ORIGINAL RESEARCH PAPER

Pathology

SPECTRUM OF UROTHELIAL MALIGNANCIES IN NORTH WEST RAJASTHAN

KEY WORDS: Urothelial Carcinona, TURBT, Transitional cell carcinoma

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ABSTRACT

Background: Malignancies of urinary bladder or urothelial malignancies are quite common. Urothelial carcinoma account for 90% of all primary tumors of the bladder. Transitional cell carcinoma (TCC) is the commonest bladder cancer followed by squamous cell carcinoma (SCC). **Methods:** This is a retrospective study for the period of two years from 2018 to 2020. We included all the urinary bladder specimens received in form of Transurethral resection of bladder Tissue (TURBT) and biopsies of patients with urinary bladder lesion and reported as urothelial malignancy. Autolysed specimen, Inadequate biopsies and non neoplastic lesions were excluded from this study. Biopsy specimens were processed as per routine histopathological technique. The specimens received were fixed in 10% buffered formalin. Gross examination was done and findings recorded. The tissues were sectioned as per protocol and processed by wax block method. Slides were stained with hematoxylin and eosin (H&E) stain and examined under light microscope. Then bladder lesions were studied according to WHO/ISUP (2004) classification. **Results:** During the study period we received a total of 98 urinary bladder biopsies including both cystoscopy bladder biopsy and TURBT, out of that a total of 87 (88.8%) urinary bladder specimens were neoplastic. The age of the patients ranged from 36-77 years of age (mean ± std. dev. 58.14 ± 10.78 years). Out of 87 patients, 73 (83.91%) were males and 14 (16.09%) were females with a male to female (M:F) ratio of 5.21:1. There was clustering of cases in the seventh decade of life with 33 (37.9%) cases followed by fifth decade with 17 (19.54%) together constituting 64%. Invasive urothelial carcinoma (IUC) was more common with 36 cases (41.37%) which included 15 cases of superficially invasive bladder cancer (invasion up to lamina propria) and 21 cases of muscle invasive bladder cancer (invasion into muscularis propria). There were various histological differentiation seen among IUC which included squamous, clear cell and sarcomatoid variant constituting 13.8%, 2.3% and 3.4% respectively. Apart from IUC, various non-invasive lesions were studied which included 5 cases (5.7%) of papillary urothelial neoplasm of low malignant potential, 36 cases (41.37%) of non-invasive urothelial carcinoma- low grade and 5 cases (5.7%) of non-invasive urothelial carcinoma-high grade. **Conclusion:** Urothelial carcinoma are common and constitutes a significant burden of malignancies in developing countries. Out of total carcinoma cases most common carcinoma was of high-grade urothelial carcinoma presented with lamina propria and muscle invasion. Pathological grade and muscle invasion are the most valuable prognostic predictors of survival. Awareness is very much needed in the public about haematuria because they neglect it causing in an advanced stage of bladder cancer at the time of presentation.

INTRODUCTION

Malignancies of urinary bladder or urothelial malignancies are quite common. Urothelial carcinoma account for 90% of all primary tumors of the bladder.[1] It is ranked the 9th most common malignant tumor worldwide, 4th in men and 8th in women.[2] As per Indian Cancer Registry data, it is the 9th most common cancer accounting for 3.9% of all cancers.[3] The cancer is more common in males. Smoking and industrial carcinogens are most commonly implicated etiological factors. [4-6] Transitional cell carcinoma (TCC) is the commonest bladder cancer followed by squamous cell carcinoma (SCC).[2,4-6] However SCC is a significant deviation in Middle East and African countries with relatively high prevalence and incidence due to higher prevalence and association with Schistosomiasis in these regions.[6]

Urothelial bladder tumors are classified in flat and papillary type. Most common tumors are papillary. Carcinoma in situ and few invasive tumors have a flat pattern. The papillary equivalent of flat in situ carcinoma is the high-grade noninvasive papillary urothelial carcinoma.[7,8]

Progress has been made in the field of non-invasive imaging and scientists continue to identify and characterize potential markers or surrogate end points for bladder tumor physical examination, cystoscopic evaluation and histopathological analysis of biopsy material are the mainstays of contemporary bladder cancer diagnosis and treatment.

METHODS

This is a retrospective study carried out in the department of Pathology, Sardar Patel medical college, Bikaner for the period of two years from 2018 to 2020. We included all the urinary bladder specimens received in form of Transurethral resection of bladder Tissue (TURBT) and biopsies of patients with urinary bladder lesion and reported as urothelial malignancy. Clinical data was collected from patient records. Clinical, cystoscopic findings and the clinical diagnosis of all cases of urinary bladder lesion sent to the laboratory were noted from the patients records. Autolysed specimen, Inadequate biopsies and non neoplastic lesions were excluded from this study. Biopsy specimens were processed as per routine histopathological technique. The specimens received were fixed in 10% buffered formalin. Gross examination was done and findings recorded. The tissues were sectioned as per protocol and processed by wax block

method. Slides were stained with hematoxylin and eosin (H&E) stain and examined under light microscope. Then bladder lesions were studied according to WHO/ISUP (2004) classification.

RESULTS

During the study period we received a total of 98 urinary bladder biopsies including both cystoscopy bladder biopsy and TURBT, out of that a total of 87 (88.8%) urinary bladder specimens were neoplastic. Patients presented with complaints of haematuria, the most common clinical symptoms (89%), while pain was present in 46% of cases, burning was present in 39% of cases and strangury was present in 34% of cases.

The age of the patients ranged from 36-77 years of age (mean ± std. dev. 58.14 ± 10.78 years). Out of 87 patients, 73 (83.91%) were males and 14 (16.09%) were females with a male to female (M:F) ratio of 5.21:1.[Table 1] There was clustering of cases in the seventh decade of life with 33 (37.9%) cases followed by fifth decade with 17 (19.54%) together constituting 64%.

Out of all neoplastic lesions of various histomorphological categories, invasive urothelial carcinoma (IUC) was more common with 36 cases (41.37%) which included 15 cases of superficially invasive bladder cancer (invasion up to lamina propria) and 21 cases of muscle invasive bladder cancer (invasion into muscularis propria). There were various histological differentiation seen among IUC which included squamous, clear cell and sarcomatoid variant constituting 13.8%, 2.3% and 3.4% respectively.[Image 1] Apart from IUC, various non-invasive lesions were studied which included 5 cases (5.7%) of papillary urothelial neoplasm of low malignant potential, 36 cases (41.37%) of non-invasive urothelial carcinoma- low grade and 5 cases (5.7%) of non-invasive urothelial carcinoma- high grade [Table 2].

Table 1: Age group and gender wise distribution of cases in the present study.

Age Groups	Male	Percent	Female	Percent	Total
31-40	5	100.00	0	0	5
41-50	19	86.36	3	13.64	22
51-60	12	70.59	5	29.41	17
61-70	30	90.91	3	9.09	33
>70	7	70.00	3	30.00	10
Total	73	83.91	14	16.09	87

Table 2: Diagnosis of cases in the present study

Diagnosis	No. of Cases (n=87)	Percent
Papillary urothelial neoplasm of low malignant potential	5	5.7
Low-grade papillary urothelial carcinoma	41	47.1
High grade Non invasive Urothelial carcinoma	5	5.7
High-grade Invasive urothelial carcinoma	36	41.37
	87	

DISCUSSION

Urinary bladder diseases are common, both non-neoplastic and neoplastic. Bladder tumor is the ninth most common tumor worldwide. Urothelial carcinoma is the commonest type accounting for 90% of all primary tumors of the bladder. A total of 87 cases of urinary bladder tumors were included in our study. In our study haematuria was the most common clinical symptoms (89%), while pain was present in 46% of cases, burning was present in 39% of cases and strangury was present in 34% of cases which was similar to the study of Ray et al[9] (2013) who found that 91% of urinary bladder patients were presented with painless haematuria.

In our study we found the male to female ratio was 5.21:1 which was concordant with Lim et al[10] and Vaidya et al[11] and they found male to female ratio in their study was 5:1 and 4.5:1 respectively. The gender ratio varies from different studies The male to female ratio of our study was slightly higher than the study of Hasan et al[12] (2.58:1), Cheng et al[13] (3.3:1.0) and lower than Matalka et a1[14] (9:1). In our study the most common age group was 61-70 years with 33% cases which was correlated with Vaidya et al[11] of 33.73% cases of 61-70 years while Mean age of presentation was 58.14 ± 10.78 years which was correlated with Matalka et al[14] studied in which mean age of the patients was 60.6 years (range 19-91) and median age of presentation was 61.00 years (range 35-85).

In our study non invasive papillary urothelial carcinoma were 51 (58.62%) whereas muscle invasion was seen in 24.14% cases, while lamina propria invasion in our study was seen in 17.24% cases of urothelial carcinoma. Laishram et al[15] showed 53.85% of non-invasive papillary carcinoma, 15.38% of superficially invasive bladder carcinoma and 30.77% of muscle invasive bladder carcinoma in their study, which is comparable to our study.

In our study, invasive urothelial carcinoma without any differentiation was the predominant type with 70 cases (80.45%) which was similar to studies done by Shruti HP et al[16] having 86.67% and Goyal VK et al[17] having 92.13%. Apart from this, IUC with squamous differentiation and IUC having clear cell and Sarcomatoid variant were also included in the present study.

CONCLUSION

Urothelial carcinoma are common and constitutes a significant burden of malignancies in developing countries. Out of total carcinoma cases most common carcinoma was of high-grade urothelial carcinoma presented with lamina propria and muscle invasion. Pathological grade and muscle invasion are the most valuable prognostic predictors of survival. Awareness is very much needed in the public about haematuria because they neglect it causing in an advanced stage of bladder cancer at the time of presentation.

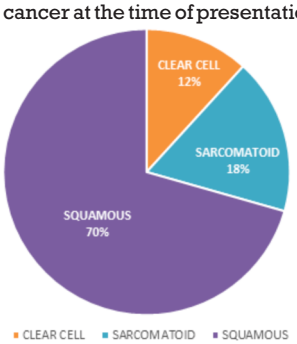

Image 1: Frequency of differentiation of various Urothelial Malignancies.

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