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Bladder tumors in young patients under 40 years: A retrospective study of 18 cases

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Abstract

Introduction: Bladder tumors are common and represent the second most frequent urological malignancy. They are classically considered a disease of older adults, typically occurring between 50 and 70 years of age. Their occurrence before the age of 40 is rare, accounting for only 1–4% of all cases. The natural history and prognosis of bladder tumors in young patients remain a subject of debate.

Materials and Methods: This is a retrospective, single-center study including 18 patients aged under 40 years who were managed between 2019 and 2023.

Results: Among 487 patients, 18 (3.7%) were younger than 40 years. The mean age was 34.2 years, with a male predominance (83.3%; male-to-female ratio = 5). Hematuria was present in 83.3% of cases. Non–muscle-invasive bladder tumors accounted for 61.1% of cases. Urothelial carcinoma was the predominant histological type (83.3%). The recurrence rate was 22.2%.

Conclusion: Bladder tumors in young patients are rare and generally associated with a favorable prognosis; however, long-term surveillance remains essential.

Keywords: Ladder Cancer; Young Patients; Urothelial Carcinoma; Prognosis

1. Introduction

Bladder cancer represents a major public health concern. It is the second most common urological malignancy after prostate cancer.

It generally occurs in older adults between 50 and 70 years of age. Occurrence in young adults (under 40 years) is rare and does not exceed 4% according to published series [1], [2].

The classical clinical presentation consists of painless terminal hematuria or hematuria with terminal predominance. Paraclinical investigations include ultrasound, cystoscopy, and CT urography. The definitive diagnosis is established by histopathological examination of resected specimens.

Urothelial carcinoma is the most frequent histological type.

Management differs depending on the presence or absence of bladder muscle invasion.

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The natural history and prognosis of bladder tumors in young patients remain a subject of debate, and the few studies conducted in this population have yielded conflicting results. Some authors consider that 30 years represents a threshold beyond which the aggressiveness of urothelial bladder tumors becomes similar to that observed in older patients, whereas below this age, the prognosis is more favorable.

2. Materials and Methods

Our study is a retrospective analysis including 18 cases of bladder tumors in patients under 40 years of age, admitted to the Department of Urology at Hassan II University Hospital in Fez over a 5-year period, from January 2019 to January 2024.

3. Results

During the study period, 487 patients were diagnosed with bladder tumors, among whom only 18 were under 40 years of age, representing 3.7%. Patient age ranged from 26 to 39 years, with a mean age of 34.2 years, and a marked male predominance (83.3%; male-to-female ratio = 5). Smoking was found in 61.1% of cases.

3.1. Hematuria was the main presenting symptom (83.3%)

Non–muscle-invasive bladder tumors (NMIBC) accounted for 61.1% (pTa: 11.1% and pT1: 50%), while muscle-invasive bladder tumors (MIBC) represented 38.8% (7 cases), including 3 cases with metastases at diagnosis.

- Urothelial carcinoma was present in 83.3% of cases.
- Transurethral resection of bladder tumor (TURBT) was performed in all patients.
- Radical cystectomy was performed in 8 patients.

The outcome was favorable in 61.1% of cases, with recurrence in 22.2% and one death (5.5%).

4. Discussion

Bladder tumors in patients under 40 years of age represent a rare entity, accounting for 3.7% of cases in our series, which is consistent with data from the literature where this frequency ranges between 1% and 4% [1], [2].

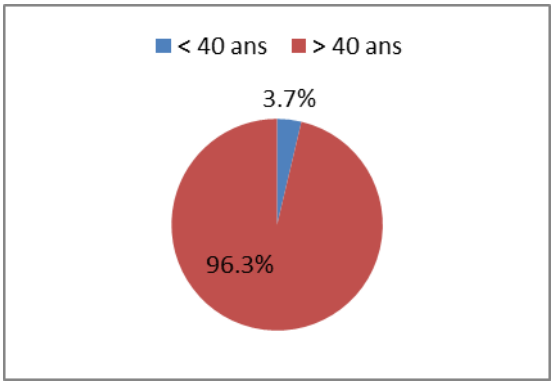

Figure 1 Frequency of bladder tumors in patients under 40 years of age in our series

4.1. Epidemiological data

In our study, the mean age was 34.2 years.

The marked male predominance observed (male-to-female ratio = 5) is also reported in the majority of studies, suggesting the predominant role of environmental factors [3].

4.2. Risk Factors

Active smoking was the main risk factor identified in our series (61.1%), which is consistent with data from the literature where it is implicated in more than 50% of bladder cancer cases [4].

Occupational exposure to carcinogenic substances (aromatic amines, hydrocarbons) was found in 11.1% of cases, which remains lower than that reported in Western series [5].

The absence of urinary schistosomiasis in our series contrasts with endemic areas, particularly in sub-Saharan Africa, where it represents a major risk factor [6].

4.3. Clinical Presentation

Gross hematuria remains the main presenting symptom (83.3%), as reported in the literature where it is present in more than 80% of cases.

Table 1 Comparative distribution of clinical signs (%) between the studies of D. Diao, J.M. Blanchard, and our series

Clinical signs	Results of Blanchard J.M study [7]	Results of D. Diao study [8]	Results of our study
Hematuria	84.6%	88%	83.3%
Irritative urinary symptoms	7.69%	94.3%	38.8%
Acute urinary retention (AUR)	0%	23%	0%
Low back pain	14.9%	19.3%	11.11%
altered general condition	3.5%	46.7%	11.11%

4.4. Histopathological Characteristics

Urothelial carcinoma accounted for 83.3% of cases, confirming its predominance, which is reported in more than 90% of cases in the literature.

The presence of rare histological types (squamous cell carcinoma, adenocarcinoma, rhabdomyosarcoma) is uncommon but has been described in young patients.

The predominance of non–muscle-invasive tumors (61.1%) is consistent with several studies suggesting a less aggressive profile in young patients.

However, the high proportion of high-grade tumors (72%) in our series contrasts with some literature data, where low-grade tumors are more prevalent.

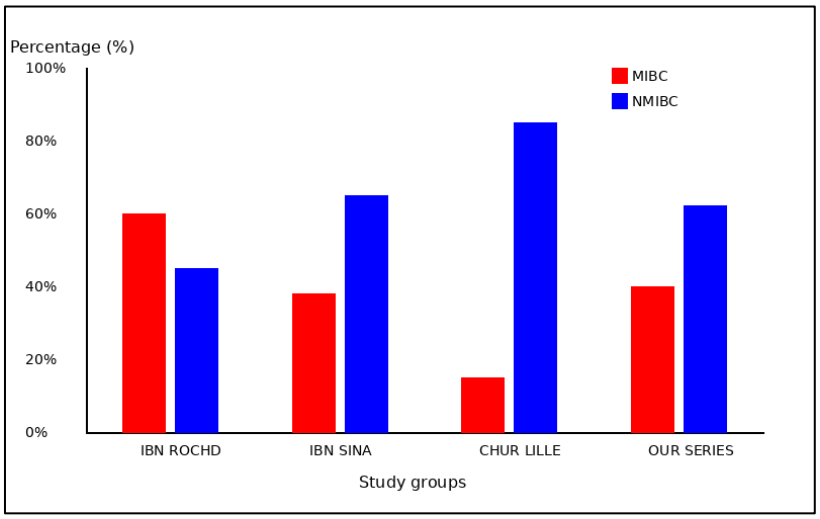

Figure 2 Distribution of bladder tumors according to histopathological stage [7], [9], [10]

4.5. Therapeutic Management

Transurethral resection of bladder tumor (TURBT) represents the standard initial treatment, allowing both histological diagnosis and management of non–muscle-invasive bladder tumors (NMIBC).

Radical cystectomy was performed in 8 patients, reflecting a non-negligible proportion of invasive forms.

Intravesical BCG immunotherapy, administered in 5 patients, remains the standard of care for high-risk NMIBC.

4.6. Outcomes and Prognosis

Outcomes were favorable in 61.1% of cases, which generally supports the better prognosis of bladder tumors in young patients.

However, the recurrence rate observed (22.2%) is comparable to that reported in the literature (20–30%).

Tumor progression (11.1%) and mortality (5.5%) observed in our series indicate that these tumors may exhibit aggressive behavior in certain cases.

5. Conclusion

Bladder tumors in young patients are rare and generally associated with a favorable prognosis. Strict follow-up is required.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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