A Spectrum of Non-Traumatic Urological Emergencies in a Single Center in Tunisia: Ten Years Experience.

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Abstract

Background:

Emergency department consultations are the most important in any hospital. Although nontraumatic urological emergencies are a common reason for hospitalization in a urological environment. The aim of our study was to present the epidemiological and therapeutic aspects of non-traumatic urological emergencies in our hospital for 10 years.

Methods:

This was a retrospective study of records of patients who presented with non-traumatic Urological emergencies to our institution, over a 10-year period (from January 2010 – December 2019). This study was done in the Department of Urology in the hospital of the Internal Security Forces La Marsa. The data extracted included; the demographic information, diagnosis, and the treatment offered. The data obtained were analyzed using SPSS version 21. Data were displayed using mean +/- standard deviation and percentages.

Results:

We registered 531 patients. The average age of our patients was 48.2 years (18 to 94 years). The sex ratio (M / F) was 2/1. These patients were over or equal to 50 years in 45.7% of cases. The most frequent conditions were acute urine retention (43%) and urogenital infections which together accounted for 18.4% of cases. The two other diagnoses the most retained were: obstructive lithiasis pyelonephritis in 11.9% (64 patients) including 12 cases of emphysematous pyelonephritis, hyperalgesia renal colic in 5.9% of cases. Testicular torsion constituted the third commonest urological emergency seen, accounting for 3.36% (n = 18) of the cases. Gangrene of the external genitalia accounted for 1.9% of urologic emergencies, and priapism 1.3%. 138 patients were hospitalized in the urology unit for treatment

Conclusion:

The most common nontraumatic urological emergency was urine retention in the elderly. To our knowledge, this study is the first to detail the activity of non-traumatic urological emergencies in Tunisia, and it will certainly be the starting point for the establishment of a structure dedicated entirely to urological activity.

Introduction

Emergency department consultations are the most important in any hospital. Although nontraumatic urological emergencies are a common reason for hospitalization in a urological environment. They are not infrequent but less common when compared to some other surgical specialties. Their management in a context largely dominated by regulated activity poses many problems. These emergencies are
numerous [1], ranging from urinary retention to urogenital infections. They may differ from one center to another in terms of epidemiology, but also in terms of management.

In Africa, in general and in Tunisia in particular, although emergency is a common reason for hospitalization in public hospitals [1], data on the epidemiology of non-traumatic urological emergencies are scarce. The aim of our study was to present the epidemiological and therapeutic aspects of non-traumatic urological emergencies in our hospital for 10 years.

Methods

This was a retrospective study of records of patients who presented with non-traumatic Urological emergencies to our institution, over a 10-year period (from January 2010 – December 2019). This study was done in the Department of Urology in the hospital of the Internal Security Forces La Marsa. Only patients with non-traumatic urological emergencies were included. Those traumatic urological emergencies were excluded. Data for this study were obtained from emergency department registers, consultation and urological emergency registers, hospitalization and operative report register. The variables extracted include age, sex, diagnosis and surgical procedure. Data obtained were analyzed using Statistical Package for Social Scientist version 21 and displayed using descriptive statistics, tables and charts.

Results

We registered 531 patients. The average age of our patients was 48.2 years (18 to 94 years). The sex ratio (M / F) was 2/1. These patients were over or equal to 50 years in 45.7% of cases. The most frequent conditions were acute urine retention (43%) and urogenital infections which together accounted for 18.4% of cases (Table 1). The main etiologies of urine retention were prostate hypertrophy (53.5%) and urethral stricture (22.8%) (Table 2). Majority of the patients with urine retention (52.4%) had successful urethral catheterization while the remaining (47.6%) had suprapubic cystostomy (SPC). The peak incidence of urinary retention was in the 6th decade (29.4%). The two other diagnoses the most retained were: obstructive lithiasis pyelonephritis in 11.9% (64 patients) including 12 cases of emphysematous pyelonephritis, hyperalgesic renal colic in 5.9% of cases. Testicular torsion constituted the third commonest urological emergency seen, accounting for 3.36% (n = 18) of the cases. The mean age of patients who presented with testicular torsion was 22 ± 5.6 years, with a range of 18–36 years. The peak age for presentation was 21–30 years (48%). Ten patients had bilateral orchidopexy, achieving a salvage rate of 55.5% while 8 patients had ipsilateral orchidectomy and contralateral orchidopexy. Fifteen patients (2.36 %) were managed for bilateral ureteric obstruction during the study period. 12 patients had drainage with a jj stent and 3 patients had drainage with a nephrostomy. Gangrene of the external genitalia accounted for 1.9% of urologic emergencies, and priapism 1.3%. 138 patients were hospitalized in the urology unit for treatment (Table 3). Treatment was medical based on Antibiotic therapy in 85 patients, associated with endourological treatment in 24.3% of cases and surgical exploration in 26 cases (Table 4). Regarding follow-up care, 284 patients (53.48%) required additional treatment for etiology in
the following days and weeks. During the follow-up, only one death occurred in an elderly patient with septic shock following Fournier's gangrene.

**Discussion**

The management of urological emergencies is a common activity in our practice. Numerous studies [1], [2], [3], including our own confirm the clear male predominance in urological emergencies.

Acute urine retention is the most common urological emergency in our country. This is explained by the fact that it is one of the main circumstances for the discovery of prostate tumors and urethral stricture. Indeed, for socioeconomic and cultural reasons, most people with these pathologies only consult in the complications phase. The average age of our patients was 48.5 years and 45.7% of them were over or equal to 50 years. In Spain, Parra et al. [2] found a mean age of 53 years and a higher incidence of urologic emergencies in men over 60 years of age. However, in European countries acute urine retention is not the most common urological emergency. It represented 22% of the reasons for consultations in France [3] while its annual incidence was 3.06 per thousand in England [4]. The main etiologies of urinary retention in this study were prostatic tumors and urethral stricture. In a comparable study, Atim et al. [5] at the University of Abuja Teaching Hospital, Gwagwalada reported urinary retention as the commonest Urological emergency accounting for 53%. In Nigeria where benign prostatic hyperplasia (64%) and urethral stricture (28.4%) are the main etiologies of acute urinary retention. This very high incidence of acute urine retention in our country causes many problems. This is because most of these patients will require surgical treatment and will have to wait months for this treatment. This results in long durations of indwelling urinary catheters, during which time patients are exposed to infectious complications in addition to the deterioration of their quality of life and the economic cost of this condition [6]. Torsion of the spermatic cord is a typical urologic emergency. Early diagnosis and treatment are essential to preserve the affected testicle. The period of 6 h after the onset of symptoms must be observed in order to preserve exocrine function [7]. The mean age was 24 years in this series, which is comparable to the results of Ibrahim et al. who reported 23 years in a 3-year retrospective review at Maiduguri University Hospital [8]. In developed countries, the peak incidence is around puberty [9], while in our country; most patients with torsion (48%) were under 21 to 30 years of age, which is also comparable to the results of Udeh et al. Overall, urogenital infections accounted for 16.4% of cases. Their peculiarities in our study were the frequency of acute obstructive pyelonephritis (11.9%) and the rarity of gangrene of the external genital organs and the perineum (1.9%). Emergency drainage of acute obstructive pyelonephritis represented 10.5% of the interventions performed in this study, while in the study by Mondet et al. [10] in France it constituted 31% of interventions. This drainage consisted in almost all cases of drainage by a ureteral stent. We believe that the real frequency of this acute obstructive pyelonephritis in our country is important given the frequency of pathologies that can lead to obstruction of the upper excretory tract such as ureteral lithiasis and the urogenital tuberculosis. Priapism is a major urological emergency that requires rapid intervention to prevent feared complications such as erectile dysfunction [11]. It is described as a painful, persistent erection that continues for> 4 h or is unrelated to intercourse [12]. The most common cause in our country is sickle cell anemia while drug-induced priapism is more common in
Western countries [13]. A total of 5 patients were treated during the study period, priapism represents 0.9% of all urological emergencies seen.

The limitations of this study include being a retrospective study and a single center study.

**Conclusion**

The most common non traumatic urological emergency was urine retention in the elderly. To our knowledge, this study is the first detailing the activity of non-traumatic urological emergencies in Tunisia, and it will certainly be the starting point for the establishment of a structure dedicated entirely to urological activity.

**Declarations**

**Ethics approval and consent to participate**

The study is exempt from ethical approval in our institution.

**Consent for publication**

Not applicable.

**Availability of data and materials**

Not applicable.

**Competing interests**

The authors declare that they have no competing interests.

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**Authors' contributions**

Rahoui Moez: Data collection, Manuscript writing, Results discussion. Boulma Rami: Manuscript writing and revision. Hassen Khouni: Paper revision.

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Tables

Table 1: Clinical Presentation of Emergency urology cases
Table 1: Causes and management of urinary retention

| Diagnosis                        | Numbers of patients | Percentage |
|----------------------------------|---------------------|------------|
| Acute Urinary Retention          | 228                 | 43         |
| Chronic Urinary Retention        | 37                  | 7          |
| Testicular Torsion               | 18                  | 3.36       |
| Acute pyelonephritis             | 64                  | 11.9       |
| Epididymoorchitis                | 31                  | 5.38       |
| Hematuria                        | 17                  | 3.2        |
| Fournier’s Gangrene              | 10                  | 1.9        |
| Bilateral Ureteric Obstruction   | 15                  | 2.36       |
| Others                           | 111                 | 20.9       |
| Total                            | 531                 |            |

Table 2 : Causes and management of urinary retention

| Causes of UR                      | Number of patients | Percentage | Urethral catheterization | Suprapubic cystostomy |
|------------------------------------|--------------------|------------|--------------------------|------------------------|
| BPH                                | 122                | 53.5       | 88                       | 34                     |
| Urethral stricture                 | 52                 | 22.8       | 0                        | 52                     |
| Prostate Cancer                    | 26                 | 11.4       | 18                       | 8                      |
| Meatal Stenosis                    | 4                  | 1.7        | 0                        | 4                      |
| Bladder neck sclerosis             | 3                  | 1.3        | 2                        | 1                      |
| Others                             | 21                 | 9.2        | 12                       | 9                      |
| Total                              | 228                | 100        | 120                      | 108                    |

Table 3: Causes of urological emergencies admission in our institution.
| Diagnosis                        | Number of patients | Percentage |
|---------------------------------|--------------------|------------|
| Acute pyelonephritis            | 64                 | 12.05      |
| Testicular Torsion              | 18                 | 3.38       |
| Hematuria                       | 11                 | 2.07       |
| Bilateral Ureteric Obstruction  | 15                 | 2.82       |
| Fournier’s Gangrene             | 10                 | 1.88       |
| Others                          | 20                 | 3.76       |
| **Total**                       | **138**            | **25.98**  |

Table 4: Distribution of emergencies by type of management
| **Urologic emergencies**                  | **Treatment**                          | **Numbers** |
|------------------------------------------|----------------------------------------|-------------|
| Acute urinary retention                  | Urethral catheterization               | 88          |
|                                          | Suprapubic cystostomy                  | 34          |
|                                          |                                        |             |
| Urogenital tract infections              |                                        |             |
| - Orchiepidymitis                        | Antibiotics                            | 12          |
| - Testicular abscess                     | Debridement and drainage               | 4           |
|                                          | orchidectomy                           | 2           |
| - Perinephritic phlegmon                 | Drainage                               | 2           |
| - Fournier's Gangrene                    | Debridement and drainage               | 10          |
|                                          |                                        |             |
| Priapism                                 | Medical treatment                      | 2           |
|                                          | Distal shunt                           | 3           |
|                                          |                                        |             |
| Torsion of spermatic cord                | Orchidopexy                            | 10          |
|                                          | Orchidectomy and contralateral orchidopex | 8       |
| Bilateral Ureteric Obstruction           | JJ Stent                               | 12          |
|                                          | Nephrostomy                            | 3           |
| obstructive lithiasis pyelonephritis     | JJ Stent                               | 58          |
|                                          | Nephrostomy                            | 6           |
| Hematuria                                | Irrigation                             | 11          |