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Original Research Article

Urological Emergencies: Epidemiological Profile and Limitations of Health Care in Rural Guinea

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Abstract: The aim of our study was to report the epidemiological and clinical characteristics and the therapeutic limits of these emergencies in a regional urology unit in Guinea. This was a prospective descriptive study lasting six (6) months from 1 January to 30 June 2021. The proportion of urological emergencies in relation to urological pathologies was 31% of cases, i.e. 104 patients out of 232. The average age of our patients was 43.81 years, with extremes of 1 and 90 years. These emergencies were dominated by bladder retention (75%; n=78), followed by urogenital trauma (7.69%; n=8) and hematuria (6.73%; n=7). The main diagnostic hypotheses for bladder urine retention were prostatic tumours (76.924%; n=60), urethral strictures (19.23%, n=15), and posterior urethral valves (3.84%; n=3). Infectious pathologies were dominated by gangrene of the external genitalia (2.88%, n=3). Emergency management of our patients was dominated by urethral catheterisation in 53.98% (n=61) followed by medical procedures sometimes associated with catheterisation and bladder irrigation (6.20%; n=7).

Keywords: Urological emergencies, urinary retention, suprapubic cystocatheter, renal colic.

INTRODUCTION

Urological emergencies account for a significant proportion of the activity of a urology department. They correspond to pathological situations of the urinary tract in both sexes and/or the genital tract in men, and are characterised by the existence of serious suffering that requires consequent relief [1-3]. In our context, these emergencies are often dominated by urine retention, torsion of the spermatic cord, trauma to the urinary tract and haematuria. Each urological emergency has its own specific management: medical or surgical, immediate or delayed emergency, with or without imaging, as well as its own set of technical procedures (bladder catheterisation, cystocatheter, paraphimosis reduction) [4]. Their care is important, because there is sometimes a risk of serious after-effects that could endanger the patient's vital prognosis. These emergencies are often underestimated in medical and surgical emergencies [2- 4].

The high frequency of emergencies in urological activities, the difficulties related to their management outside the Conakry University Hospital and the absence of their studies in the different regions of Guinea are the reasons that motivated this study. Our objective was to report the epidemiological, clinical, and therapeutic limitations of these emergencies in a regional urology unit in Guinea.

METHODS

The urology unit of the regional hospital of N'Nzérékoré served as a study framework for this work. This was a prospective descriptive study with a duration of six (6) months from January 1 to June 30, 2021. We targeted all patients admitted to the urology unit of the N'Nzérékoré regional hospital

All patients received and treated for a urological emergency during the survey period were included. Patients whose urological emergency was lifted outside the urology unit during our study period were not included. We conducted comprehensive recruitment of all patients seen during the study period who met our inclusion criteria.

Our variables were quantitative and qualitative grouped into epidemiological, clinical, paraclinical, and therapeutic data. The study protocol has been submitted to the Chair of Urology-Andrology for approval. Our patients' informed consent was obtained and we proceeded to fill out the survey forms.

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The information collected was used for scientific purposes, exploited anonymously with restricted access to the data. This data was entered and analysed using the Epi-info software in its version 7.2.3.0 and presented using the Word, Excel software of the Office 2019 pack. The non-availability of cystoscopy and imaging examination (retrograde urethrocystography + voiding cystography) were our main difficulties.

RESULTS

The proportion of urological emergencies to non-urgent urological pathologies at the Nzérékoré urology unit was 31% of cases, i.e. 104 patients out of 232.La frequency is estimated at 17 patients per month. The mean age of our patients was 43.81 years with extremes of 1 and 90 years. The most affected age group was 61–70 years old, involving 39 patients or 37.5% (Figure 1).

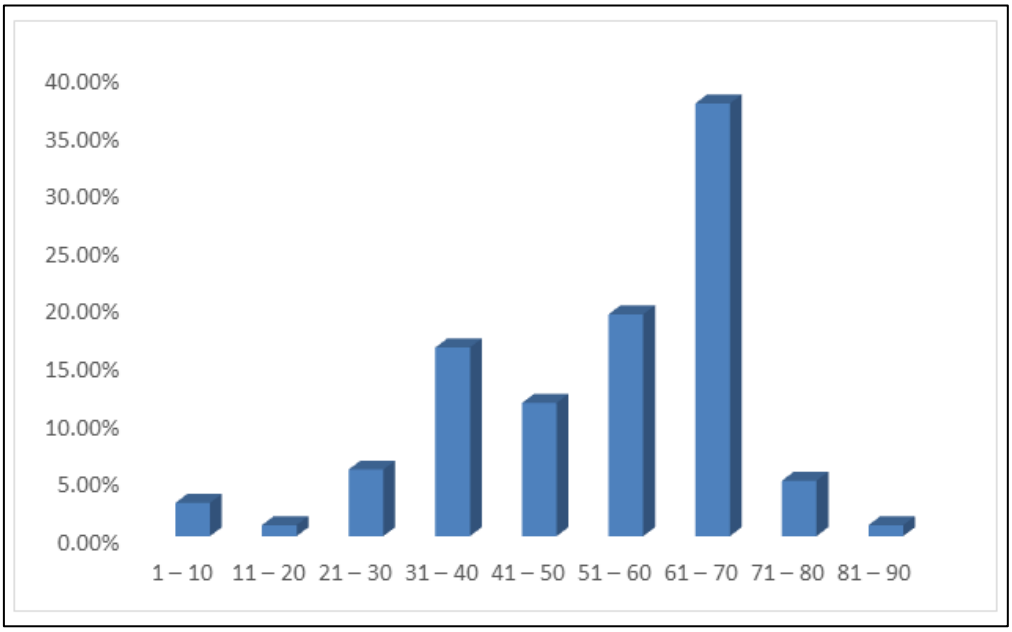

Figure 1: Distribution of patients by age group

Male was dominant with 95% of cases (n=99) compared to 5% female (n=5). The most represented occupations were: farmers (39.42%/; n=41), livestock breeders (19.23%; n=20) and merchants (10.58%n=11). Other occupations were infrequent.

Table 1 summarizes the types of emergencies encountered in our study. They were dominated by acute urinary retention in 34.61% (n=27) and chronic complete urinary retention with distension in 65.38% (n=51).

Table I: Distribution of patients by type of urological emergency.

Types of Urological Emergencies	Number	Percentage (%)
Bladder urinary retention	78	75
Urogenital trauma	8	7,69
Haematuria	7	6,73
Infectious diseases	6	5,76
Renal colic	2	1,92
Priapism	1	0,96
Torsion of the spermatic cord	2	1,92
Total	104	100

The main diagnostic hypotheses for bladder urinary retention were prostate tumors (76.924%; n=60), urethral strictures (19.23%, n=15), and posterior urethral valves (3.84%; n=3).

Traumatic urogenital injuries were distributed as follows: 62.50% (n=5) of urethral trauma, with the remaining trauma i.e. closed trauma of the left bursa, scrotal wound and penile fracture (Figure 2) each accounting for 12.05% (n=1).

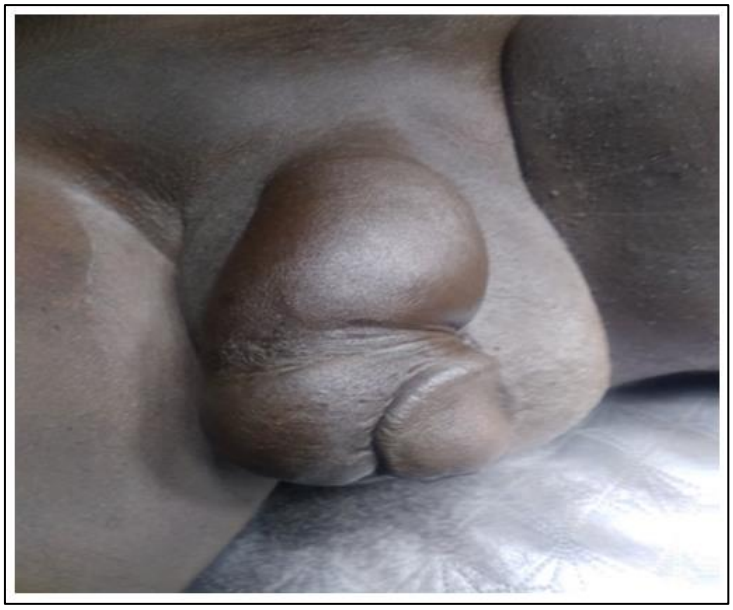

Figure 2: Penile fracture (aubergine sign)

Infectious diseases were dominated by gangrene of the external genitalia (2.88%, n=3), followed by acute pyelonephritis (1.92%, n=2) and acute orchiepididymitis (0.96%, n=1). According to the chronology of the hematuria, it was terminal in 5 of our patients (71.43%) and total in 2 cases (28.57%).

With regard to laboratory work-up, serum creatinine was elevated in patients in retention in 65% of cases (n=54). The emergency hemoglobin level in patients with hematuria was low in 28.57% (n=2) and normal in 5 patients (71.43%).

The ultrasound performed in our haematric patients showed a bladder tumor in 71% of cases (n=5) and a kidney tumor in 29% of cases (n=2). In our patients received for renal colic, ultrasound had revealed infracentimetric stones without dilation of pyelocalicial cavies

The emergency management of our patients was dominated by urethral catheterization in 53.98% (n=61) followed by medical procedures sometimes associated with catheterization and bladder irrigation (6.20%; n=7) (Table 2). Figure 3 shows gangrene of the external genitalia.

Figure 3: external genitals gangrene

Table II: Distribution of patients according to emergency procedures

Types of Emergencies	Emergency care	Number	Percentage (%)
Urine retention	Urethral catheterization	78	75
Urethral trauma	Suprapubic catheterization	5	4,80
Hematuria	Urethral Catheterization + Bladder Irrigation	7	6,73
External genitals gangrene	Debridement of external genitalia + suprapubic catheterisation	3	2,88
Torsion of the spermatic cord	Scrotal Exploration +Orchidopexy	2	1,92
Renal colic	medical treatment	2	1,92
Acute pyelonephritis	medical treatment	2	1,92
Acute Orchiepidydimitis,	medical treatment	1	0,96
Priapism	Puncture of the cavernous body	1	0,96
penile fracture	albuginorrhaphy)	1	0,96
Blunt scrotal trauma	Scrotal exploration + trimming	1	0,96
scrotal wound	trimming	1	0,96

In our series, 14.42% of our patients were referred to the Andrology urology department in the capital for better care. The largest number of patients (27.78%, n=5) transferred were victims of urethral trauma (Table III).

Table III: Distribution of referred patients according to diagnosis

Reference diagnosis	Number	Percentage (%)
Urethral trauma	5	27,78
Bladder tumour	5	27,78
Posterior urethral valves	3	16,67
Kidney tumor	2	11,11
Total	**15**	**100**

DISCUSSION

The management of urological emergencies is an important part of the daily activity of the urology unit at the Nzérékoré regional hospital one year after its creation. Epidemiological characteristics

Frequency

Although urological emergencies are less frequent than emergencies in medical disciplines, they account for a significant proportion of activities in an emergency department [5]. In sub-Saharan Africa, urological pathologies are most frequently discovered in the emergency setting.

In the 6 months of the study, urological emergencies concerned 104 of our patients (31%) out of 232 patients seen for urological conditions. The number of patients per month was estimated at 17. This frequency was not negligible, as it was comparable to those recorded in Senegal, Burkina Faso and Conakry [2-6].

Age

Our study population was dominated by elderly subjects. The mean age was 43.81 years. The most represented age group was 61-70 years. Owon'Abessolo PF. *et al*., [7], in Cameroon in 2020 reported 61-75 years as the most represented age group. In France, Mondet [1] reported a mean age of 53.18 years (range: 15-100). Patients aged over 80 accounted for 12% (n = 205). These results show that the pathologies involved in urological emergencies are the prerogative of the elderly and generally occur after the age of 50.

Gender

The male sex was the most represented, with a sex ratio of 19.8. This observation, similar to our own, has been made by numerous African [7-10], and European authors [1- 11]. In France Martin in a study published in 2014 had recorded 922 consultations (73.3%) involving men [11]. This predominance of the male sex in most studies could be explained by the fact that urology, being a medical-surgical discipline, deals not only with the urinary tract of both sexes but also with the male reproductive organ.

Profession

In our series, agropastoral activities were the most common, with 39.42% (n=41) of our patients being farmers, 19.23% (n=20) livestock breeders, and the remainder being cattle breeders. This result differed from that of Diallo A.B *et al*., [6], who reported a higher frequency of farmers and workers, with 40.6% (n=307) and 21% (n= 159) respectively. In Burkina Faso, in the series by Ouattara *et al*., [2], farmers made up half the study population. This predominance of agropastoral occupations in our study could be justified by the fact that N'Nzérékoré is a region where agriculture and livestock farming are the most common activities.

Clinical Features

The main urological emergencies in our series were bladder retention and urogenital trauma in an order of 79.81% (n=83) and 10.58% (n=11) respectively. The

preponderance of urine retention has been noted in most African studies, with Diallo [5], in Senegal, Outtara in Burkina [2], Ngalle in Cameroon [8] and Diallo AB [6], in Conakry recording 57.3%, 41.5%, 45.05% and 73.9% respectively.

However, in developed countries, particularly in France, Boissier [4], in his study on the epidemiology of urological emergencies in France from 2014 to 2019 found that nephritic colic was the main urological emergency in men, followed by urine retention and haematuria. . This discrepancy may be due to the high frequency of lithiasis in developed countries compared with countries south of the Sahara. It should be noted that in our context, bladder retention represents one of the main circumstances for the discovery of prostatic tumours and urethral stenosis, which represent its most frequent aetiologies. Many authors [6- 12], have identified prostatic tumour and urethral stricture as the main causes of bladder retention. In Africa, patients generally only consult healthcare institutions when complications arise due to certain socio- economic and cultural constraints [9]. The initial symptoms of a prostate tumour do not generally worry patients. Moreover, anything that affects the urogenital system is often considered taboo by older people [13].

In our series, emergency trauma concerned 7.69% (n=8) of cases. Urethral trauma was the most common type of urogenital trauma (27.78%, n=5). In the Cameroon series by Ngalle [8], urogenital trauma accounted for 5.48%, dominated by urethral rupture (1.64%). His study and ours were in correlation with studies by Diallo [6] and Owon´Abessolo [7], who found similar results. In France from 2014 to 2019 the frequency of urogenital trauma was estimated at 9% [4].

Haematuria (6.73%) concerned 7 patients. It ranked 4th among urological emergencies. .It was infrequent, as in the series by Tingue [14], in Togo and Diallo AB in Conakry [5], which recorded 1.4% and 9.6% respectively. In our study, the low rate of haematuria may be related to the relatively small sample size and the duration of the study. For Ouattara, the frequency of haematuria (29.09%) was higher, the reason being that Burkina Faso is a bilharzia-endemic country. Many patients may consult a doctor for urological haemorrhage.

Bladder tumours (71%, n=5) and renal tumours (29%, n=2) were the most common causes of haematuria in our patients. In all cases, haematuria was the most frequent clinical manifestation of urinary tumours.

Infectious emergencies account for a significant proportion of urological emergencies, requiring the practitioner to act quickly, sometimes even at night, and necessitating medical or even surgical action [15]. 5.76% (n=6) of cases in our series were infectious. This frequency was lower than that reported by Ouattara [2] and Traoré [13], which was 20.79% and 19.92% respectively. In 2019 in France, according to data from the SurSaUD system (Surveillance sanitaire des urgences et des décès), infectious emergencies accounted for 35% [4]. They were dominated in our series by gangrene of the external genitalia (2.88%, n=3) and acute pyelonephritis (1.92%, n=2). Our results were similar to those of Ngalle [8], who recorded Fournier's gangrene and acute pyelonephritis, which each accounted for 5.76%. In several recent French studies [1- 15], of emergencies requiring urgent action without delay, gangrene of the external genital organs was not included.

At 1.92% (n=2), nephritic colic ranked 5th among urological emergencies. In the series by Ngalle *et al*., [8], it ranked second after bladder retention, accounting for 15.38% of cases. However, the frequency of nephritic colic varies between series and regions. The reasons for this discrepancy are not clear. Talreja [16], in India found renal colic to be the number one urological emergency in their study. In another Indian and another French study [11- 17], nephritic colic was the second most common cause of urological emergencies.

Spermatic cord torsion was uncommon in our series (1.92% n=2). This is a functional emergency that threatens the vital prognosis of the testicle [18]. Its frequency in our study was higher than that described in the university hospital of Conakry where Diallo A [5], recorded 0.4% of cases over a period of 03 years. This low rate has also been reported by many African authors: Fall [9], Ouattara [2] and Tfeil [2], recorded 2.8%, 2.9% and 3.63% of cases of spermatic cord torsion respectively. All this proves the rarity of spermatic cord torsion in Africa.

Priapism is a rare andrological emergency which requires early assessment and effective treatment in order to preserve erectile function. In our study, its frequency was estimated at 0.96%, lower than that of Diallo A [6], who reported 1.2% in his study carried out in a university hospital in our country.

Emergency Care

The most frequently performed emergency procedure was urethral catheterisation (75%), either alone or combined with bladder irrigation in the event of haematuria. This predominance of urethral catheterisation is related to the large number of prostatic tumours in our series responsible for urine retention. This procedure, performed as an emergency measure to evacuate the bladder in the event of retention, has been the most frequently reported procedure in the management of urological emergencies by numerous authors [2- 9].

Emergency necrosectomy combined with cystostomy and tri-antibiotic therapy were the emergency procedures used to manage gangrene of the external genitalia. In our patients, gangrene was

essentially a complication of urethral strictures, as reported by some authors [6- 19].

Patient Outcome After Emergency Treatment

We observed a relatively low rate of emergency hospitalisation (4.81%). Our result is lower than that of Diamé *et al*., [19] in Senegal in 2019 who reported an emergency hospitalisation rate of 31.94% (n= 299). This low emergency hospitalisation rate recorded in our study could be justified by the fact that some of our patients were referred to the urology department located in the capital. The reasons for this transfer were the lack of diagnostic imaging and endoscopic equipment (urethrocystoscopy) and the under-equipment of the operating theatre for the management of certain pathologies such as renal tumours.

CONCLUSION

Urological emergencies are not uncommon in surgical settings at the N'Nzérékoré regional hospital. They accounted for 31% of cases, with elderly subjects being the most common and males the most common. Retention of bladder urine was the most common type of emergency. Urethral catheterisation and suprapubic catheterisation were the most common emergency procedures.

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CONFLICT OF INTEREST: None declared

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