping with what was reported by Salako ⁶ in Ife-Nigeria and Bonkat in Basel- Switzerland respectively¹⁷.

Acute cord compression and pain syndrome was found in one patient (0.6%). This was lower than 3.8% and 6.5% reported by Babatunde *et al.*¹⁸ in Zaria- Nigeria and Atim *et al.*¹ in Abuja- Nigeria respectively. This was documented to occur in Western World in 5-10% of the metastatic cancer of the prostate in the last 5 years of the terminal disease¹⁹. The rarity of this entity in the current study may be due to non-recognition of acute compression from cancer of the prostate as a urological emergency; thus, such patients were managed by general practitioners, neurosurgeons or orthopedic surgeons. Urinary diversion was the commonest intervention (43.3%) offered as reported by the previous studies

by Avakoudjo *et al*⁴ in Cotonou- Benin Republic (54%), Babatunde *et al*¹⁵ in Zaria- Nigeria (51.7%), Fall *et al*²⁰ in Dakar-Senegal and Talreja *et al*³ in Juipur-India (60%). Urethral catheterization was required in 31% of our patients as compared to 55% reported by Talreja *et al*³ in Juipur-India. Suprapubic catheterization was required in 10.4% of the patients in the present study which was lower than 27.2%, 37.6% and 59.8% reported by Talreja *et al*³ in India, Babatunde *et al*¹⁸ in Zaria- Nigeria and Fall *et al*²⁰ in Dakar- Senegal respectively. Patients with acute on chronic urinary retention were also monitored for post obstructive diuresis and hematuria ex vacuo which were managed appropriately. Wound debridement for Fournier's gangrene was done in 10.5% of patients in this study which was lower than 15.4% reported by Fall *et al*²⁰ in Dakar-Senegal but higher than 1.3% reported by Avaukoudjo *et al*⁴ in Cotonou-Benin Republic. Orchidopexy was performed in 3% of the patients which was lower than 10% reported by Babatunde *et al*¹⁸ in Zaria-Nigeria. Al Ghorab procedure was done in 4.6% of the patients which was lower than 7.7% reported by Babatunde *et al*¹⁸ in Zaria- Nigeria. The Al- Ghorab procedure was noticed to be the effective treatment when the priapism lasted more than 72 hours. This is in agreement with was reported by Muhammad *et al*⁹ in Sokoto- Nigeria. Patients with renal trauma had mild to moderate injuries and responded to non-operative treatment as reported in the literature². But the patients with bladder injuries were repaired in 2.2% of the patients which was lower than the 2.9% reported by Babatunde *et al*¹⁸ in Zaria-Nigeria. Bobo Diallo *et al*²¹ in Guinea- Conakry reported bladder injury in 73.9% and the patients were offered urethral catheterization or suprapubic cystostomy. Patients with urethral injuries had initial suprapubic cystostomy before the definitive repair as reported in the literature²⁷. None of the previous studies reported primary repair for urethral or renal trauma^{5,6,18}. The patients with renal and ureteric stones after the initial

management of the renal/ ureteric colic with analgesics, antispasmodics and hydration had subsequent ureteroscopy and lithotripsy as reported in the literature^{2,7,10}. This is contrary to the study by Babatunde *et al*¹⁸ in Zaria-Nigeria where their patients with urinary stone had open removal due lack of equipment for endoscopic stone removal which is common in many African hospitals including Nigeria. Patients with schistosomal ureteric obstruction and pyonephrosis or nephropathy were offered percutaneous nephrostomy during the acute presentations and subsequently had ureteroneocystomy as in a previous study in Sokoto-Nigeria by Muhammad *et al*¹⁰. Ureteric stenting was offered to patients with incomplete SUO, which was exchanged 6-12 weekly in addition to praziquantel¹⁰. Patients with bilateral ureteric ligation from obstetric and gynecological injuries had emergent exploration and ureteroneocystomy as reported by Babatunde KH *et al*¹⁸ in Zaria. They reported a higher number of ureteral injuries (6.3%) than the present study (1.2%). Urological consultations and team management might have reduced the incidence of obstetrics and gynecology associated ureteric injuries in our setting. Salvage dialysis was offered to patients with bilateral ligation due to uremia as reported by Muhammad *et al* in Sokoto- Nigeria¹¹. All the patients with prostate cancer were offered orchidectomy as reported by Babatunde *et al*¹⁸ in Zaria-Nigeria. The present study recorded better outcome but more mortality as compared to the study by Atim in Abuja-Nigeria and Salako *et al* in Ife- Nigeria. The rates of successful discharges and mortality in the present study were 92.5%, and 2.9% which were higher than 44.6%, 63.6% and 1.1 % and 2.7% reported by the previous studies respectively^{1,6}. The differences in the rate of discharges might be accounted for by differences in the methods of reporting outcome and protocol of management. In the present study all the emergency cases were admitted while in the study Atim *et al*¹ in Abuja only 47 patients (51.1%) were admitted. The

higher mortality rate in our study may be attributed to the out-of-pocket payment for emergencies in our setting. In Ife-Nigeria, 24-hour free emergency care is available for patients in Accident and Emergency⁶. Another cause of morbidity and Mortality in our setting is late presentation as most patients present initially to peripheral hospitals before referral to our hospital. This trend was also noted by Salako *et al*⁶ in Ife-Nigeria.

The limitation of this study is that it is retrospective, done over a short period and single center which limits the sample size.

CONCLUSION

The most common urological emergencies in our practice were acute urinary retention from BPH, stricture, prostate cancer and acute scrotum from epididymo-orchitis, Fournier's gangrene and testicular torsion. Other emergencies include schistosomal ureteric obstruction, gross haematuria, urological trauma and renal stone colic. The commonest emergent treatment offered was urinary diversion with or without Antibiotics, fluid, and blood therapy. The most common definitive treatments offered were prostatectomy, urethroplasty and uretero-neocystostomy. Prompt intervention is associated with good outcome.

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