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Original Research Article

A Clinicopathological Study of Urinary Bladder Neoplasms on Trans Urethral Resected Bladder Tumours (Turbtchips) - At a Tertiary Care Centre

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ABSTRACT

Background: Bladder cancer is the 7th most common cancer worldwide, with an estimate of 260,000 new cases occurring each year in men and 76,000 in women. The origin of Bladder tumour is multifactorial, with tobacco smoke as principal cause in most countries. Other etiologic factors include analgesic abuse, occupational exposure and chronic Schistosoma cystitis. Aim and objectives: The aim of the present study is to analyse the spectrum of lesions in Urinary bladder by histopathological examination of TURBT specimens.

Material and methods: The study was carried out in the Upgraded department of Pathology, Osmania General Hospital, and Hyderabad for a period of 18 months. Clinicopathological data of all the TURBT biopsies were collected and analysed. Results: A total of 64 TURBT biopsies were received in the study period and included both benign and malignant neoplasms. Urothelial carcinomas were classified according to WHO/ISUP (2004) classification. The most common age group was 61-70 years (34%) with male to female ratio of 3.26:1. Among the urinary bladder neoplasms most of them were malignant lesions and the most common type of malignancy was Papillary urothelial carcinoma-high grade (65.6%) followed by low grade papillary urothelial carcinoma (10%), well differentiated squamous cell carcinoma (9%), transitional cell papilloma (4%), papillary urothelial neoplasm of low malignant potential (3%), moderately differentiated adenocarcinoma (3%).

Conclusion: Among urinary bladder neoplasms high grade papillary urothelial carcinoma is the most common type. Improvements in early detection have made reproducible grading and staging important criteria for clinical management and prognosis.

Keywords: Urothelial carcinoma, Squamous cell carcinoma, Adenocarcinoma, Urinary bladder, TURBT.

INTRODUCTION

The diseases of the urinary bladder are quite common and include both non-neoplastic and neoplastic lesions. Urothelial tumors represent about 90% of all bladder tumors. Urinary bladder cancer is the most common malignancy of the urinary tract, responsible for significant mortality and morbidity worldwide. (1)

Cancer of the urinary bladder accounts for about 3.2% of all cancers worldwide and is considerably more common in males than in females (ratio worldwide is about 3.5:1).

Most cases of urothelial carcinoma of the bladder present in patients over the age of 50 years, but they can also occur in younger adults and children. (2) Improvements in early detection have made reproducible grading and staging important criteria for clinical management and prognosis.

MATERIALS AND METHODS

The study was conducted in the upgraded department of pathology, Osmania General Hospital, Hyderabad from January 2015 to June 2016 and included all the patients with urinary bladder lesions diagnosed on TURBT, who attended the Hospital. Relevant data was collected in a preset proforma. The material for the present study comprised of Trans-urethral resection of bladder tissue biopsy.

The pathological diagnosis was made according to the World Health Organisation (WHO)/ International Society of Urological Pathology (ISUP) classification in 2004. [(3)] The tumors were graded as Urothelial papilloma, Urothelial neoplasm of low malignant potential, papillary urothelial carcinoma- low grade, papillary urothelial carcinoma- high grade.

TURBT specimens are usually obtained with the aid of thermal cautery. Because of the significant prognostic and therapeutic implications for the presence of muscularis propria invasion by the bladder neoplasms, it is often necessary to process all of the submitted tissue.

RESULTS

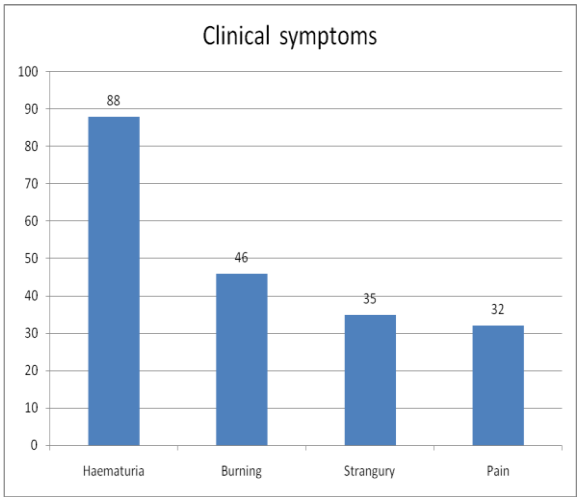
Age group (years)	Number of patients	Percentage(%)
1-10	-	-
11-20	-	-
21-30	2	3%
31-40	5	8%
41-50	7	11%
51-60	17	26%
61-70	22	34%
71-80	8	12%
81-90	3	5%
91-100	-	-

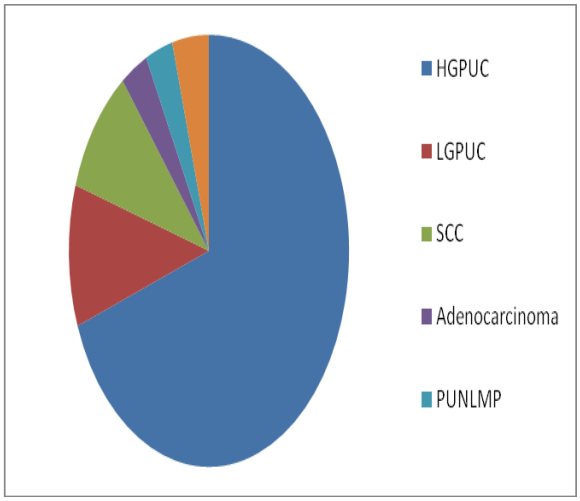
A total of 64 TURBT biopsies were analysed in the study period i.e., from January 2015 to June 2016 and the age group ranged from 24 - 90 years. In the present study most common age group was 61-70 years constituting upto 34%, followed by 51-60 years (26%) and the least common age group was 21-30 years (3%). The mean of all bladder lesions was 60.24.

Male to female ratio was 3.26:1.

Sex	Number of cases	Percentage(%)
Male	49	76.5
Female	15	23.4
Total	**64**	**100**

The most common clinical symptom was haematuria (88%), followed by burning (46%), strangury (35%) and pain in (32%). On Cystoscopic examination 86% patients had papillary mass, 10% patients had solid mass and 2% patients had ulcer and diffuse thickening.





In the present study total number of malignant neoplasms was 61 and benign neoplasms were 3. The most common histopathological diagnosis was Papillary urothelial carcinoma- high grade(HGPUC) 65.6%, while the least common was moderately differentiated adenocarcinoma (3%) and papillary urothelial neoplasm of low malignant potential (PUNLMP)-3%. the other microscopic diagnosis were papillary

urothelial carcinoma-low grade(LGPUC)-10%, well differentiated squamous cell carcinoma(SCC)- 9% and transitional cell papilloma (4%).

The tumour tissue has invaded lamina propria in 76.3% of cases while muscularis propria was invaded by tumor tissue in 66.3% cases. In the present study, squamous differentiation was present in 2 cases (3.12%).

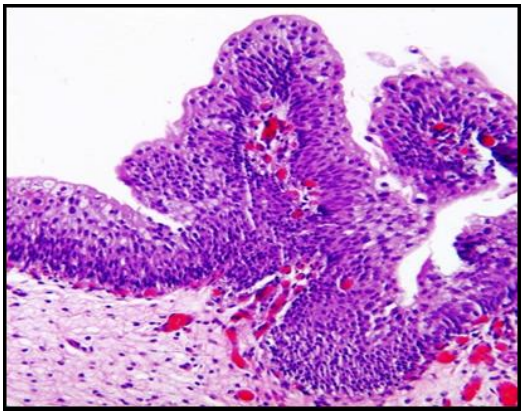


Figure 1: Urothelial papilloma)

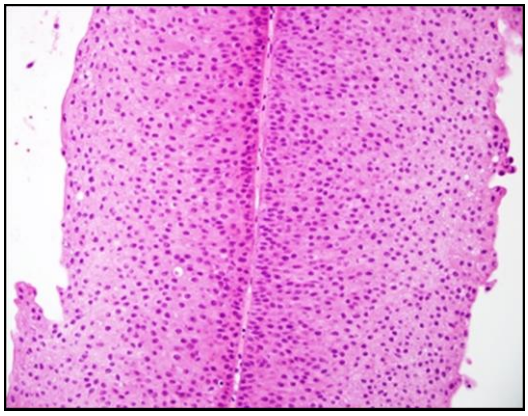


Figure 2: Papillary urothelial neoplasm of lowmalignant Potential

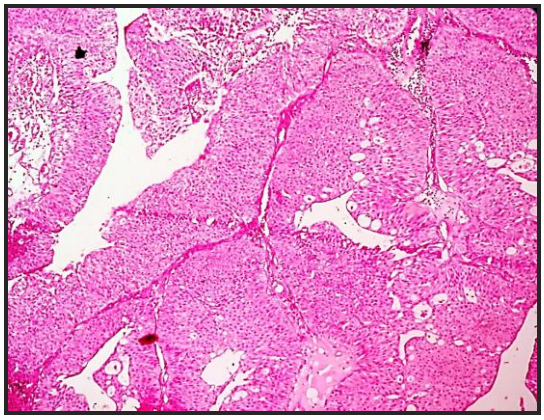


Figure 3: Papillary urothelial carcinoma

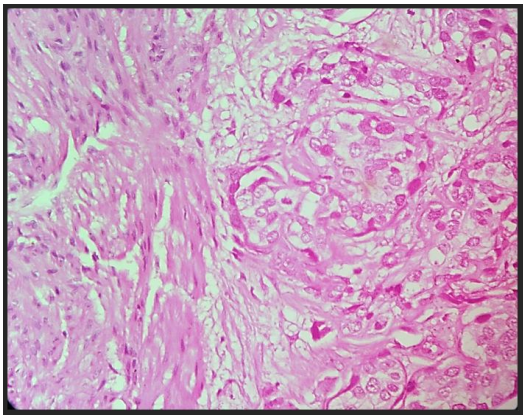


figure 4: urothelial carcinoma muscle invasion

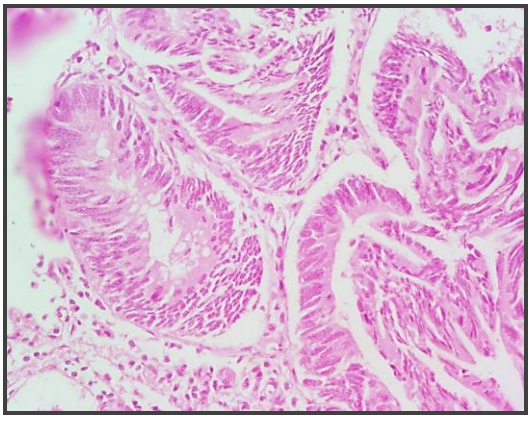


Figure 5:Adenocarcinoma bladder

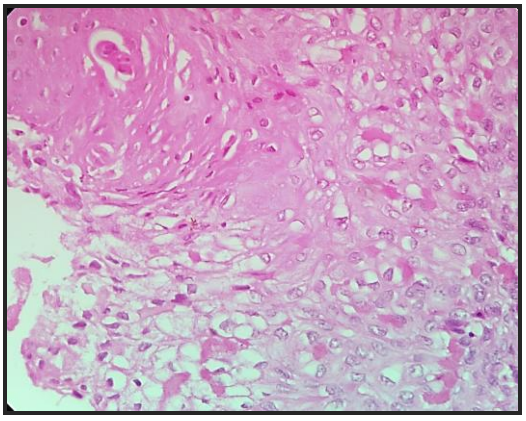


Figure 6:Squamous cell carcinomabladder

DISCUSSION

Urinary bladder neoplasms are heterogenous group of tumors with different subtypes and behavioral patterns; therefore the epidemiological and clinicopathological comparision is difficult. [(4)] The origin of Bladder tumour is multifactorial, with tobacco smoke as principal cause in most countries. Other etiologic factors include analgesic abuse, occupational exposure and

chronic Schistosoma cystitis. It has been suggested that mutations at HRAS, KRAS2, RB1, and FGFR3 may be associated in some cases. [5]

Cystoscopy and Trans-urethral resection of bladder tissue biopsy are the main diagnostic measures and the specimens in our study included all the TURBT. The non-neoplastic lesions include cystitis, malakoplakia, urachal lesions and tuberculosis. Benign neoplasms include Transitional cell Papilloma, Squamous papilloma, Inverted papilloma, Solitary fibrous tumor.

Conventional papillary urothelial carcinoma is the most common type of invasive urinary bladder carcinoma. Many other variants are described, which include urothelial carcinoma with squamous differentiation, with glandular differentiation, with trophoblastic differentiation, nested variant, Microcystic variant, micropapillary variant, plasmacytoid variant, sarcomatoid variant, and some others. These variants are rare, but proper recognition of them is important as they carry prognostic significance.

Papillary urothelial neoplasm of low malignant potential (PUNLMP) is a tumor which resembles the exophytic urothelial papilloma, but shows increased cellular proliferation exceeding the thickness of normal urothelium. Exophytic urothelial papilloma is composed of a delicate fibrovascular core covered by urothelium indistinguishable from that of the normal urothelium. The incidence is low, usually 1-4% of bladder tumors.

WHO/ISUP Grades
Urothelial papilloma
Urothelial neoplasm of low malignant potential
Papillary urothelial carcinoma, low grade
Papillary urothelial carcinoma, high grade

Cystoscopy and urine cytology are the most important tools in diagnosis and follow up of bladder cancer. Several new techniques and developments have been introduced in recent years to improve the diagnosis and management of bladder cancer. Standard WLC (white light Cystoscopy) has been used to detect and resect bladder tumors for several decades. New technologies like Photodynamic diagnosis/blue light cystoscopy, Narrow band imaging, etc have been developed to improve the quality of cystoscopy and TURBT that is currently achieved, with the aim of preventing disease recurrence and progression.

Sixty four cases of urinary bladder lesions were included in our study, hematuria being the most common clinical symptom (88%), burning in 46%, while strangury in 35% and pain in 32% of cases which was correlated with the study of Ray et al (2013) [6] who found that 91% of patients with urinary bladder lesions presented with painless hematuria.

In the present study, we found the male to female ratio was 3.26:1, which was correlated with Cheng et al [7] (3.3:1) and was slightly higher than Hasan et al [8] (2.58:1) and was lower than Lim et al [9] (5:1), Vaidya et al [10] (4.5:1) and Matalka et al [11] (9:1).

In our study the most common age group was 61-70 years with 34% cases which was correlated with Vaidya et al [10] of 33.73% cases of 61-70years age group while mean age of presentation was 60.24 years (range 24-90) which was correlated with study by Matalka et al [11] in which mean age of patients was 60.6 years (range 19-91).

In our study, urothelial carcinoma was seen in 81.2% cases out of total bladder carcinoma cases which were correlated with the study of Eble and Young [12] (80%) and Sharma et al [13] (91.9%).

In the present study, lamina propria invasion was seen in 76.3% cases of urothelial carcinomas which were correlated with Sathya et al [14] whose results showed lamina propria invasion in 87% of cases. Invasion into muscle invasion was seen in 66.3% of cases in our study which correlated with Shah et al [15] whose results showed muscle invasion in 69% of cases.

CONCLUSION

In the present study of TURBT, the most common lesion was urothelial carcinoma. Majority of cases among urothelial carcinoma were of high grade presenting with invasion of lamina propria and muscle layer. The other types of malignancies seen were Squamous cell carcinoma followed by adenocarcinoma of the bladder. Pathological grade and muscle invasion are the most valuable prognostic predictors of survival. The importance of including smooth muscle in the biopsy specimens needs to be emphasized and also awareness is needed among the public as they may tend to neglect hematuria resulting in advance stage of bladder cancer at the time of presentation. Improvements in early detection have made reproducible grading and staging important criteria for clinical management and prognosis.

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