

# Management of Non-Traumatic Urological Emergencies at Souro Sanou University Teaching Hospital of Bobo-Dioulasso (Burkina Faso)

Ouattara Adama<sup>1</sup>, Paré Abdoul-Karim<sup>1\*</sup>, Yé Delphine<sup>1</sup>, Simporé Moahmed<sup>1</sup>, Babagana Mustapha Abubakar<sup>2</sup>, Rouamba Mickael<sup>1</sup>, Kaboré Aristide Fasnewindé<sup>3</sup>, Kambou Timothée<sup>1</sup>

<sup>1</sup>Division of Urology, Souro Sanou University Teaching Hospital, Bobo-Dioulasso, Burkina Faso

<sup>2</sup>Department of Surgery, Federal Medical Center, Nguru, Yobe State, Nigeria

<sup>3</sup>Division of Urology, Yalgado Ouedraogo University Teaching Hospital, Ouagadougou, Burkina Faso

Email: \*boupare@yahoo.fr

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## Abstract

**Background:** Generally, urological emergencies are assumed not to be very common, however, recent reports showed that they constitute an important aspect of the day-to-day urological practice. If not well and promptly managed, they may lead to serious morbidity or mortality. **Objectives:** To study the pattern of presentation, diagnosis and outcome of management of non-traumatic urological emergencies seen at the Emergency Department of Souro Sanou University Hospital in Bobo-Dioulasso. **Patients and Methods:** This was a retrospective and descriptive study over four years. It included patients of all ages and both sexes, admitted for non-traumatic urological emergencies in the surgical emergency department of Souro Sanou University Hospital. It took place from January 1, 2017 to December 31, 2020. **Results:** A total of 584 patients were reviewed in our study. Non-traumatic urological emergencies account for 6.3% of all surgical emergencies seen during the study period. The male-to-female ratio was 9.2 to 1. The mean age of the patients was  $51.9 \pm 23.9$  years. Forty-five per cent of the patients presented within 48 hours of symptoms. The vast majority of the patients presented with difficulties with passing urine (41.6%), followed by cases of hematuria (18.4%). On admission, 154 patients (26.4%) presented with severe conditions such as anemia as seen in 40.9% of the cases and deterioration in the general health condition as seen in 34.4% of the patients. Leukocytosis was noted in 18.7% of the patients and anemia in 17.9%. Urine culture was posi-

tive in 15.4% of the patients and *Escherichia coli* was the most common pathogen found (40.6%). Ultrasound was the most requested examination (81.2%), followed by a computerized tomography (CT) scan (22%). The most frequent diagnoses were urine retention (42.9%), hematuria (16.9%) and renal colic (10.1%). Emergency interventions were carried out in 525 patients (89.9%) who include bladder catheterization (46.1%), bladder lavage and/or bladder irrigation (20.9%) and suprapubic cystocatheterization (10.1%). Most of the patients (61.3%) were discharged after a mean stay in the hospital of about  $5.1 \pm 7.5$  days. A mortality rate of 3.8% was also recorded among the patients studied. **Conclusion:** Non-traumatic urological emergencies are common and are an important aspect of daily urological practice. The majority of the patient presents late with usually a severe form of the disease, which adversely affects the outcome even after treatment.

### Keywords

Non-Traumatic, Urological Emergency, Acute Urine Retention, Renal Colic, Hematuria

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## 1. Introduction

A urological emergency is a critical clinical situation in the urological system that requires an urgent therapeutic intervention [1]. There are several non-traumatic pathologies of the urinary tract in both sexes that can affect the normal functioning of the urinary system. These may require urgent intervention to alleviate symptoms, restore normal anatomy and physiology or prevent further damage to the system. Urological emergencies can be traumatic or not. Kesler and Bauml [2] in a clinical review found priapism, paraphimosis, testicular torsion and fournier's gangrene to be the four most common non traumatic urologic emergencies. In France, at the Pitié-Salpêtrière Hospital in Paris, 15.6% of hospital admissions were for non-traumatic urological emergencies [1]. In Spain Muntaner *et al.*, [3] reported 1504 urological emergencies in one-year retrospective study; they found that the most common diagnosis in both males and females was renal colic, urinary retention, cystitis and hematuria. In Africa, Avakoudjo [4] in Benin found that non-traumatic urological emergencies account for 92.7% of all urological emergencies. Likewise, Halidou in Niger [5] found 89.7% of all urological emergencies and Fall [6] in Dakar reported 94.6%. In Burkina Faso, a study conducted by Zango *et al.* [7] in 2010 found that non-traumatic urological emergencies accounted for 93.3% of all emergency surgical admissions at the University Hospital Yalgado Ouedraogo in Ouagadougou. The purpose of this study is to retrospectively study the pattern of presentation and management of non-traumatic urological emergencies at the Souro Sanou University Hospital in Bobo Dioulasso with the view to improve the management of such cases in the future.

## 2. Patients and Methods

This was a cross-sectional retrospective study of medical records of all the patients who were managed for non-traumatic urological emergencies in Souro Sanou Teaching Hospital from January 1, 2017, to December 31, 2020. The data were retrieved from case notes, registers in accident and emergency, theatre, out-patient unit, and wards and were transferred to a proforma form. Detailed information about the patients was retrieved such as biodata, presenting complaints, clinical evaluation findings, diagnoses and treatment outcomes. Case notes with incomplete information and duplicates were excluded. Descriptive statistics were presented in the form of frequencies, percentages, and proportions for categorical variables. Data analysis was carried out using Epi info 7.2.2.2 French version 2017. The study has been performed with the approval of a medical ethics committee.

## 3. Results

During the 4 year study period, 584 patients were admitted to the surgical emergency department for non-traumatic urological emergencies accounting for 6.3% of all surgical emergencies seen. Non-traumatic urological emergencies accounted for 90.8% of all urological emergencies with an annual frequency of 146 cases per year. The male-to-female ratio was 9.2:1. The mean age of the patients was  $51.9 \pm 23.9$  years with the ages ranging from 1 year to 107 years. The modal age group was 61 - 80 years (37.5%) and most of the patients (52.6%) were farmers or breeders, followed by those working in the informal sector (10.6%) and students (10.3%). Slightly more than half (52%) of the patients came from urban areas. The majority of the patients (69.5%) were referred from other healthcare facilities.

Forty-five per cent of the patients presented within 48 hours of symptoms. The symptoms were sudden in onset in 26% of the patients, and many of them (41.6%) presented with difficulties with micturition followed by hematuria (18.4%). **Table 1** gives the distribution of patients according to clinical data.

Background history of prostate tumors (22.1%), urinary schistosomiasis (4.3%) and recurrent urinary tract infections (2.6%) has been reported in our patients; in addition, 2.4% of patients had sickle cell disease.

On admission, 154 patients (26.4%) showed signs of disease progression with the majority having clinical anemia (40.9%) and deterioration of the general clinical condition (34.4%) (**Figure 1**).

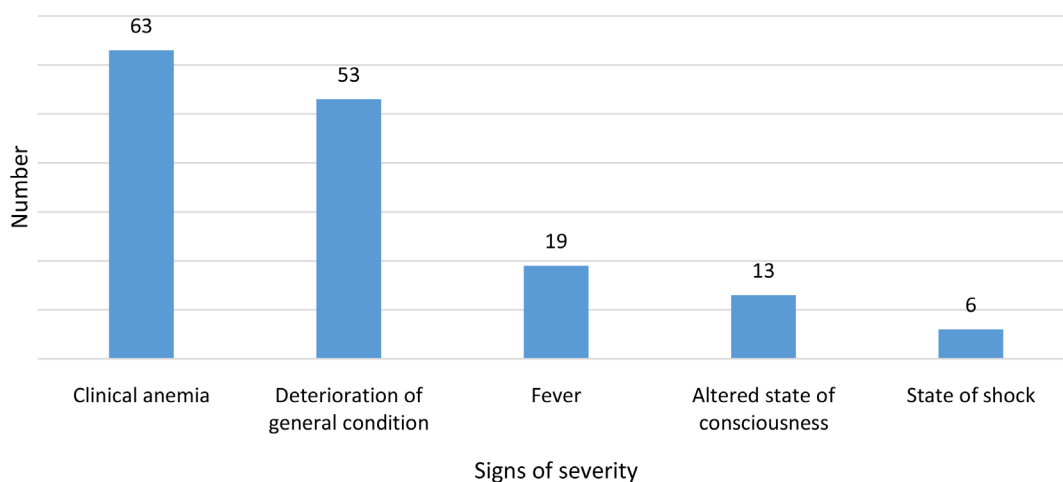
Laboratory investigations were performed on 369 patients (63.2%). Leukocytosis was found in 109 patients (18.7%) and anaemia in 105 patients (17.9%). The HIV serology came back positive in 8 patients (1.4%). ECU was deranged in 59 patients (15.4%) and *Escherichia coli* was the most commonly found pathogen during urine culture (40.6%) followed by *Klebsiella pneumoniae* (17%). Radiological examinations were carried out in 52.9% of the patients and ultrasound was the most commonly requested examination (81.2%), followed by CT scan (22%).

**Table 1.** Distribution of patients according to clinical aspects.

Variables	Frequency (n = 584)	Percentage (%)
<b>Mode of admission</b>		
Self-directed	135	23.1
Brought by his parents	16	2.8
Refferral	406	69.5
Transferred	27	4.6
<b>Consultation delay</b>		
<6 h	7	1.2
6 h - 12 h	80	13.7
12 h - 24 h	142	24.3
24 h - 48 h	91	15.6
>48 h	264	45.2
<b>Presentation</b>		
Acute	164	28.1
Chronic	420	71.9
<b>Presenting complaint</b>		
Anuria/Oliguria	2	0.4
Urinary burning micturition/Pollakiuria/Fever	9	1.5
Flank pain with fever	23	3.9
Flank pain without fever	59	10.1
Testicular pain	66	11.3
Painful erection	20	3.4
Haematuria	99	16.9
Urinary retention	224	38.4
Urinary incontinence	27	4.6
Fournier's gangene	52	8.9
Painful swelling of the glans	1	0.2
Painful perineal swelling	2	0.3

The most common diagnosis was urine retention (42.9%), followed by urinary tract infections (22.5) and hematuria (16.9%). **Table 2** gives the distribution of the different diagnoses.

Intensive care admission was necessary for 4.9% of the patients for resuscitation and intensive monitoring. Blood was transfused for 12.7% of the patients. Antibiotic therapy was given based on the diagnosis made, the associated



**Figure 1.** Distribution of patients according to signs of severity observed on admission.

**Table 2.** Distribution of patients according to the different diagnosis.

Diagnosis retained	Frequency (n = 584)	Percentage (%)
Obstructive anuria	2	0.3
Acute prostatitis	9	1.5
Renal and peri renal abscesses	24	4.1
Renal colic	59	10.1
Epididymoorchitis	45	7.7
Testicular Torsion	21	3.6
Priapism	19	3.3
Haematuria	99	16.9
Urinary retention	251	42.9
Fournier's gangrene	52	8.9
Paraphimosis	1	0.1
Peri urethral abscess	2	0.3
<b>Total</b>	<b>584</b>	<b>100</b>

complications and the culture and sensitivity results. It was prescribed in 25.5% of the patients for curative purposes and in 9.6% of the patients for prophylactic purposes.

The surgical intervention offered depends on the diagnosis and the severity of the patient condition. Five hundred and twenty-five (89.9%) of the patients had one surgical intervention or the other as depicted in **Table 3**.

The outcome was favorable in the majority of patients (95.5%). However, complications were noted in 5.5% of patients which include hemorrhagic shock (1.5% of cases), septic shock (1.4% of cases), gross hematuria (0.8%) and renal failure (0.8% of cases).

**Table 3.** Distribution of patients according to the different procedures performed.

Therapeutic procedure	Frequency (n = 525)	Percentage (%)
Nephrostomy	11	2.1
Ureterostomy	1	0.2
Double J stenting	3	0.6
Cystolithotomy	33	6.3
Cystostomy	40	7.6
Supra pubic bladder catheterization	53	10.1
Bladder irrigation	110	20.9
Urethral catheterization	242	46.1
Orchidectomy	19	3.6
Orchidopexy	11	2.1
Cavernosal aspiration	3	0.6
Caverno-spongiosum shunt	10	1.9
Testicular abscess incision and drainage	13	2.5
Debridement of necrotic tissues	62	11.8
Emergency Circumcision	2	0.4

Most of the patients (61.3%) were managed and discharged from the hospital however, 22 patients (3.8%) died, 32.9% were transferred to other units and 1% left against medical advice. The average length of hospital stay was  $5.1 \pm 7.5$  days with a range of 3 hours and 71 days.

#### 4. Discussion

In our study, non-traumatic urological emergencies accounted for 90.8% of all urological emergencies, which underscores the importance of this entity; this same observation has been made by other authors in Africa [4] [6] [7]. The average age of our patients was  $51.9 \pm 23.9$  years and the modal age group was 61 to 80 years. This could be due to the fact that the commonest presentation was urine retention and prostatic hyperplasia was the commonest background pathology which is commonly seen among men above 50 years. Avakoudjo [4] in Benin, Fall [6] in Senegal and Kambou [8] in Burkina found the average ages of their patients to be 61, 59 and 58.8 years respectively in their series. Almost half of the patients (45%) presented 48 hours after the onset of symptoms. This could be probably due to difficulties in getting access to health services, lack of knowledge of the early symptoms and signs of some of these emergency conditions, waste of time by patronage to traditional health practitioners and self-medication.

The male sex was predominant in our series as reported by many studies [6] [7] [9]. This could be explained by the high incidence of urethro-prostatic pa-

thologies in males on the one hand and the fact that pathologies of the female urinary tract are generally seen and taken care of in the gynaecology department.

The commonest reason for the presentation was acute retention of urine. It is the most common urological emergency due to the extreme pain caused by the inability to empty the bladder. Several authors in their series have made the same reports [4] [7] [10] [11]. Gross hematuria was the second emergency presentation because of the high level of fear and concern the patient and their relative usually have on the sight of blood in the urine. Referrals were also prompt in patients with hematuria because of what the fear that the rapid loss of blood may cause to the hemodynamic stability of the patients.

Radiological evaluation plays a significant role in the diagnosis and treatment of these patients. In our study, 52.9% of the patients had one radiological evaluation or the other. Ultrasound, a quick, easily accessible and inexpensive examination, was the most commonly performed (81.2%) radiological investigation. This may be due to the fact that the majority of patients are farmers/breeders who are poor and cannot afford more sophisticated radiological examinations. Moreover, most of the diagnoses can be reached with USS hence there may be no need for costly radiological evaluation especially when all investigations are paid by the patient out-of-pocket.

The commonest diagnosis was retention of urine (42.9%) followed by urogenital infections (22.5). These results are similar to those of several authors. Tfeil *et al.* [12] in Mauritania found 60.5% of their patients presented with urine retention and 16.75% urogenital infection. For Owon'Abessolo *et al.* in Cameroon, Diabate *et al.* in Senegal and Bobo Diallo *et al.* in Guinea, hematuria was the commonest diagnosis followed by urine retention [13] [14] [15]. On the other hand, for Mondet *et al.* in France, urinary retention was the second most common cause of urological emergencies behind low back pain [4]. This could be explained by the rather early presentation to hospitals in France at the slightest symptoms of dysuria, whereas African patients because of socio-economic, cultural and poor access to health services often present late with complications such as urine retention and sepsis.

The management of the patients depends on the working diagnosis. Thus, patients with urine retention were relieved by urethral catheterization or suprapubic cystostomy if urethral catheterization failed or was contraindicated. Therefore, urethral was the most frequently performed emergency procedure in several African series [6] [14] [15].

Urogenital infections (22.5%) were the second most frequent presentation in our study usually in the form of gangrene of the external genitalia and epididymo-orchitis as in the studies by Tfeil *et al.* and Tengue *et al.* [12] [16]. The majority of gangrene of the external genitalia occurs in elderly patients with numerous comorbidities (arterial hypertension, diabetes and severe acute malnutrition) or sexually transmitted infections (human immunodeficiency virus). The treatment is based on bi- or tri-antibiotic therapy associated with surgical debridement and

systematic treatment against tetanus (anti-tetanus serum and anti-tetanus vaccine). This treatment approach has been reported in several studies [17] [18].

Hematuria was the third most common presentation of non-traumatic urological emergencies in our study. This could be explained by the fact that Burkina Faso is a schistosomiasis endemic country. The management of these patients requires the placement of a three-way urinary catheter and the initiation of continuous bladder irrigation with normal saline to wash out any clots in the bladder. If the haemorrhage affects the haemodynamic stability of the patients, a blood transfusion may be indicated. In our series, a blood transfusion was necessary in 12.5% of our patients.

The short-term outcome was satisfactory in 95.5% of patients. The mortality rate was 3.8%. This could be due to the fact that most of the patients seen were elderly with many comorbidities. In addition, delayed presentation; poor referral system; and poor overall healthcare services associated with many logistic issues that prevent prompt and adequate resuscitation and proper treatment may be responsible for this high mortality rate.

Retrospective nature of the study with its inherent shortcomings was one of the key limitations of the study. Incomplete records and missing records are other well-known limitations of retrospective study which we also observed in our study. Finally, failure to come back for follow-up makes it difficult to ascertain treatment outcomes.

## 5. Conclusion

Non-traumatic urological emergencies constitute a significant portion of all emergency surgical presentations in our setting. Urinary retention was the most common urological emergency. Delays in presentation, poor logistic protocol causing a delay in resuscitation and background comorbidities were responsible for the high mortality rate recorded. However, for patients who were seen and treated early in the course of the disease, the management outcome used to be satisfactory.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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