

Research Article

Bladder Cancer: Epidemiological, Clinical, and Therapeutic Aspects in Hospitals of Ziguinchor City

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Abstract

Introduction: Bladder cancer is one of the most common urological malignancies, with a high global incidence in men. Studies conducted in Dakar report a prevalence of 2.5% according to histopathological findings. Transurethral resection of the bladder (TURB) remains the cornerstone of treatment. The aim of this study was to describe the epidemiological, clinical, and therapeutic aspects of bladder cancer in urology departments in Ziguinchor. **Methods:** We conducted a retrospective, descriptive, and analytical study over five years (January 1, 2018 – December 31, 2023), including all bladder cancer cases managed in our departments. Patient data were collected from medical records. Chi-square (χ^2) and Student's t-tests were applied, with significance set at $p < 0.05$. Variables included epidemiological, clinical, paraclinical, TURB-related, therapeutic, and outcome data. **Results:** Bladder cancer was the second most frequent urological malignancy (22%), after prostate cancer (69%). The mean age of patients was 62.4 years with a male predominance 69.2% ($n = 18$). Median time for consultation was 60 days. Hematuria was reported in 88.5% ($n = 23$). General condition was poor Eastern Cooperative Oncology Group (ECOG3) in 58% of patients. Smoking was present in 34.6% ($n = 9$). Urinary tract ultrasound was performed in 84.6% ($n = 22$) and CT urography in 61.5% ($n = 16$). Cystoscopy and TURB were systematically performed, within an average of 3 months. Complications included hematuria and renal impairment. Urothelial carcinoma was found in 69.2% ($n = 18$). Total cystectomy was performed in 15.4% ($n = 4$). Overall, 50% ($n = 13$) of patients died. During follow-up, 15.4% ($n = 4$) were lost to follow-up at 3 months. Median survival was 4 months. **Conclusion:** Bladder cancer is prevalent among older adults. Cystoscopy was systematically performed in our study. TURB remains the cornerstone of treatment. Prognosis is poor at advanced stages.

Keywords

Bladder Cancer, Cystoscopy, TURB

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1. Introduction

Bladder cancer is among the most frequent malignancies of the urinary tract, with particularly high incidence in men worldwide [1, 2]. In Africa, bladder cancer prevalence was estimated at 4% in 2018, with the highest mortality rate reported in Egypt in 2020, accounting for 7.8% [3, 4]. Studies conducted in Dakar reported a prevalence of 2.5% of histologically confirmed cases [5].

The main risk factors include smoking, exposure to aromatic amines, and chronic bladder inflammation [2]. In the African context, *Schistosoma haematobium* infection (urinary schistosomiasis) is also a major risk factor [6, 7]. Transurethral resection of the bladder (TURB) represents the cornerstone for diagnostic, prognostic, and therapeutic purposes [2, 8]. This study aimed to describe the epidemiological, clinical, and therapeutic aspects of bladder cancer in the urology departments of Ziguinchor, Senegal.

2. Patients and Methods

We conducted a retrospective, descriptive, and analytical multicenter study over five years (January 1, 2018 – December 31, 2023), including all cases of bladder cancer managed at the Regional Hospital and peace hospital of Ziguinchor. Data were collected from patient medical records. Statistical analysis included Pearson's Chi-square (χ^2) and Student's t-tests, with significance set at $p < 0.05$.

Parameters studied:

Epidemiological: prevalence, incidence, age, sex, geographic origin, occupation, risk factors.

Clinical: symptom progression, circumstances of discovery, surgical history, general condition.

Paraclinical: laboratory tests (full blood count, urea, serum creatinine), imaging (ultrasound, CT scan), cystoscopy.

TURB: time, duration of intervention, bladder irrigation, duration of catheterization, histological type, tumor stage (TNM classification), postoperative laboratory follow-up.

Therapeutic: curative or palliative, immediate postoperative outcomes, length of hospitalization, morbidity and mortality.

3. Results

Twenty-six cases of bladder cancer were included, representing the second most frequent urological malignancy (22%), after prostate cancer (69%) (Figure 1). The mean age was 62.4 ± 12 years [38–84], with the age group of [60–80] the most represented (46.2%) and a male predominance 69.2% ($n = 18$); sex ratio 2.3). Regarding occupation, farmers represented the majority 19.9% ($n = 5$).

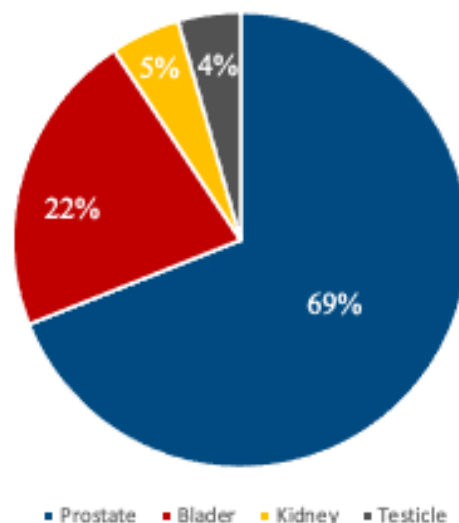


Figure 1. Distribution of urological cancers by location.

Median consultation time was 60 days [9–730], with 69.2% of patients presented within the first 3 months. Macroscopic hematuria was the most frequent reported symptom 88.5% ($n = 23$) (Table 1). Poor general condition (ECOG 3) was observed in 58%. Smoking was the main risk factor 34.6% ($n = 9$), and one case of urinary schistosomiasis was confirmed.

Table 1. Distribution of patients according to circumstances of discovery.

Clinical Signs	Frequency	Percentage (%)
Hematuria	23	88,5
LUTS	21	80,8
Low Abdominal pain	13	50
Low Abdominal mass	9	34,6
Urinary retention	1	3,8

Mean hemoglobin levels was 10.1 g/dL [6.1–14.1]. Anemia was observed in 70% of cases, of which 47.8% required blood transfusion. Renal impairment was found in 38.5% ($n = 10$) of cases. Urine cytobacteriological examination revealed urinary tract infection in 50% ($n = 13$), most commonly caused by *Esterichia coli* (46.2%). Urinary cytology, performed in two patients, did not detect malignant cells.

Ultrasound of the urinary tract, performed in 84.6% ($n = 22$) of cases, identified tumors within the bladder in 73% of cases and ureterohydronephrosis in 61.5%. CT urography, performed in 61.5% ($n = 16$) of patients, revealed ureteral inva-

sion in 15.8% (n = 4) and ureterohydronephrosis in 46.1% (n = 12).

Cystoscopy, performed in all patients, showed a single tumor in 80% (n = 21), sessile in 92.3% (n = 24), and exophytic in 88.5% (n = 23) of patients. The tumor involved the ureteral orifice in 76.9% (n = 20) and the trigone in 26.9% of cases.

TURB was performed in all patients within a mean delay of 3 months; of whom 69.2% underwent the procedure within this period. Spinal anesthesia was used in 84.6% of cases. Mean resection duration was 53.1 min [30–100]. Mean bladder irrigation was 2 days [1–12], and catheter duration averaged 4 days [2–14]. Mean hospital stay was 4.6 days [1–15], with ≤ 3 days in 59% (n = 15).

After resection, renal impairment was observed in 38.5% (n = 7) of cases and mean hemoglobin was 9.7 g/dL [8.2–13.3], without significant difference from baseline (p = 0.95). Hematuria occurred in 19.2% (n = 5) and was the early complication. It was corrected by transfusion, while one patient required readmission to the operating room.

Urothelial carcinoma was more frequent, accounting for 69.2% (n = 18), followed by squamous cell carcinoma at 23% (n = 7). The tumor was non-invasive in 19.2% (n = 5) and predominantly high grade in 92.3% (n = 24). It was localized in 38.5% (n = 10) of cases (Table 2). Localized tumors (70%) were associated with poor general condition (ECOG3), whereas all cases of locoregional stage had a general condition of ECOG2, without significant difference (p = 0.05). One patient underwent a second-look TURB for muscle-invasive pT1 urothelial carcinoma. Neoadjuvant chemotherapy was performed in one patient. Radical cystectomy was performed in 15.4% (n = 4), including two cystoprostatectomies and two anterior pelvic exenterations with Bricker diversion. Palliative chemotherapy (MVAC) and Bricker diversion were performed in one patient each with metastatic squamous cell carcinoma.

Table 2. Distribution of patients according to TNM stage.

TNM Stage	Frequency	Percentage (%)
Localized MIBC	10	38.5
NMIBC	6	25
Metastatic MIBC	6	25
Locally advanced MIBC	4	15.5
Total	26	100

Among patients with muscle-invasive tumors, 65% (n = 13) were lost to follow-up or died before treatment. Mean length of hospital stay was 9 days for cystoprostatectomy and 8 days for anterior pelvic exenteration. Complications included stoma infection, deep vein thrombosis, and deteriorated general condition in 38.5% (n = 7), requiring antibiotics, anticoagulation, nutritional support, and transfusion. Overall, death occurred in 50% (n = 13) of patients (Table 3).

Table 3. Distribution of patients according to prognosis.

Outcome	Frequency	Percentage (%)
Deceased	13	50
Lost to follow-up	7	26,7
Alive	6	23,3
Total	26	100

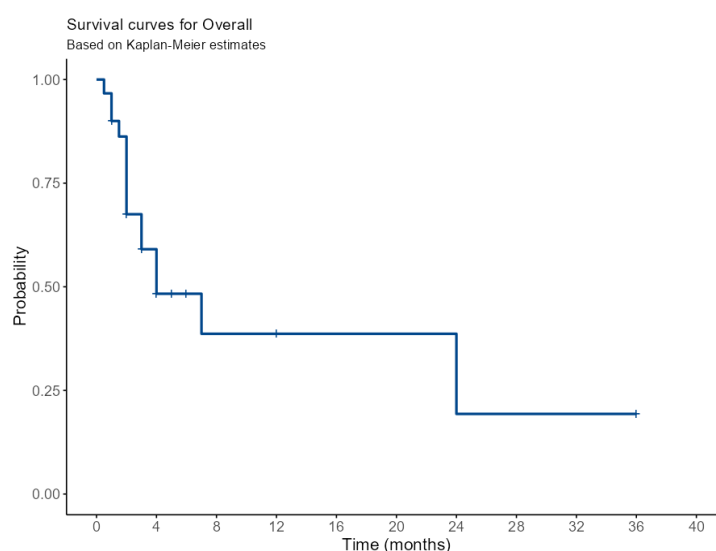


Figure 2. Overall patient survival curve.

Loss to follow-up was 11.5% ($n = 3$) at 3 months and 15.4% ($n = 4$) at 6 months. Median overall survival was 4 months (Figure 2).

4. Discussion

In our series, bladder cancer was the second most common urological malignancy, following prostate cancer. This ranking was also reported by B Diao and al. [5] with a prevalence of 18%, and similar results have been reported in Europe [2]. Older adults were the most affected in our study, which is consistent with the literature [2]. The higher exposure of men to risk factors such as smoking and schistosomiasis may explain the male predominance observed, a pattern also reported in other studies [5, 7, 8]. Smoking is the main risk factor for urothelial carcinoma of the bladder and was present in more than half of our patients. Indeed, smokers have a 2.5-fold increased risk of developing bladder cancer [9]. Farmers were the predominant occupational group in our series. Studies have shown that exposure to pesticides is associated with an increased risk of bladder cancer [10].

The mean consultation time in our study was 4 months. MT Traor é and al, reported a mean time of 7 months [range: 1–22 months] [7]. This diagnostic delay may be explained by cultural normalization of early symptoms. Total hematuria was observed in nearly all patients, which corroborates findings from previous authors, confirming that hematuria is the main presenting sign of bladder tumors [8, 11, 12].

Anemia was observed in more than half of the patients, reflecting the hemorrhagic nature of bladder tumors. Renal impairment was also noted, and preoperative correction of these disorders may reduce the risk of early postoperative complications [13, 14]. In our study, urinary tract ultrasonography was widely performed and contributed to both diagnosis and assessment of tumor impact. MT Traor é and al, reported bladder wall thickening in 40.7% and upper urinary tract involvement in nearly 65% of patients [7]. In the literature, ultrasound sensitivity for polypoid tumors larger than 5 mm ranges from 61% to 84% [8].

CT urography was performed in the majority of patients and aided in diagnosis and assessment of tumor extension. Cystoscopy, performed in all patients, remained the cornerstone for positive diagnosis. O Gaye and al. [15] performed cystoscopy in 83.7% of cases, of which 55.8% were unifocal; I Diallo and al. [16] reported 100% detection by cystoscopy, with 41.2% being unilateral.

TURB has both diagnostic and therapeutic roles and should be as complete as possible. Visualization can be enhanced by hexaminolevulinate injection to better detect flat lesions. The long delay before TURB may be explained by financial constraints and reliance on traditional medicine in our region. Resection was sometimes incomplete, reflecting the large size of tumors in our series. Early hemorrhagic complications were noted intra- and postoperatively, requiring blood trans-

fusions or reoperation for electrocoagulation and clot removal. No bladder perforation was observed in our series; the literature reports intraoperative perforation rates ranging from 1.3% to 4% [17, 18].

Urothelial carcinoma was the most frequent histological type, followed by squamous cell carcinoma. I Diallo and al, reported urothelial carcinoma in 95.7% and squamous cell carcinoma in 1.4% of cases [16]. This trend may be explained, in one hand by the effectiveness of urogenital schistosomiasis control programs and, on the other hand, by increased urbanization, industrialization, and smoking in many African countries [19]. Most of our patients had invasive and metastatic tumors. I Diallo and al. [16] reported 70% invasive tumors, while the literature reports rates between 15% and 25% [8].

For the majority of non-muscle-invasive bladder tumors (NMIBCs) in our series, TURB was the sole therapeutic approach. Early postoperative intravesical instillations (mitomycin C) or immunotherapy (BCG) are recommended for non-invasive tumors, which reduce recurrence risk from 35% at 1 year to 14% at 5 years [2]. No patient in our series received these adjunct therapies due to unavailability. Radical surgery was indicated in four patients with non-metastatic muscle-invasive bladder tumors, in accordance with AFU recommendations [2]. Extended pelvic lymph node dissection during cystectomy was performed, improving locoregional cancer control and disease staging [2, 8].

Neoadjuvant chemotherapy was performed in one patient, and palliative chemotherapy (MVAC) in one patient with metastatic squamous cell carcinoma. The efficacy of neoadjuvant chemotherapy for muscle-invasive bladder tumors has been demonstrated in randomized trials and shows similar benefit in the adjuvant setting [20]. Neoadjuvant radiotherapy may have a role in very advanced and inoperable cases [8], but it was not used in our study.

For muscle-invasive tumors, 5-year overall survival ranges from 40% to 60% [2, 21]. Median survival in our study was 4 months. The literature reports median survival of 3–6 months in untreated metastatic patients [8]. This poor survival may be explained by advanced disease at diagnosis and the unavailability of immunotherapy and neoadjuvant chemotherapy in our centers.

5. Conclusion

Bladder cancer is highly prevalent among older adults. Smoking is the main risk factor. Hematuria is the primary symptom, and imaging, particularly cystoscopy, is essential for diagnosis. TURB remains the cornerstone of treatment and may be combined with systemic therapy. Prognosis remains poor among patients diagnosed at advanced stages.

Abbreviations

TURB Transurethral Resection of the Bladder

ECOG3	Eastern Cooperative Oncology Group
MVAC	Methotrexate Vinblastine Adriamycin Cisplatin
AFU	French Association of Urology

Conflicts of Interest

The authors declare no conflicts of interest.

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