Urological Emergencies; Spectrum of cases seen over a three year period in a Tertiary care Teaching Hospital in West Africa

Abstract

Background: Urological emergencies are genitourinary conditions requiring immediate intervention to reduce morbidity and prevent mortality. The intervention may be medical or surgical. It constitutes a significant part of emergency presentations in our centre, however, there is a paucity of data on the pattern of these emergencies in our sub-region.

Objective: To determine the prevalence and pattern of urological emergencies in our centre aiming at bridging the gap in the knowledge of the epidemiology of urological emergencies in this sub-region to achieve efficient use of available scarce resources.

Methodology: The study was a three-year retrospective evaluation of urological patients presenting at the Accident and Emergency Department of the University of Port Harcourt Teaching Hospital. The accident and emergency department admission register and emergency theatre register were retrieved, and data was extracted, coded into Excel, and analyzed using SPSS Version 26.

Results: A total of eighteen thousand, one hundred and ninety-four emergencies were admitted over the study period of which Five hundred and ninety-two (592) patients had urological conditions. This gave a prevalence of urological emergencies was 3.25%. The ages ranged from 4 years to 100 years with a mean age of 56.0±20.18. Five hundred and forty-six (92.2%) were male while 46 (7.8%) were female. Urinary retention (281, 47.47%) was the commonest

emergency followed by trauma (71, 10.64%), haematuria (99, 8.78%), and testicular torsion 33 (5.57%). Bladder injury was the commonest traumatic injury. Urethral catheterization 252 (42.57%) was the commonest emergency intervention while suprapubic cystostomy 60 (34.29%) was the commonest operative procedure.

Conclusion: The prevalence of urological emergencies in our Centre is 3.25% with urinary retention being the commonest emergency.

KEYWORDS: Urological emergencies, Urinary retention, hematuria, urethral catheterization, suprapubic cystostomy

INTRODUCTION.

Urological emergencies are an important part of urologic practices hence prompt diagnosis and interventions are necessary to reduce morbidity, preserve function and prevent mortality. Thirty-five percent (35.0 %) of urologic cases present as an emergency.[1] The pattern of the emergencies varies among sub-region.[2,3] Males are more involved than females. [4,5] No age group is exempted although the patterns of the emergencies vary among age groups.[6] Urinary retention is the most common urological emergency in literature [4,7]. Globally it is estimated that one-third of the burden of disease is attributable to surgical conditions however five billion people lack access to surgical care.[8] Sub-Saharan Africa, is more vulnerable because of the fragile and underfunded health system, worsen by a depressed economy, poverty and ignorance.[9] Availability of data is vital in planning and prioritization of healthcare delivery in the face of scarce resources.[10] Paucity of data on urological emergencies in this sub-region often leads to underestimation of the problem. Knowledge of the prevalence and pattern of urological emergencies in the sub-region

will assist in effective planning and utilization of the available scarce resources in the face of a depressed economy. This study aims at bridging the gap in the knowledge of the prevalence and pattern of urological emergencies in the sub-region for effective and efficient health care delivery.

Methodology: This was a three-year (1st January 2019 to 31st December 2021) retrospective evaluation of urological patients presenting at the Accident and Emergency Department of the University of Port Harcourt Teaching Hospital. University of Port Harcourt Teaching Hospital is a training and referral center located in Rivers State, South-South Region of Nigeria. The accident and emergency department admission register and emergency theatre register were retrieved. Data were extracted, coded into Excel, and analyzed using Statistical Package for the Social Sciences (SPSS) software version 26. The data extracted from the register includes age, sex, the reason for presentations, and emergency intervention rendered.

Results: Five hundred and ninety-two (592) patients with urological emergencies had their data extracted. The prevalence of urological emergencies was 3.25% (592/18,194). The ages range from 4 years to 100years with a mean age of 56.0±20.18. Sixty-five percent (65%) of the patients were fifty years and above with seventy years and above (≥70) being the commonest age group seen (29.39%). 546 (92.2%) were male while 46 (7.8%) were female with a sex ratio of 12:1. Urinary retention 281 (47.47%) was the commonest emergency followed by hematuria 99 (16. 72%), trauma 71 (11.99%), and testicular torsion 33 (5.57%). Benign Prostatic enlargement 177(62.99%) was the commonest cause of urinary retention. Prostate cancer account for 58.6% of the causes of haematuria. Iatrogenic injuries account for 16 (22.44%) of traumatic emergencies. Bladder injury, urethral injuries, and penile fracture account for 29.58%,21.13%,

and 8.45% of the traumatic injuries respectively. Urethral catheterization 252 (42.57%) was the commonest emergency intervention while suprapubic cystostomy 60 (34.29%) was the commonest operative procedure. The under-listed tables and figure summarizes the results

Table 1: Socio-demographic characteristics of patients (*n=592*)

Variable	**Frequency**	**Percent (%)**
Age		
≤19	22	3.72
20-29	61	10.30
30-39	63	10.64
40-49	61	10.30
50-59	73	12.33
60-69	138	23.31
≥70	174	29.39
Mean (SD)	56.0 ± 20.18	

Gender		
Male	546	92.23
Female	46	7.77

Figure 1: distribution of the causes of haematuria.

Table 2. Prevalence of Urological Emergency in UPTH (*n=18, 194*)

Variable	**Frequency**	**Percent (%)**
Urological Emergency		
Yes	592	3.25
No	17,602	96.75

Table 3: Reasons for Presentation (*n=592*)

Reasons for presentation	**Frequency**	**Percent**
Urinary retention	281	47.47
Haematuria	99	16.72

Trauma	71	11.99
Testicular torsion	33	5.57
UTI	29	4.9
Nephrolithiasis	18	3.04
Epididymorchitis	14	2.36
Priapism	13	2.2
Fournier’s gangrene	9	1.52
Paraplegia	7	1.18
Low back pain	3	0.51
Painful renal cyst	2	0.34
Retained catheter	2	0.34
Uraemic encephalopathy	2	0.34
Ureteric stone	2	0.34
Urethritis	2	0.34
Enuresis	1	0.17
Genital wart	1	0.17
Penile ulcer	1	0.17
Post-biopsy rectal bleeding	1	0.17
Scrotal abscess	1	0.17

Table 4: Causes of Urinary Retention (n=281)

Causes Of Urinary Retention	Frequency	Percent
BPE	177	62.99
CAP	50	17.79
Urethral stricture	40	14.23
Pelvic Tumour	4	1.42
Bladder calculi	3	1.07
UTI	2	0.71
Bladder tumour	1	0.36
Blocked catheter	1	0.36
Neurogenic	1	0.36
PUV	1	0.36
Vaginal prolapse	1	0.36

Figure 2: pie chart showing the distribution of the causes of haematuria

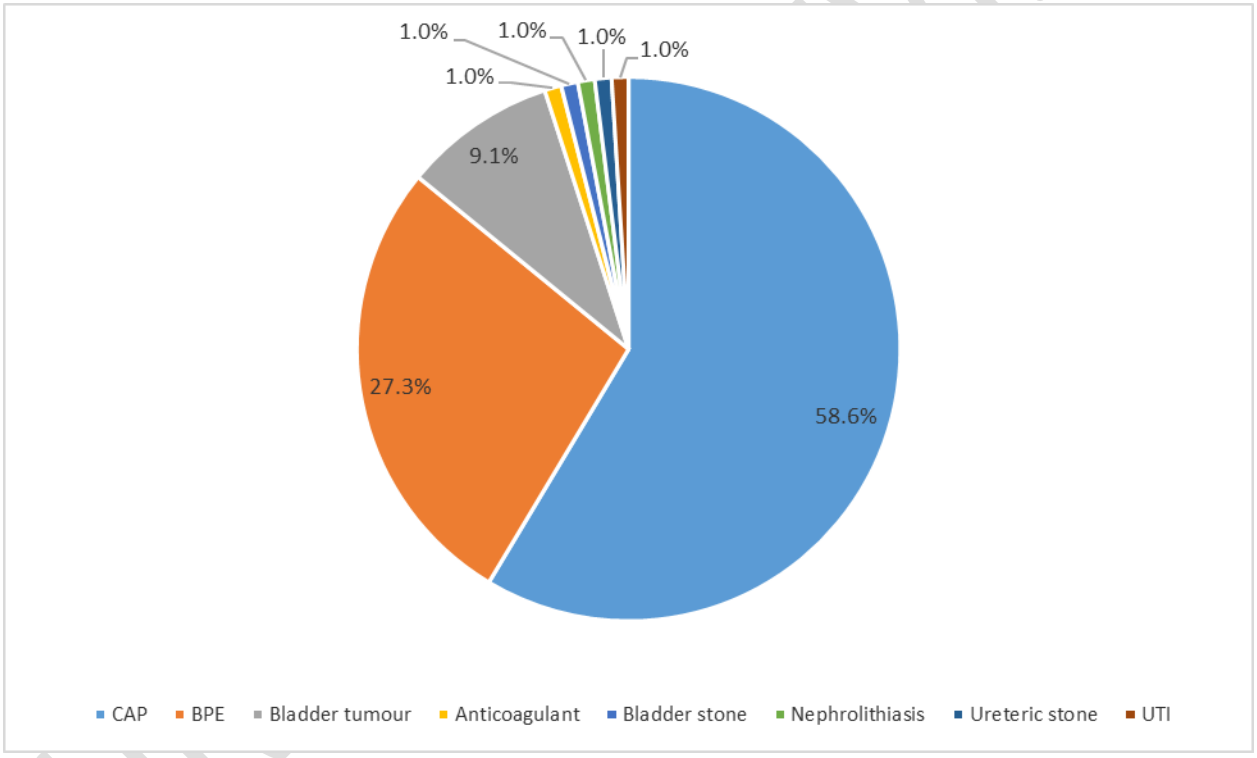

Table 5: Nature of Trauma (n=71)

Nature of Trauma	Frequency	Percent
Non-iatrogenic	55	77.46
Iatrogenic	16	22.44

Table 6: Traumatic Injuries (n=71)

Traumatic Injury	Frequency	Percent (%)
Bladder injury	21	29.58
Scrotal laceration	16	22.54
Urethral injury	15	21.13
Ureteric injury	6	8.45
Penile fracture	6	8.45
Renal injury	3	4.23
Pathological fracture	2	2.82
Penile amputation	1	1.41
Penile laceration	1	1.41

Table 7: Emergency Intervention (n=592)

Emergency Intervention	Frequency	Percent
Urethral catheterization	252	42.57
Conservative	129	21.79
SPC	60	10.14
Bilateral orchidopexy	31	5.24
Transfusion	18	3.04
Bladder repair	16	2.7
Suturing of scrotal laceration	15	2.53
Bladder irrigation	12	2.03
Shunt procedure	10	1.69
Debridement	9	1.52
Cystoscopy	8	1.35
Penile fracture repair	6	1.01
Repair of ureteric injury	6	1.01
Emergency prostatectomy	5	0.84
Back slab	2	0.34
Emergency nephrectomy	2	0.34
Orchidectomy + pexy	2	0.34
Removal of retained catheter	2	0.34
Wound care	2	0.34
Biopsy	1	0.17
Incision and drainage	1	0.17

Penile stump refashioning	1	0.17
Suturing of penile laceration	1	0.17
Vesicourethrotomy	1	0.17

Table 8: Operative Intervention (n=175)

Variables	**Frequency**	**Percent**
Suprapubic cystostomy	60	34.29
Bilateral orchidopexy	31	17.71
Bladder repair	16	9.14
Suturing of scrotal laceration	14	8
Shunt procedure	10	5.71
Debridement	9	5.14
Cystoscopy	8	4.57
Penile fracture repair	6	3.43
Repair of ureteric injury	6	3.43
Emergency prostatectomy	5	2.86
Emergency nephrectomy	2	1.14
Orchidectomy + pexy	2	1.14

Suturing of penile laceration	2	1.14
Genital wart biopsy	1	0.57
Incision & drainage	1	0.57
Penile stump refashioning	1	0.57
Vesicourethrotomy	1	0.57

DISCUSSION:

From our study, the prevalence of urological emergencies was 3.25%. This was similar to that reported by Salako in Southwest, Nigeria; where he reported a prevalence of 3.2%. [11] However this was lower than the prevalence in Burkina Faso and France where Traore and Boissier reported 3.7% and 4.2% respectively. [12, 13] The mean age of our patients was 56.0 ± 20.18 years. Most of our patients presented due to complications of prostate-related diseases, and this disease occurs commonly in men above 50 years. This finding is similar to what has been reported in several studies. Studies in different African countries documented mean ages between 56 to 59 years[3,12,14,15]. In Nigeria, Okeke in the Southeast and Muhammad in the Northwest reported a mean age of 50.6 and 45.9 years respectively which was similar to our study [4,7].

Male predominance has been the norm in literature and our study was not different as the sex ratio of 12:1 was found. This is due to the fact that because presented with prostate-related problems which inflict only on men. This finding is similar to that of Traore et al who also reported male predominance with a ratio of 12.05:1.[12] However higher male preponderances

have been reported. Salako, Babatunde, and Okeke et al reported a sex ratio of 17:1, 23:1, and 28.6:1 respectively. [11,16,4]

Urinary retention has been reported as the commonest urological emergency in most literature. It is the inability to void despite a full bladder. It can be acute where there is a sudden onset of inability to void despite intense urge associated with severe pain or chronic which is gradual and usually without pain. For this study, both acute and chronic presentations were reported together as urinary retention. It was the commonest urological emergency in our study accounting for 47.47%. This was similar to the 48.28% reported by Traore in Burkina Faso.[12] Diallo, Okeke, and Diabete et al reported that urinary retention accounted for 57.3%,59.6%, and 66.13% respectively.[17,4,14] The difference in the frequency of urinary retention in our center when compared to others may be due to the availability of functional peripheral facilities where some patients present and had their retention relieved before being referred for care. The prostate tumor was the primary etiology of urinary retention in 80 % with benign prostatic enlargement accounting for 62.99% which is similar to 62.5% and 67.4% reported by Cyprien and Okeke respectively.[18,4] Urethral stricture disease is a common cause of urinary retention among young men. In our study, 40 (14.23%) of the patients with urinary retention had urethral stricture as the primary etiology. This finding is in keeping with the report from Ghana where urethral stricture accounted for 14.7% of urinary retention.[19]

Gross haematuria was the reason for presentation in 16.72% with prostate cancer as the primary etiology of haematuria in 58.59% followed by bladder tumour (27.27%). This is different from the finding by Muhammad in Sokoto where haematuria accounts for 38.1 % of the emergencies and bladder cancer were the commonest cause of haematuria.[7] Also Traore et al in Burkina Faso reported that bladder tumors account for 78.95% of the patients presenting with haematuria.[12]

The marked difference could be due to health-care-seeking behavior between the sub-regions and the higher incidence of mitotic lesions of the prostate in our sub-region.

Trauma is a major cause of morbidity and mortality globally accounting for approximately 10% of all mortalities.[20] Genitourinary tract trauma accounts for 10% of patients presenting with trauma.[21] In this study, genitourinary tract trauma account for 11.99% of emergencies. This was higher than that reported by Cassell and Traore where trauma accounted for 6.6% and 6.51% respectively.[22, 12] Bladder injury was the commonest traumatic injury accounting for 29.58% followed by scrotal laceration and urethral injury accounting for 22.54% and 21.13% respectively. The findings in this study was different from that of Cassell and Traore who saw more traumatic urethral injuries- 42.9% and 47.06% respectively. The higher frequency of traumatic injuries in our study could be a result of the increased use of automobiles in the sub-region which increases accidental injuries. The reduction in urethral injuries may be due to proper urethral catheterization which reduces catheter-related urethral injuries in our sub-region. Urolithiasis accounted for 3.38% of urological emergencies in our study. This was similar to the 3.3% reported in Abuja.[23] Testicular torsion contributed 5.57% of the emergencies. This was lower than the 9.8% reported in Abuja.[23] These regional differences could be due to regional differences in healthcare-seeking behaviour and late presentation is still a problem in our sub-region evidence as 2 (1.14%) of the patients with torsion presented late with gangrene of one of the testes and subsequently had unilateral orchidopexy and Orchidectomy for the gangrenous testis. 13 (2.2%) of our patients presented with priapism. This was in keeping with the incidence of 2.6% reported in Cotonou, Benin.[24]

Urethral catheterization was the most common emergency intervention (42.57%), consistent with findings from other studies, although the frequency here was slightly lower.[4,17] The suprapubic

cystostomy was the most performed surgical procedure (34.29%). This rate was similar to what was reported in Segou, Mali and Kano, Nigeria where up, to 38% and 39% of urinary retention were relieved by suprapubic cystostomy respectively.[25, 26] Orchidopexy account for 18.85% of the surgical intervention offered. This was much higher than the 1.7% reported in Northern Nigeria. [7] This difference could be explained by the higher incidence of testicular torsion in our study compared to theirs. Wound debridement accounted for 9 (5.14%) of the surgical procedures done. This was lower than the 8.4% reported by Okeke et al in the Southeastern part of Nigeria.[4] The difference could be explained by our study's lower incidence of Fournier's gangrene.

CONCLUSION:

Urological emergencies are common, however, there is a paucity of data in our sub-region. Our study revealed a prevalence of 3.25% and urinary retention as the most common emergency. The data provided by this study will help in bridging the knowledge gap and also in health care planning. There is need for training of para medical staff and first responders in simple urological emergency interventions to improve prognosis.

Limitation.

Retrieving data from the admission register limit the scope of the study.

REFERENCES

1. Mungadi IA, Khalid A. Spectrum of urological cases in a West African Tertiary Hospital. Annals of African Med 2021;20:14-8.
2. Martin L, Pillot P, Bardonnaud N, Lillaz J, Chabannes E, Bernardini S et al. Evaluation of the activity of a urological emergency unit in university hospital. Prog Urol. 2014 Jan;24(1):62-6.
3. Fall B, Diao B, Fall PA, Diallo Y, Sow Y,Ondongo AA et al. Urological emergencies at the Dakar University teaching hospital. Epidemiological, Clinical and therapeutic features. Prog Urol 2008; 18:650-3
4. Okeke CJ, Obi AO, Odoemene CA, Ojewola RW, Afogu EN, Odo C, et al. Urological emergencies in a Nigerian teaching hospital: Epidemiology and treatment. Nigerian Journal of Clinical Practice 2021; 24:400-5.
5. Yenli EM, Aboaha K, Gyasi-Sarponga CK, Azorliade R, Arhina AA. Acute and chronic urine retention among adults at the urology section of the Accident and Emergency Unit of Komfo Anokye Teaching Hospital, Kumasi, Ghana. African Journal of Urology. 2015 Aug 18;21(2):129-36.
6. Dejinnin AJ, Natchagande G, Soumanou F, Oliyide A, Yevi M, Hodonou F, et al. Genitourinary emergencies at University Hospital in Cotonou. Med Surg Urol 2017;3-7

7. Muhammad AS, Agwu NP, Abdulwahab-Ahmed A, Onwuasoanya UE, Khalid A, Obadele OG, et al. Spectrum and Management of Urological Emergencies at Tertiary Hospital in North Western Nigeria. J Med & Bas Sci Res 2021; 2:84-6
8. Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA et al. Global, Surgery 2030: Evidence and solutions for achieving health, welfare and economic development. Lancet 2015; 386:569-624.
9. Saraceno B, Van OM, Batniji R. Barriers to improvement of mental health services in low-income and middle-income countries. Lancet 2007;370: 1164-74
10. Adane K, Gizachew M, Kendie S. The role of medical data in efficient patient care delivery: a review. Risk Manag Healthc Policy, 2019;12:67-73
11. Salako AA, Badmus TA, Babalola RN, Igbokwe MC, David RA, Onyeze C, et al. Urologic emergencies in a low-resource setting: A 10-year review from South Western Nigeria. Niger J Med, 2020;29:291-4
12. Traore MT, Marie CA, Yameogo KD, Kabore M, Ouedraogo S. Epidemiology of Urological Emergencies at the Regional University Hospital Center of Ouahigouya, Burkina Faso. Open J Urol. 2020; 10:177-83
13. Boissier R, Savoie PH, Long JA. Epidemiology of urological emergencies in France. Prog Urol.2021; 31:945-55
14. Diabaté, I, Ondo, C.Z., Sow, I., Ba, A. and Mboup, C. Urological emergencies at the Hospital of Louga, Senegal: Epidemiologic features and evaluation of the Management. African Journal of Urology 2015; 21:181-6.

15. Bobo DA, Bah I, Diallo TM, Bah OR, Amougou B, Bah MD. et al. The profile urological emergencies at the Conakry University Teaching Hospital, Guinea. Prog Urol. 2010 Mar;20(3):214-8.
16. Hamza BK, Ahmed M, Tolani MA, Awaisu M, Lawal AT, Oyelowo N et al. Spectrum of Urological emergencies and surgical interventions in a single tertiary health center. African J of Emergency Med 2021; 11:223-6
17. Dialllo TO, DiaDiallo, Bah OR, Urological emergencies in a regional hospital in Senegal: a 20-month retrospective study.Pan African Med J, 2022;42:302-5.
18. Yenli EM, Aboah K, Sarpong GK, Azorliade R, Arhin AA. Acute and chronic urine retention among adults at the urology section of the Accident and Emergency Unit of Komfo Anokye Teaching Hospital, Kumasi, Ghana. African J urol, 2015;21:129-36.
19. Cyprien Z, Timothee K, Adama O, Karim PA, Delphine YO, Lazard BB, et al. Acute urinary retention among adult men at Bob-Dioulasso University Teaching Hospital: Epidemiology, Aetiologies and, Initial Management. Open J Urol, 2015;5:91-6
20. Bryk DJ, Zhao LC. Guideline of guidelines: a review of urological trauma guidelines. BJU international. 2016 Feb;117(2):226-34.
21. McGeady JB, Breyer BN. Current epidemiology of genitourinary trauma, Urol Clin North Am 2013,40:323-34.
22. Cassell 111 AK, Manobah B. Management of genitourinary trauma- current evaluation from the Sub-Saharan region: A systematic review. World J Crit Care Med 2021; 10:377-89.

23. Atim T, Obiatuegwu KO, Eniola SB, Ajibola HO,AIsuodionoe-Shadrach OI, Dakum NK. Urological Emergencies at the University of Abuja Teaching Hospital Gwagwalada, Nigeria: Spectrum and Initial Outcome. Niger J Med 2017: 235-9.

24. Avakoudjo JDG, Soumanou FKY, Lossitode F, Hodonou FD, Gandaho Ike. Traumatic Urologic: An Experience of University Hospital of Cotonou. J Med Surg Pathol, 2018;3(3):161-4.

25. Abdullahi M, Yunusa B, Mashi SA, Aji SA, Alhassan SU. Urinary retention in adultadult patients: Causes and complications among patients managed in a teaching hospital in North Western Nigeria. Open J Urol 2016; 6:114–21

26. Kone SI, Traore M, Yattara I, Traore T, Hiadara K, Omam FM et al. Management of Urological Emergencies at the Nianankoro Fomba Hospital in Segou: A Case Report of 72 patients. Open J Urol 2022; 12: 242-7.