

Bladder Cancer: Epidemiological, Clinical and Histopathological Aspects at the University Hospital Point G, Mali

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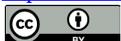
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Abstract

Introduction: Bladder cancer is a new tissue formation most often of urothelial origin with potential for local, locoregional and distant invasion. Among its risk factors, urinary bilharzia is endemic in our study area. The aim of our study was to present the epidemiological, clinical and histopathological aspects of bladder cancer in our department. **Patients and method:** This was a descriptive cross-sectional study over a 12-month period from January 1 to December 31, 2019. The study took place in the urology department of the university hospital Point "G". It included all patients hospitalized for bladder cancer. The epidemiological, clinical and histopathological characteristics have been sought and described. **Results:** A total of 74 patients were included in the study. Bladder cancer was the leading cause of cancer, accounting for 57.9% of all urological cancers. The mean age of the patients was 52.8 ± 16.25 years. A slight male predominance was observed with a sex-ratio of 1.2. Housewives were the most represented with 43.2% followed by farmers with 24.3%. Hematuria was the reason for consultation in 87.8% cases. The main risk factors found were urinary schistosomiasis (48.6%) and smoking (31.1%). These two factors were associated in 23.0% of cases. At diagnosis, 85.7% of patients were classified as T3 or T4 stage. Squamous cell carcinoma with 58.2% was the most common histological type followed by

urothelial carcinoma in 26.0% of cases. **Conclusion:** Bladder cancer is very common of cancer in hospitalized patients in our department. Diagnosis is more often made at an advanced stage. The most common histological type is squamous cell carcinoma.

Keywords

Bladder Cancer, Epidemiology, Clinic, Histopathology

1. Introduction

Bladder cancer is a new tissue formation most often of urothelial origin with potential for local, locoregional and distant invasion. It is most often a tumor invading the bladder muscle. It is sometimes a tumor which does not directly infiltrate the bladder muscle but given that it is of high histological grade, this could presage an evolution towards the mode infiltrating the bladder muscle. This ambiguity in evolution will lead us to speak more often of a bladder tumor. Bladder cancer with 16,390 deaths in 2016 is one of the deadliest genitourinary tumors in the USA [1]. In Europe, it is the second urological cancer after prostate cancer [2]. In Mali, it is the 4th most diagnosed cancer and is responsible for 4.0% of all cancer deaths [2]. Smoking and occupational exposure are the main risk factors [3]. In Africa, in bilharzia endemic areas, there is a histological type, squamous cell carcinoma, characterized by a high risk of local progression, recurrence and reduced sensitivity to chemotherapy and radiotherapy [4] [5]. This specificity requires the discovery of the tumor at an early stage for effective management, because no lifesaving therapy is effective in late stages. The low availability of endoscopic devices, especially in peripheral areas, the high cost of care compared to the income level of the most affected populations and the delay in consultation due to the similarity of signs between urinary schistosomiasis and bladder cancer, make it difficult to discover the pathology at the early stage. As a result, bladder cancer represents a real challenge for urologists working in bilharzia endemic areas of sub-Saharan African countries where it is characterized by a high specific mortality rate. Thus, with 5.2 deaths per 100,000 inhabitants, Mali is ranked 5th in the world for the highest age-standardized mortality rate of this condition [6]. The aim of our study was to present the epidemiological, clinical and histopathological aspects of bladder cancer in our department.

2. Patients and Method

This was a descriptive cross-sectional study over a 12-month period from January 1 to December 31, 2019. The study took place in the urology department of the Point "G" University Hospital, Mali. It included all hospitalized patients for bladder cancer. An investigation sheet comprising epidemiological data (age, sex, profession, level of education, risk factors), clinical data (consultation time, results of the physical examination, TNM 2009 classification) and histopatho-

logical data were recorded for each patient. All of this information was collected from the medical records of the patients. Data were analyzed using SPSS software.

3. Results

A total of 74 patients were included in the study. Bladder cancer with 10.6% represented the 4th reason for hospitalization after benign prostatic hyperplasia, urolithiasis and urogenital fistulas. However, it occupied the 1st rank of urological cancers with 57.9% ahead of prostate, cancer 26.5% and kidney cancer 14.8%. The mean age of the patients was 52.8 ± 16.2 years with ranges of 11 to 89 years. There was a slight male predominance with a sex ratio of 1.2. Housewives represented 43.2% of patients. The main risk factors found were urinary schistosomiasis, 48.6% and smoking, 31.1%. These two factors were associated in 23.0% of cases. The epidemiological aspects are summarized in **Table 1**.

Table 1. Epidemiological aspects.

Variables	Frequency	Percentage
Sex		
Man	40	54.1%
Woman	34	45.9%
Age (year)		
Less than 30	7	9.5%
30 - 50	22	29.7%
51 - 70	40	54.0%
Over 70	5	6.8%
Total	74	100
Profession		
Housewife	32	43.2%
Farmer	18	24.3%
Civil servant	11	14.9%
Other	13	17.6%
Total	74	100
Educational level		
Primary	19	25.7%
Secondary	5	6.7%
University	3	4.1%
Illiterate	47	63.5%
Total	74	100
Risk factors found		
Bilharzia	19	25.7
Tobacco	6	8.1
Bilharzia and Tobacco	17	23.0
None	32	43.2
Total	74	100

The consultation time was over 1 year in 59.4%. Hematuria was the main reason for consultation with 87.8% (n = 65). It was associated with lower urinary tract disorders in 55.4% (n = 41) of cases. Signs of advanced disease were found in 66.2% of cases, consisting of the pelvic shield, 36.5% and the hypogastric mass, 29.7%. At diagnosis, 85.4% of patients were classified as T3 or T4. Clinical aspects are presented in **Table 2**.

Urinary cytology was positive, revealing carcinoma in 63.0% of patients. The histological type obtained after biopsy during cystoscopy or after trans urethral resection of the bladder was dominated by squamous cell carcinoma which constituted 58.2% of cases. In **Figure 1** are illustrated the different histological types.

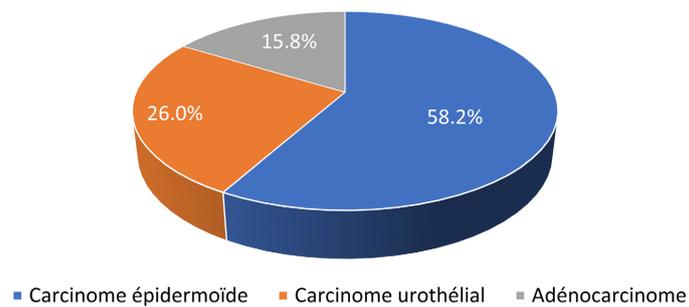


Figure 1. Histological types.

Table 2. Clinical aspects.

Variables	Frequency	Percentage
Consultation time (month)		
Less than 6	15	20.3
6 - 12	15	20.3
13 - 18	24	32.4
More than 18	20	27.0
Total	74	100
Result of physical examination		
Pelvic shielding	27	36.5
Hypogastric mass	22	29.7
Bladder globe	2	2.7
Normal	23	31.1
Total	74	100
Classification		
T2	11	14.86
T3	18	24.32
T4	45	60.82
Total	74	100

4. Discussion

Bladder cancer represented 10.6% of the activities of our hospitalization department. It was the most frequent urological cancer with 57.9%, ahead of prostate cancer, 26.5%. This finding is in contrast with other from countries in the same geographic area. Thus, in Benin, with a frequency of 28.5%, it came largely after prostate cancer, 69.0% [7]. In Senegal, the frequency of bladder cancer has fallen sharply compared to other urological tumors, dropping from 86.9% to 18.0% [8] where prostate cancer is predominant. This change in trend is believed to be due to an improvement in prostate cancer screening tools in recent years in the countries of Sub-Saharan Africa (SSA). In Mali, the high frequency of bladder cancer is more likely to be explained by a more severe endemic bilharzia (one in four people is affected) and more widespread with poor epidemiological control [9]. Both sexes were affected with almost the same prevalence in our study with a sex-ratio of 1.17. About 45.0% of the men were farmers, while 94.1% of the women were housewives. Men and women shared the same risk of exposure to bilharzia in rural areas. The slightly higher prevalence in men could be explained by other factors such as smoking. This phenomenon was until then quite marginal among women in Mali unlike the populations of countries in Europe and America.

The regions in which our patients most often come from were areas with high Bilharzia endemicity (Bamako, Koulikoro, Ségou and Kayes) due to the presence of numerous rivers and hydrological dams [10]. The populations there quite often practice fun aquatic activities, especially in childhood and or at work. Bladder tumors in Sub-Saharan Africa are most often related to a history of bilharzia infestation [11]. On average, a period of about 30 years separates the first bilharzial infestation and subsequent bladder cancer [12]. The first infestation occurring most often in childhood and would be responsible for the early onset of bladder cancer in bilharzia endemic areas, while in Europe and America, the age of onset is between sixth and seventh decade [1] [2]. In our study, urinary schistosomiasis was the risk factor most frequently associated with bladder cancer (48.7%). In 43.2% no factor was found, an old bilharzial involvement cannot be ruled out in these cases. Hematuria, which is the main sign sought to determine the history of urinary schistosomiasis, is only present in 50% of cases of *Shistosoma hematobium* [9].

Bilharzia was associated with 29.0% to 85.0% of squamous bladder cancers and 10% of transitional cell carcinomas in SSA [11]. Bilharzia and smoking both increase the risk of squamous cell cancer and urothelial bladder cancer [13], in our study this association was found in 23.0% of cases.

Our study revealed a great delay in consultation of patients suffering from bladder cancer. In 59.4% of cases, the consultation in a specialized environment was carried out more than 12 months after the onset of symptoms. This delay in consultation could be mainly due to the trivialization of hematuria in a context of endemic bilharzia. Thus in the majority of cases, 66.2%, the tumor was clinically evident in our patients by palpation of a hypogastric mass or the presence

of pelvic shielding on rectal examination. According to a study, 27.0% of squamous cell type bladder cancers consult at an inoperable stage in Africa [11]. In our study, 60.2% of tumors were diagnosed at the inoperable T4 stage, in agreement with the high mortality rate linked to bladder cancer recorded in Mali [6].

Confirming previous results in SSA [8] [11] [14], our study found a predominance of squamous cell carcinoma with 58.2% of cases, followed by urothelial carcinoma, 26.0%. *Shistosoma haematobium* infection was recognized in 1994 by the International Agency for Research on Cancer (IARC) and confirmed in 2012 as a class A carcinogen [15] [16]. In Egypt, a decrease in squamous cell forms in favor of urothelial forms with the decline of *Shistosoma haematobium* infection is evidence of the role of urinary schistosomiasis in the development of bladder squamous cell carcinoma [17] [18]. In Nigeria, depending on the study populations, the prevalence of squamous cell carcinoma ranges from 39% to 66% [11]. In Mali, in a region different from the site of our study, with high bilharzia endemicity where 73.5% of patients had a history of urinary schistosomiasis [19], the prevalence of squamous cell carcinoma was 82.1% [19]. This large difference between regions is mainly linked to the variation in the prevalence of urinary schistosomiasis.

Due to the late discovery of the pathology, only 14.86% of patients were able to benefit from a curative treatment. This treatment consisted of a total cystectomy with bladder replacement. For the rest of the patients, it was a palliative treatment consisting of transurethral resections of the bladder, urinary diversions, analgesics. Radiotherapy and chemotherapy were not part of our medical means because of the high cost for our patients on the one hand, the general condition of the patients sometimes very altered and the histological type often not very sensitive to radiotherapy and chemotherapy on the other hand.

This study poses two essential problems: Firstly, the delay in consultation due to the presence of the bilharzian endemic which leads to the appearance of histological type with little chemo and radio sensitivity and secondly the weakness of the technical platform by the unavailability and financial inaccessibility of therapeutic means for the moment poorly adapted to the histological type present. La résolution de ce paradoxe passe par la lutte contre la bilharziose qui permettra de diminuer le carcinome épidermoïde et de rendre accessible les moyens thérapeutiques pour les autres types histologiques en attendant l'inversion des proportions histologiques comme cela s'est vue en Egypte [17] [18].

The limitation of this study is that it is unicentric. Indeed, this center is a tertiary center that receives serious cases from other structures. This selection bias could explain the large proportion of terminal pathologies. A multicenter study could provide a more comprehensive picture of the bladder cancer situation in the country.

5. Conclusion

Bladder cancer is very common in patients hospitalized in our department. They are characterized by a delay in consultation responsible for a discovery of the

pathology at an advanced stage. Squamous cell carcinoma is the most frequent histological type, favored by endemic bilharzia, responsible for the delay in consultation by trivialization of hematuria. Effective control measures against urinary schistosomiasis should help reduce the prevalence of bladder cancer.

Conflicts of Interest

None.

Funding Source

None.

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