

Urinary bladder cancer in adults: a histopathological experience from Madinah, Saudi Arabia

Abeer Abdalla El-Siddig,¹ Abdulkader Mohammed Albasri,² Akbar Shah Hussainy,³ Ahmed Safar Alhujaily⁴

Abstract

Objective: To delineate the frequency and clinicopathological features of urinary bladder cancer.

Methods: This retrospective study was conducted at the King Fahd Hospital, Madinah, Saudi Arabia, and comprised medical records related to bladder tumours, from January 2006 to October 2015. Data was obtained from histopathologic reports and evaluated for age, gender, cystoscopic findings and histopathological characteristics at the time of presentation.

Results: Of the 116 cases, 96(82.7%) were of men while 20(17.3%) were of women. The mean age was 62.4±15.62 years (range: 20-115 years). Transitional cell carcinoma was the most common histological type, seen in 111(95.7%) cases, followed by adenocarcinoma 3(2.6%) and squamous cell carcinoma 2(1.7%). Of the transitional cell carcinoma cases, 78(70.5%) were superficial, while 33(29.5%) were muscle invasive. Most of the transitional cell carcinoma cases 72(65%) were of lower grade (grade I and II), while 39(35%) were of grade III.

Conclusion: Our hospital-based pathology experience of urinary bladder cancer was comparable with earlier studies.

Keywords: Urinary bladder cancer, Transitional cell carcinoma, Histopathology, Madinah, Saudi Arabia. (JPMA 67: 83; 2017)

Introduction

Cancer is one of the major health problems in the world. As reported by the International Agency for Research on Cancer (IARC), the incidence and prevalence of cancers worldwide is 14.1 million and 32.6 million, respectively; more than 50% of these cancers are prevailing in the less developed regions.^{1,2} This figure is expected to rise to 22 million annually within the next two decades.³

According to the IARC data, the incidence rank of urinary bladder cancer (UBC) among all cancers is number 7 in males and number 11 in both genders.¹ Chavan et al. in their review on its international variation have found the highest rate of UBC in Europe, the United States and Egypt, and the lowest rate in sub-Saharan Africa, Asia and South America.⁴ UBC is still the most common malignant tumour among males in Egypt and some African and Middle East countries.⁵ UBC is also one of the five most common tumours in southern Iran, Jordan, Bahrain and Qatar.⁶⁻⁹ Although UBC is low in the list of frequency in Iraq (Kurdistan region), there is a steady increase in the incidence of UBC, along with overall increased cancer incidence.¹⁰

According to the latest data available from the Saudi Cancer Registry (SCR), the total number of cancer cases

reported to the SCR was 14,776.¹¹ A recent cross-sectional survey conducted in the northern part of the Kingdom of Saudi Arabia (KSA) found that in over 3000 respondents almost one-third had relatives with cancer.¹² Thus, cancer is quite common in our community. However UBC appears to be less common according to the SCR; it ranks 9th among males and 14th among females.

UBC is less common in KSA and its incidence in the Madinah region is even less frequent; in this regard Madinah ranks 11th out of total 13 regions of KSA.¹¹ There is, however, no hospital-based research works on UBC from KSA and Madinah, except a couple of epidemiological genito-urinary cancer studies from the central region of Riyadh.^{13,14} The current study was planned to delineate the frequency and clinicopathological features of UBC.

Patients and Methods

This retrospective study was conducted at the Department of Pathology, King Fahad Hospital, Madinah, Saudi Arabia, and comprised cases of bladder tumours from January 2006 to October 2015. King Fahad Hospital is a general tertiary care hospital. All patients who visited urology outpatient department (OPD) and subjected to cystoscopy and bladder biopsy and/or transurethral resection (TUR) of bladder growth were included. Data was obtained from histopathological reports and evaluated for age, gender, cystoscopic findings and histopathological characteristics at the time of

¹⁻³Department of Pathology, Taibah University, ⁴Department of Pathology, King Fahad Hospital, Al-Madinah Al-Munawwarah, Kingdom of Saudi Arabia.

Correspondence: Abeer Abdalla El-Siddig. Email: a.a.elsiddig@gmail.com

presentation. The tumours were staged and graded pathologically according to the World Health Organisation's (WHO) 1973 classification.¹⁵

Results

Of the 116 cases identified, 96(82.7%) were of men while 20(17.3%) were of women, with a male-to-female (M:F) ratio of 4.8:1. The overall mean age was 62.4±15.62 years (range: 20-115 years). The mean age of males and females was 61.4±15.35 years and 64.5±16.12 years, respectively. The majority of the cases 56(48.3%) were seen in the age group 60-79 years. The young age group (≤40 years) and the elderly age group (≥80 years) constituted 11(9.5%) and 14(12%) cases, respectively.

The main histopathological types were transitional cell carcinoma (TCC) accounting for 111(95.7%) of cases, followed by adenocarcinoma 3(2.6%) and squamous cell carcinoma (SCC) 2(1.7%) (Table-1).

Of the TCC cases, 78(70.5%) were superficial, while 33(29.5%) were muscle invasive TCC. The M: F ratio for TCC was 5.5:1. Its peak occurrence was noted in the age group 60-79 years 57(51.4%) with a mean age of 62.6±15.65 years. Most of the TCC 72(65%) were of lower grade (grade I and II), while 39(35%) were of grade III. The vast majority of tumours exhibited a papillary configuration

Table-1: The histological type and frequency of distribution of our patients with bladder tumours.

Histopathologic diagnosis	Frequency	(%)
Transitional cell carcinoma	111	95.7
Adenocarcinoma	3	2.6
Squamous cell carcinoma	2	1.7
Total	116	100

Table-2: The age and sex distribution of our patients with bladder tumours.

Variable	Transitional cell carcinoma	Adenocarcinoma	Squamous cell carcinoma
Gender			
Male	94 (84.7%)	2 (66.7%)	-
Female	17 (15.3%)	1 (33.3%)	2 (100%)
Age			
Mean age (years)	62.6	47.5	63.5
Age specific groups			
< 40	12 (10.8%)	1 (33.3%)	-
40-49	9 (8.1%)	-	-
50-59	21 (18.9%)	1 (33.3%)	1 (50%)
60-69	27 (24.3%)	1 (33.4%)	-
70-79	30 (27.1%)	-	1 (50%)
≥ 80	12 (10.8%)	-	-
Total	111 (100%)	3 (100%)	2 (100%)

72(64.86%), and less often a solid/nodule, or mixed (papillary and solid) configuration 39(35.14%). The mean age for adenocarcinoma and SCC cases was 47.5±11.87 and 63.5±15.87 years, respectively. The adenocarcinomas were more common in males 2(66.7%) than females 1(33.3%) with a gender ratio of 2:1. All cases were moderately differentiated. Conversely, all cases of SCC were seen in female patients 2(100%) and all were poorly differentiated tumours (Table-2).

Discussion

KSA is a rapidly developing country with significant modernisation and industrialisation, with its consequences of modern diseases including cancers. Although the incidence and prevalence of cancers are still low in KSA as compared to the western world, some of the recent observations suggest an increase. UBC is one of the rare tumours in the list of prevalence in KSA as reported by the SCR;¹¹ however, due to the absence of any hospital-based pathology studies in the recent literature from KSA and Madinah, we have compared our observations with that of other similar studies from around the world.

UBC is predominantly a disease of male gender as described in the textbook, WHO and SCR data.^{1,2,11} Recent individual researches from around the world also confirm this observation, such as from studies conducted in Egypt,¹⁶ Pakistan,^{17,18} Netherlands,¹⁹ Malaysia²⁰ and Nigeria.²¹ We also found a predominance of male gender in our UBC cases with a M:F ratio as high as 5:1; however recently Rambau et al. from Tanzania found a predominance of females in their UBC cases.²² This is probably due to the presence of more cases of SCC in their cohort, which comprised a schistosomiasis-infested population. Mallin et al. from their recent study of UBC and comparison between race and gender found more cases of muscle-invasive UBC in females than males.²³

Most of the classical literature and historical age-related data of UBC point towards a higher frequency in elderly patients. Similar observations were made in the present study and the recent literature as well. Mubarak et al. from Southern Pakistan have reported a mean age of 57.5 years;¹⁷ whereas Mansoor et al., in their study on superficial bladder cancers, observed a median age of 62 years.¹⁸ Kong et al. from Malaysia found slightly higher figures of 65 years.²⁰ The mean age reported from Nigeria is towards the lower end i.e. 51.3 years.²¹ The Tanzanian study of schistosomiasis-associated UBC also quotes a lower mean age figures of 54.3 year.²² The schistosomiasis-associated UBC has been classically associated with young age group; this has recently been confirmed from an Egyptian study by Salem and Mahfouz. But they found an increase in the mean age of UBC patients by about 10 years; probably because of a decrease in the incidence of schistosomiasis.²⁴

TCC is the most common type of UBC as observed in the textbooks and WHO data^{1,2} as well as in the recent data of KSA.¹¹ In the present study, we also found TCC in more than 95% cases. Similar high percentages of TCC have been reported in the recent literature. Vaidya et al. from Nepal report the TCC percentages to be as high as 97.6%.²⁵ Mubarak et al. from Pakistan report a frequency of 94.3% TCC.¹⁷ A recent study analysing the cancer registry of Netherlands found more than 90% urothelial cancers in their population cohort of more than 28 thousand patients.¹⁹ Kong et al. from Malaysia also report TCC to be present in 90.4%.²⁰ The reports from the schistosomiasis-endemic African countries are different. Although TCC is still a predominant tumour in the study from Nigeria, the frequency percentage is only 61.5%.²¹ Rambau et al. from Tanzania found more SCC (55.1%) than TCC (40.5%), in keeping with association of SCC with that of endemic schistosomiasis in the country.²² The apparent increase in the frequency of TCC in Egypt, during the 10 years' period of study by Salem and Mahfouz, was also attributed to a decrease in the incidence of schistosomiasis.²⁴ The clinicopathological features of TCC were obviously found to be similar to all the cases of UBC due to its predominance. The M:F ratio remained approximately the same i.e. 5:1. Similar gender ratio was found in a recent study from Nigeria.²¹ On the contrary, the recent Malaysian study has reported a significantly higher M:F ratio of 9.4:1.²⁰ Regarding age, Nigerian scientists found slightly young TCC patients with a mean of 59 years as compared to the mean age of 62.4±15.62 years in the current study.²¹ Mansoor et al. from Pakistan in their study of superficial TCC found the same age group patients of 62 years.¹⁸ Comparing the pathology details of TCC, we found two-thirds of cases to be in low-grade (i.e.

grade I and II) category and only one-third cases were high grade. The Malaysian researchers also found about 1/3 high-grade cases (32.5%) in the superficial TCC.²⁰ The Southern Pakistani study has observed this ratio to be approximately 3/4 low grade to 1/4 high grade, i.e. they found more percentages of well-differentiated TCC as compared to our observation.¹⁷ In contrast, the study from Nepal has reported more than half the cases (52.2%) as high grade.²⁵ As far as the staging was concerned, superficial TCC was predominant in our experience and only about 30% cases of TCC were muscle invasive. The figures observed by the Nepalese scientists were close to our observation i.e. about 35% showed muscle invasion.²⁵ Slightly higher percentage of 38% muscle invasive were observed by Mubarak et al. from Southern Pakistan.¹⁷ Whereas in the study by Kong et al. from Malaysia, more than 40% cases of TCC were muscle invasive.²⁰ A study from the United States, comparing race and gender in TCC, has however found that the black race and female patients had a higher proportion of muscle invasive tumours than white race and male patients.²³ Besides TCC, there were 2.6% cases of adenocarcinoma (AC) and 1.7% cases of SCC in our series. These figures are comparable with most of the recent studies. Ploeg et al. from Netherlands observed 7.7% non-urothelial cancers, which also included soft tissue tumours and neuroendocrine tumours along with AC and SCC.¹⁹ Kong et al. from Malaysia have observed 6% AC and 1.2% SCC.²⁰ The representation of UBC, however, is quite different from the schistosomiasis endemic countries. Anunobi et al. from Nigeria have reported 5.1% AC and 20.5% SCC.²¹ The AC cases in our series were of younger age group (47.5 years) as compared to 66.4 years in Netherlands study.¹⁹ The opposite is true for age-related data of SCC. In the current study, the mean age of SCC patients was 63.5±15.87 years as compared to the recent studies from Nigeria, Tanzania and Egypt reporting 47, 54.3 and 52 years, respectively.^{21,22,24} This difference in the mean age at diagnosis of SCC is probably due to the schistosomiasis associated SCC in these African countries. Like TCC, AC is common in males as observed in our study as well as reported by Netherlands scientists.¹⁹ Similarly, SCC is known to be common in females, as observed in our study as well as from Netherlands.¹⁹ There is a male preponderance in SCC patients reported from Nigeria and Egypt.^{21,24} The M:F ratio reported from these African countries is much lower than as observed in TCC patients; this suggested a greater involvement of females by SCC as compared to TCC.

Conclusion

Our hospital-based pathology experience of UBC was

comparable with the figures available through epidemiological studies by the WHO and SCR as well as the recent available hospital-based studies from around the world. This study would form a baseline for UBC data in the Madinah region; however, further hospital-based pathology studies of large multi-central nature are highly recommended to better understand this condition.

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Conflict of Interest: None.

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