

# Urological Emergency in a University Hospital Setting: Epidemiological, Diagnostic and Therapeutic Aspects

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**Abstract:** *Aim:* To report the epidemiological and diagnostic aspects and evaluate the management of urological emergency in a university hospital. *Patients and method:* We conducted a single-center retrospective descriptive study over the period January 2015 to December 2017. We collected medical records of patients with urological emergency referred by the urology care team in our center. *Results:* Three hundred patients were identified over a period of 36 months. The mean age of the patients was 47.8±22.9 years (2 years - 92 years). The sex-ratio was 10.5. The most common emergency was haematuria (25.6%) and urinary retention (21.6%). Urogenital infections were noted in 19% of patients mostly scrotal cellulitis (10%) and acute pyelonephritis (3.6%). The number of emergency hospitalization was 230 (76.7%). We performed 143 emergency surgical procedures (47.6%). The overall mortality rate was 1%. *Conclusion:* Urological emergency were dominated in our context by hematuria and urinary retention occurring most often in young adults. However, infectious and lithiasic diseases remain common conditions.

**Keywords:** Emergencies, Urinary Retention, Hematuria, Cellulitis

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## 1. Introduction

Emergency evoke suffering or a critical health situation requiring rapid management. Urologists, in their daily practice face a large number of situation that require emergency management characterized by pain and a risk of serious functional sequelae or death of the patient [1]. In Africa urological emergencies are dominated by the urinary retention [2, 3] while in Europe renal colic prevails.

[1, 4, 5]. The aim of our work was to assess the epidemiological, diagnostic and therapeutic aspects of urological emergency in a university hospital.

## 2. Patients and Method

We conducted a single-center descriptive study of over the period January 2015 to December 2017. We collected data from the medical records of patients referred to the emergency units of the urology-andrology department of our center. The variables studied were: the age and sex of the patients, the nature of the urological emergency and its emergency management. Data collection and analysis were done with Excel 2017 Software. We performed descriptive analysis.

### 3. Results

Three hundred patients were identified, representing a hospital frequency of 8.3 cases per month. Mean age of the patients was  $47.8 \pm 22.9$  years (2 years to 92 years). The sex-ratio was 10.5. The predominant emergencies were hematuria (25.6%) and urinary retention (21.6%). (Table 1). The number of emergency hospitalization was 230 (76.7%). We performed 143 emergency surgical procedures (47.6%). The main procedure performed was exploratory scrototomy (41.9%), debridement of the external genitalia with cystostomy (23.8%) and a suprapubic catheter placement (11.9%) (Table 2). Three patients died, two patients with scrotal cellulitis and the other death was reported in a patient with obstructive anuria. The overall mortality was 1%. Haematuria was common in elderly (mean age=64.5 years) and male (sex ratio=7.5) patients. The etiology of haematuria was dominated by bladder tumors (42%) and prostate tumors (39%) (Figure 1). The emergency management consisted in placing a 3-way transurethral bladder catheter associated with bladder irrigation with physiological saline. Twelve patients had an iso-group iso-rhesus blood transfusion before severe anemia. Urinary retention was commonest among the elderly (mean age=64.9 years) and the males (sex ratio=12). Chronic incomplete retention of urine

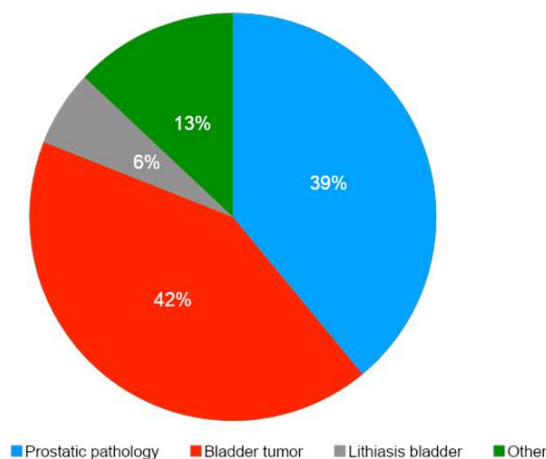
was more frequent (83.1%) compared to the acute retention (16.9%). The etiology of urinary retention was dominated by prostate tumors (67.7%) and urethral stricture (16.9%) (Figure 2). Management of urinary retention consisted of drainage by transurethral bladder catheterization (67.7%) and suprapubic catheterization (32.3%). Scrotal cellulitis accounted for 10% of urological emergencies and was the main infectious emergency (52.6%). In this case, a suprapubic catheter associated with debridement and antibiotic therapy was systematically performed. The second infectious emergency was acute pyelonephritis (19.3%) occurring mainly in young adults with an average age of 44.5 years. The symptomatology was dominated by pain in the lumbar fossa (100%) and infectious syndrome (63.6%). All patients diagnosed with acute pyelonephritis were hospitalized and treated with intravenous antibiotic therapy and subsequent oral antibiotherapy after 2-3 days of apyrexia. Torsion of the spermatic cord was noted in 53 patients (17.6%) with a mean age of 22.9 years. Eighteen patients underwent orchiectomy due to a necrotic testicle. Penile fracture due to coitus misstep was the main traumatic emergency (4.6%). Seventeen patients (5.6%) presented a priapism, including five cases in a context of sickle cell disease (AS Hemoglobin).

**Table 1.** Distribution of patients according to urological emergency.

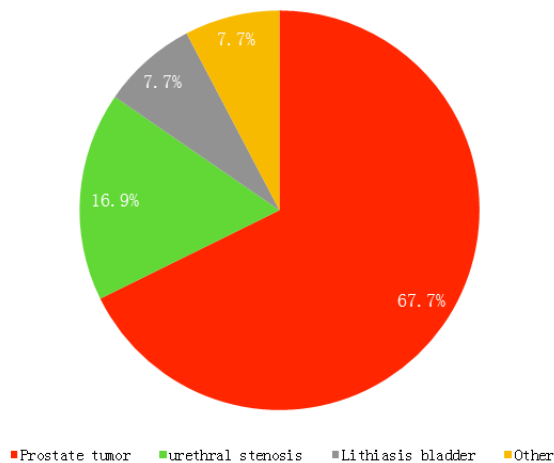
Emergency diagnosis	Number (n)	Frequency (%)
Haematuria	77	25,6
Urinary retention	65	21,6
Incomplete urinary retention	54	18
Complete urinary retention	11	3,6
Urogenital infection	57	19
Scrotal cellulitis	30	10
Acute pyelonephritis	11	3,6
Acute orchiepididymitis	7	2,3
Acute Prostatitis	5	1,6
Fournier's gangrene	4	1,3
Spermatic cord torsion	53	17,6
Uro-genital trauma	27	9
Penile trauma	14	4,6
Scrotal trauma	7	2
Kidney trauma	4	1,3
Bladder trauma	2	0,6
Priapism	17	5,6
Nephretic colic	3	1
Obstructive anuria	1	0,3
Total	300	100

**Table 2.** Distribution of emergency procedures.

Surgical Treatment	Number (n=143)	Frequency (%)
Exploratory scrototomy	60	41,9
Debridement + diversion cystostomy	34	23,8
Cavernous sponge shunt	16	11,2
Cavernosponge anastomosis	12	8,4
Suprapubic tube	17	11,9
Nephrostomy	4	2,8
Total	143	100



**Figure 1.** Distribution of different etiologies of haematuria.



**Figure 2.** Distribution of etiology of urinary retention.

## 4. Discussion

There is a clear regression of the number of referral to urological emergency unit in our center from 64.9 cases per month in the series of Fall [3] in 2008 to 8, 3 in our series. This drop could be explained by the increase in urology centers in Dakar and its suburbs but also by the growing number of urologists surgeons trained who are subsequently assigned peripheral area. So in two Senegalese series made in rural areas, Diabate et al. in Louga and Diamé et al. in Ourosogui [6, 7] reported a respective frequency of 11.7 and 85.1 cases per month. Besides the frequency, there is a variation of the average age in our center which passed in 11 years from 58.8 years [3] to 47.8 years. This decrease in average age is probably due to the increase in haematuria associated with bladder tumors. Indeed, the latter most often interest young adults [8], there is also an increase in the frequency of urogenital infections which are affections of young adults. Urological emergency most often interest men as evidenced by the series by Diabaté et al. and Diallo et al. [6, 2]. This male predominance is explained by the frequency of andrological emergency

(orchid-epididymitis, priapisms, prostatitis, spermatic cord torsion) but also by the fact that the main emergency in our series (urinary retention and haematuria) were related to prostate tumors. Haematuria was the main emergency in our series and supplanted the urinary retention which was the first emergency in the series of B Fall et al. [3]. This increased prevalence of hematuria is closely correlated with the increased number of bladder tumors [8]. However, urinary retention remains a very common emergency. In most African series, it remains the first urological emergency and is mainly related to prostate tumors [2, 3, 6, 9]. Indeed in our context due to the ignorance of the disease and the limited health coverage in the community, these prostate tumors are most often diagnosed at an advanced stage and in particular the urinary retention [9, 10]. Urogenital infections constituted an important part of urological emergency in our series with scrotal cellulitis being the main threat. While in the European series the prevalence of scrotal cellulitis is almost zero [1, 4, 5]. Scrotal cellulitis was the primary cause of death in our series. Indeed scrotal cellulitis is a medical-surgical emergency that can cause severe sepsis. Reducing the prevalence of scrotal cellulitis would require prevention and early management of urethral stenosis. Our emergency hospitalization rate was high compared to those reported in African series [3, 6]. This is due to the high prevalence of haematuria, incomplete chronic urinary retention and scrotal cellulitis in our series. Mortality was low in our series, however Diabaté et al. [6] did not report any death in their series.

## 5. Conclusion

Urogenital tumors (bladder, prostate) are the main causes of urological emergency dominated by haematuria and urinary retention. Primary prevention of these emergency is primarily based on early and adequate management of genitourinary tumors.

## Conflict of Interest Statement

All the authors do not have any possible conflicts of interest.

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