SRYAHWA PUBLICATIONS

Archives of Urology
ISSN: 2638-5228 | Volume 7, Issue 2, 2025
https://doi.org/10.22259/2638-5228.0702003

REVIEW ARTICLE

Diagnostic, Etiological and Therapeutic Aspects of Urogenital Trauma in the Urology Department of the Pr Bocar S Sall University Hospital in Kati

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Received: 09 July 2025 Accepted: 24 July 2025 Published: 28 July 2025
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Abstract

Introduction: Urogenital trauma refers to all open or closed injuries resulting from physical assault on the urinary system and/or external genitalia. The objective was to study the diagnostic, etiological, and therapeutic aspects of urogenital trauma. **Materials and Methods:** This was a descriptive, cross-sectional, and retrospective study conducted in the Urology Department of the Professor Bocar S. Sall University Hospital in Kati. It took place over a period of 2 years and 6 months, from January 1, 2020, to June 30, 2023. The study population consisted of all patients with urogenital trauma. Data were entered and analyzed using Word 2016, Excel 2016, and SPSS version 21.0. **Results:** We identified 24 cases of urogenital trauma. The age group of 21-40 years was the most represented, representing 62.5% of cases. The average age was 28 years. The male gender was the majority, 21 cases or 87.5%. The traumas were closed in 17 cases or 70.8% (17 cases). Traumas of the external genital organs were the most frequent with 8 cases (33.3%). The majority were road accidents with 17 cases (70%). Associated injuries were observed in 11 patients: 7 cases (63.63%) of pelvic fractures and 02 cases of polytrauma. The diagnosis was established by paraclinical examinations in 19 cases (83%). Uroscanner was the most performed imaging examination, 8 cases (41%) followed by retrograde urethrocystography and voiding in 6 cases (25%). Surgery was performed in 19 cases (79%). Cystotomy was the most commonly performed emergency procedure; 5 cases, or 20.8%. End-to-end anastomosis urethroplasty was performed in 4 cases, or 66.7%. **Conclusion:** Urogenital trauma is relatively uncommon but is serious and can be life-threatening as well as functionally threatening to the genitourinary system. It is prevalent in young patients. Imaging plays an important role in diagnosis, classification, and management. Treatment is based on monitoring, endoscopy, and conventional surgery.

Keywords: Trauma, Urogenital, CT-Scan, Retrograde Urethrocystography and Voiding, Urethroplasty.

1. Introduction

Urogenital trauma (UGT) is a set of open or closed injuries resulting from physical aggression to the urinary system and/or external genitalia. These injuries most often occur in a context of multiple trauma and can be life-threatening and functional if not diagnosed early and properly managed [1]. According to Paparel, in France, a study conducted in 2012 showed that uro-genital trauma represents 10% of all trauma [2]. In the African sub-region, uro-genital trauma represents less than 1%. In Burkina Faso, uro-genital trauma represents 0.2% of trauma according to a study conducted in 2012 [3]. These

Citation: Amadou Kassogue, Moussa Salifou Diallo, Amadou Diakité, *et al.* Diagnostic, Etiological and Therapeutic Aspects of Urogenital Trauma in the Urology Department of the Pr Bocar S Sall University Hospital in Kati. Archives of Urology, 2025;7(2): 13-17.

injuries are poorly understood in developing countries due to their frequency, etiology, and typology [3]. Studies on urogenital trauma, particularly those involving the urinary and genital systems, are rare; only a few theses have been conducted in Mali. The objective was to study the diagnostic, etiological, and therapeutic aspects of urogenital trauma in the Urology Department of the Pr Bocar Sidy Sall University Hospital in Kati.

2 Materials and Methods

2.1 Type of study

This was a cross-sectional descriptive study conducted in the Urology Department of the Pr Sidy Sall University Hospital in Kati.

2.2 Study period:

It took place over a period of 2 years and 6 months, from January 1, 2020 to June 30, 2023.

2.3 Study population:

It consisted of all patients diagnosed with urogenital trauma. 4. Sampling: Our sample was exhaustive of all patients hospitalized at the Kati BSS University Hospital during the study period for urogenital trauma.

2.4 Inclusion criteria:

All patients admitted to the Kati BSS University Hospital during the study period for urogenital trauma were included in our study.

2.5 Data sources:

The data sources for our study included: consultation records, surgical report records, hospitalization records, and medical records. The questionnaires were entered and analyzed using Word 2016, Excel 2016, and SPSS version 21.0 after data verification.

2.6 Ethical Considerations:

Patient anonymity was guaranteed with their consent for the use of personal data.

Results

During this study period, we recorded 24 cases of urogenital trauma, representing 2.7% of surgical activities. The 21-40 age group was the most represented, accounting for 62.5% of cases. The mean age was 28 years. The majority of cases were male, accounting for 21 cases, or 87.5%. The injuries were blunt in 17 cases, or 70.8% (17 cases), and open in 7 cases, or 29.2%. External genital trauma was the most common, with 8 cases (33.3%), followed by urethral trauma and renal trauma, each with 6 cases (25%). Road traffic accidents were the most common, with 17 cases (70%), followed by firearm injuries in 3 cases, or 12.5%. Associated injuries were observed in 11 patients: 7 cases (63.63%) of pelvic fractures and 2 cases of polytrauma (thoracic and pelvic trauma). The diagnosis was established by paraclinical examinations in 19 cases (83%) and by clinical examination in 5 cases (17%). CT-Scan was the most commonly performed imaging examination, 8 cases (41%) followed by UCRM in 6 cases (25%). Surgery was performed in 19 cases (79%). Cystotomy was the most commonly performed emergency procedure; 5 cases or 20.8%. End-to-end anastomosis urethroplasty was performed in 4 cases or 66.7%.

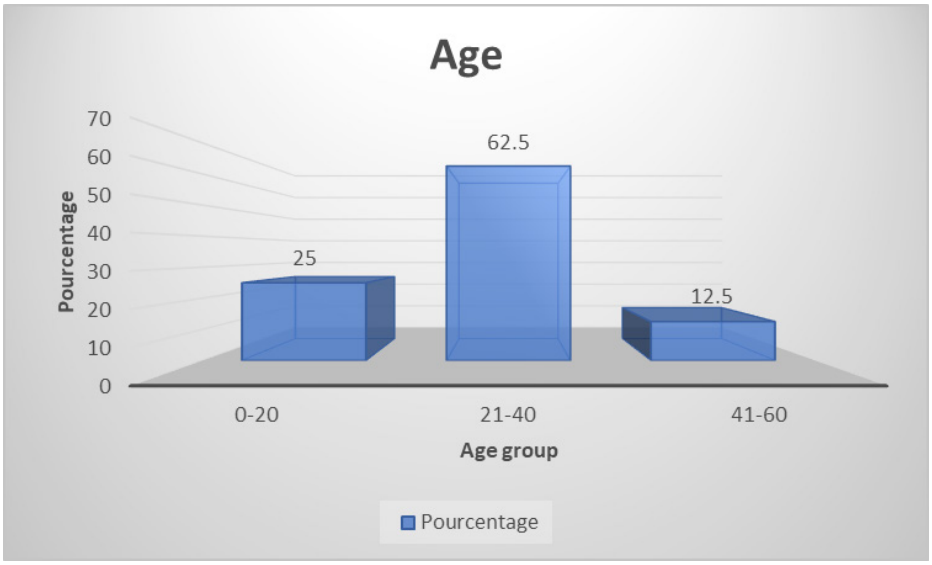

Figure 1. *Distribution of patients by age group.*

The majority of patients were in the 21-40 age group, with 14 cases, or 62.5%.

Table 1. *Distribution according to the topography of uro-genital trauma*

Uro-genital trauma	Number	Percentage
External genital organs	8	33.3
Kidney	6	25.0
Urethra	6	25.0
Ureter	2	8.3
Bladder	2	8.3
Total	24	100.0

Trauma to the external genitalia was the most common, at 33.3%.

Table 2. *Distribution of patients according to etiology or mechanism of occurrence.*

Mechanism of occurrence	Number	Percentage
Road accident	17	70.8
Firearm	3	12.5
General surgery	1	4.2
Workplace accident	1	4.2
Gynecological surgery	1	4.2
Penile manipulation	1	4.2
Total	24	100.0

The most frequent mechanism of occurrence was the public road accident, accounting for 70.8%.

Table 3. *Distribution of patients according to associated lesions (n=11)*

Associated lesions	Number	Percentage
Pelvic fracture	7	63.6
Rib and pelvic fracture	2	18.2
Leg fracture	1	9.1
Abdominal trauma	1	9.1
Total	11	100.0

Pelvic fracture was the most common associated injury, at 63.63%.

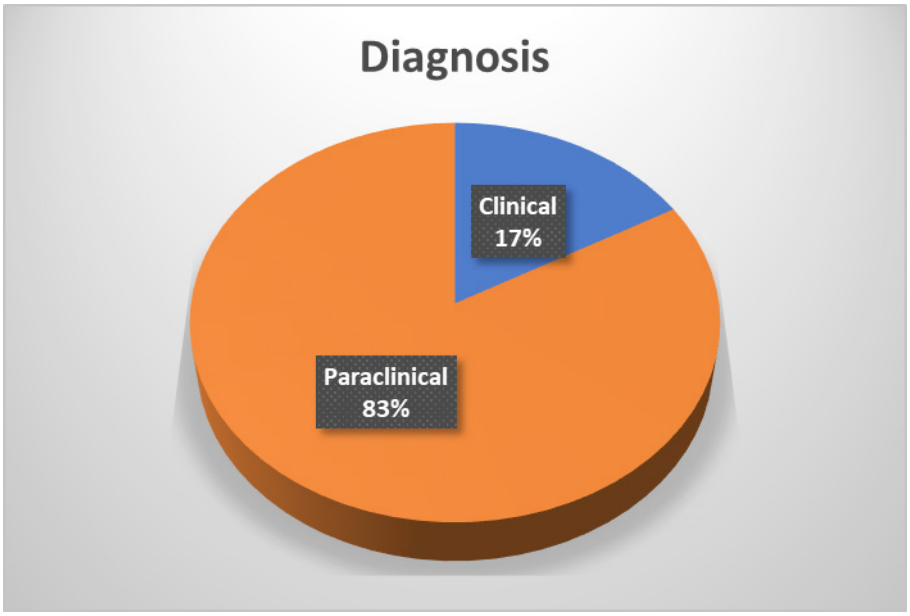

Figure 2. *Distribution according to positive diagnosis.*

The diagnosis was established by paraclinical examinations in 19 cases (83%).

Table 4. *Distribution according to emergency procedure (n=18).*

Types of injury	Emergency treatment	Number	Percentage
Urethra trauma	Cystostomy	5	27.8
Perirenal collection	Montée de jj	3	16.6
Penile fracture	Albuginoraphie	3	16.6
Scrotal wound	Scrotoplastie	2	11.1
Subperitoneal and right posterolateral bladder rupture	Closure of the various breaches; placement of a left urethral drain; a drain in the bladder compartment and bladder catheterization	1	5.6
Iatrogenic ligation of both ureters at the ureterovesical junction	Fistuloraphy and bilateral uretero-vesical reimplantation	1	5.6
Partial fracture of the kidney	Nephrectomy	1	5.6
Testicular avulsion	Orchidectomy	2	11.1
Total		**18**	**100.0**

Cystotomy was the most commonly performed emergency procedure; 5 cases or 20.8%.

Table 5. *Distribution according to the deferred gesture (n=6).*

Types de lésions	Geste différé	Number	Percentage
Urethral ruptures	End-to-end urethroplasty	4	66.7
Penile urethral stricture	Uretral dilatation	1	16.7
Posterior urethral stricture	Endoscopic internal urethrotomy	1	16.7
	Total	6	100.0

End-to-end urethroplasty was performed in 4 cases, or 66.7%.

4. Discussion

Urogenital trauma (UGT) appears relatively rare in our context; it represented 2.7% of all admissions in our study. This prevalence is higher than that found by Kambou T [3] in Burkina Faso and that of Dekou [1] in Abidjan, Ivory Coast. This may be explained by the duration of the study, which was somewhat short compared to other studies: 2.5 years versus 6 years and 10 years, respectively. Urogenital trauma is the prerogative of young people, and almost all authors are unanimous on this characteristic [4, 5]. We found a mean age of 28 years, with a predominance in the 21-40 age group. Our results are similar to those of Kambou T [3], who found a mean age of 27 years in his study.

Our study revealed a clear predominance of males. The same observation was made by all publications on the subject. This clear male predominance in our context could be explained on the one hand by a greater exposure of men to the risks of road traffic accidents and work accidents and on the other hand for obvious anatomical reasons because the urethra and the male external genitalia are more exposed to trauma. Also, we noted that 62.5% of patients lived in rural areas while for most authors, the patients lived in urban areas, exposed as they are to motor accidents and various disasters [6, 7].

The etiologies were road traffic accidents in the majority of cases in our context. They were the most frequent causes followed by falls from high places and represented 70% of the etiologies with a clear preponderance of motorized two-wheeled accidents. In the series of Kambou T [3], road traffic accidents constituted 45% of the etiologies while in the study of Paparel [2] it was 65%. Urogenital traumas are usually blunt traumas [1, 8], this is the observation that emerges in our series where a predominance of blunt traumas was noted in 70.8% of cases.

Imaging examinations made it possible to make the diagnosis in 83.3% of patients, with CT-Scan in 33%, retrograde and micturition cystourethrography in 25%) and ultrasound in 20.8%. The external genital organs were the most affected and represented 33.3% of urogenital trauma followed by urethral and renal trauma, i.e., 25% in both cases. These different African authors [1, 3, 6, 8, 9] report the rarity of trauma to the external genital organs. Lesions with post-traumatic urethral rupture in 87 cases were reported by Diallo AB et al. [10]. We noted associated lesions in 11 patients, i.e., 41.7% of the entire series. These same observations were made by Salami in Iran [11] but with different proportions, reflecting the frequency of these associated lesions during urogenital trauma.

We performed an emergency procedure in 18 patients,

i.e., 75%. This treatment was conservative in 87.4% of cases. Several authors report this conservative treatment attitude [2, 3, 11].

5. Conclusion

Urogenital trauma is relatively uncommon in our department but is serious and can be life-threatening and functionally damaging to the genitourinary system. It is the prerogative of young, rural individuals, and road traffic accidents (especially two-wheeled vehicles) dominate the etiologies, hence the need to implement measures to prevent these accidents. Imaging has played a very important role in its diagnosis, classification, and management. Treatment is based on monitoring, endoscopy, and conventional surgery.

Acknowledgments

We would like to thank the staff of the Kati University Hospital, the Urology Department, and the Anesthesia and Intensive Care Unit.

Approval of the Research Protocol

The study received approval from the Kati University Hospital Scientific and Evaluation

Committee. Informed Consent

All patients provided informed consent before the study began.

Conflicts of interest

The authors declare no conflicts of interest.

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