Original Research Article

Histopathological Study of Urinary Bladder Neoplasms

Jasmin Jasani[1], Gargi Joshi[2], Harsh Pandya[2]

[1]Professor. [2]Resident Doctor, Department of Pathology. Smt.B.K.Shah Medial institute & Research Centre. Sumandeep Vidyapeeth Deemed to be University, At & Po.Piparia, Ta.Waghodia, Dist.Vadodara

Abstract

Inroduction:- Urinary bladder tumor is the 7th most common tumor worldwide**.** Urinary bladder carcinoma has varying type of histological variants and complexity with an aggressive biological behaviour.

Methods:- A total of 37 cases of urinary bladder neoplasia [histological proven] of patients admitted in a tertiary care teaching hospital were studied retrospectively over the period from June 2019 - Oct 2020 in the Department of Pathology. On the basis of histology, these cases have grading by the means of WHO(2016)/ ISUP classification.

Result:- Out of 37 cases, male were more commonly affected (28 cases) than female (9 cases). A peak age incidence of cases was in the 6th decade.

Conclusion:- In our study, males (75.67%) are more frequently affected compared to females. The most frequent neoplastic findings in urinary bladder is invasive papillary urothelial carcinoma (75.66%).

Keywords: *Invasive urothelial carcinoma, Urothelial carcinoma with glandular differentiation, Squamous cell carcinoma of urinary bladder.*

Introduction

Neoplastic lesions of urinary bladder present with higher rate of morbidity and mortality. On global scale with tumor burden it ranks 7th. Amongst all urinary bladder carcinoma, the most common lesion is urothelial carcinoma which stands for ninty percent of all cases of urinary bladder carcinoma.[1] According to Indian Cancer Registry data for male, it ranks 9th most common cancer, which stands for 3.9% of all cancers.

Urinary bladder carcinoma has varying type of histological variants and complexity with an aggressive biological behaviour. Inspite of advances in surgical techniques along with intravesical and systemic therapies, rate of disease progression, recurrence and eventual death with non-muscle invasive urothelial carcinoma and muscle invasive carcinoma are up to 30% and 50% respectively.[2] Risk factors from external environment like smoking, schistosoma hematobium infection forms the basis for etiology of bladder cancer and points out it's biological plausibility as well.[3]

Thus, it is important to be familiar with physical examination, cystoscopic evaluation, and histopathologic analysis as far as contemporary bladder cancer diagnosis and treatment are concerned.

Corresponding Author:
Dr. Gargi Joshi
dr.joshi88@gmail.com
Phone no:7435995111

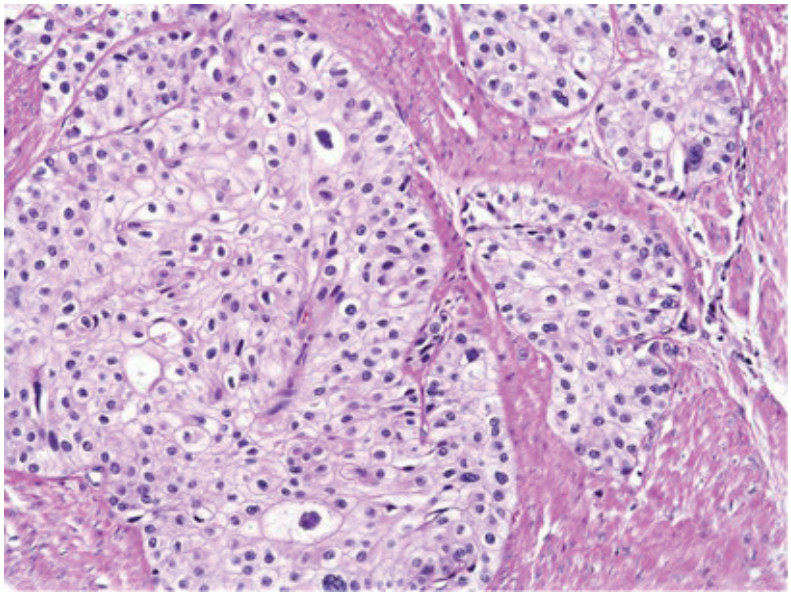

Figure-1: Invasive urothelial carcinoma.

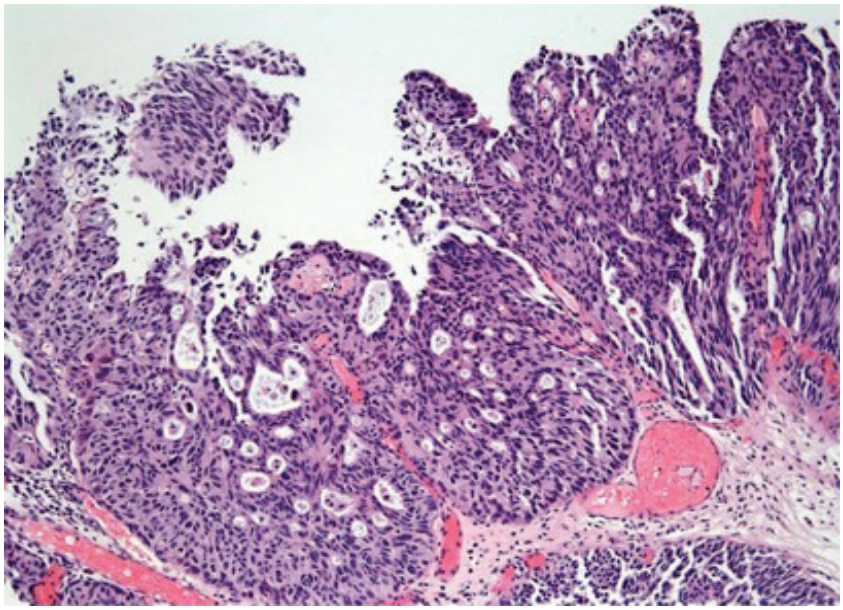

Figure-2: Urothelial carcinoma with glandular differentiation.

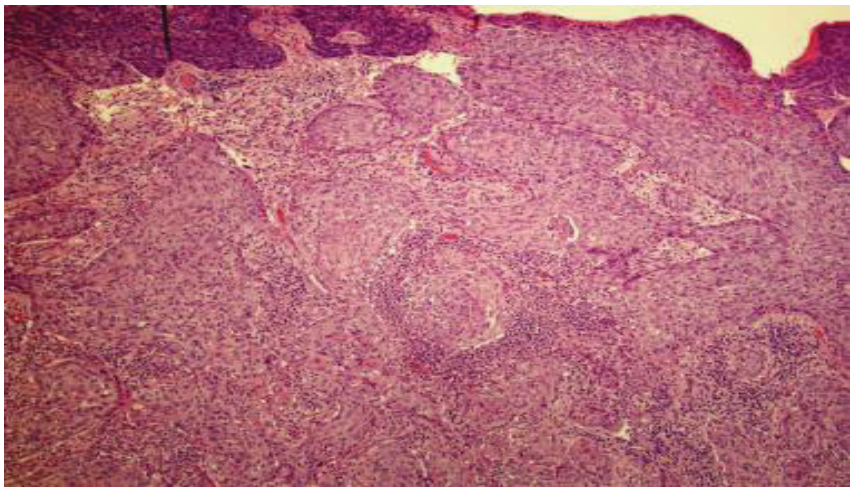

Figure-3: Urinary bladder squamous cell carcinoma.

Aims and Objectives

The aims and objectives of present study are:

1.To show the histopathological features of varying type of neoplasms in the urinary bladder lesions.

2.To quantify urinary bladder neoplasms with varying types in reference to age and sex distribution.

Material and Methods

A total of 37 cases of urinary bladder neoplasia [histological proven] of patients admitted in a tertiary care teaching hospital were studied retrospectively over the period from June 2019- Oct 2020 in the Department of Pathology.

Cystoscopic biopsies received were submitted as whole after measuring the size.

Radical cystectomy specimen were cut opened, fixed in formalin and size of bladder, both ureters, urethra, both seminal vesical (in male), prostate (male) was noted.

Entire external surface of bladder along with prostate was painted.

All surgical margins (both ureter, seminal vesical, urethra, vas deferens) were submitted along with at least 4 sections of tumor.

Additionally, random section from the uninvolved wall were taken and submitted.

Tissue were fixed and preserved in formalin, then passed through ascending grade of alcohol and xylene and finally embedded in melted paraffin wax.

Then blocks were prepared, single block was made for each section, thin sections of 4 to 5 microns thickness were cut, slides were prepared and stained by H & E stain.

On basis of histology these cases have grading by the means of WHO(2016)/ISUP classification.

Inclusion Criteria:

*It includes cystoscopic biopsies and radical cystectomy biopsy for the present study.

Exclusion Criteria:

Autolysed Specimen, Inadequate Biopsies

Observations and Results

A total of 37 cases, 28 urinary bladder biopsies (TURBT) and 9 cystectomy specimen were studied over the period from June 2019 to Oct- 2020 in the Department of pathology.

TABLE 1: INCIDENCE OF URINARY BLADDER NEOPLASMS WITH RESPECT TO GENDER

Histological type	Male	Female	Total	Percentage(%)
Leiomyoma	**0**	**1**	**1**	**2.70**
PUNLMP	**1**	**1**	**2**	**5.40**
Non-invasive Urothelial Carcinoma,Low Grade	**2**	**2**	**4**	**10.81**
Invasive Urothelial Carcinoma, Low Grade	**15**	**2**	**17**	**45.94**
Invasive Urothelial Carcinoma,High Grade	**8**	**3**	**11**	**29.72**

Squamous cell Carcinoma	**2**	**0**	**2**	**5.40**
Embryonal Rhabdomyosarcoma, Botryoid type	**0**	**0**	**0**	**0**
Total	**28**	**9**	**37**	**100**

Males were more commonly affected than females. In the present study there were 28 male patients (75.67%) and 9 female (24.32%) with M:F ratio of 3.11:1

TABLE 2: CLINICAL PRESENTATION OF URINARY BLADDER NEOPLASMS

Complain	Male	Female	Total	Percentage(%)
Incidental USG finding	1	0	1	2.70
Abdominal pain	1	1	2	5.40
Burning Micturition	1	1	2	5.40
Hematuria	26	6	32	86.48

In symptoms hematuria stands at top with 86.48% cases followed by burning micturition (5.4%), abdominal pain (5.4%) and incidental USG finding (2.7%).

TABLE 3: AGE – WISE DISTRIBUTION OF URINARY BLADDER NEOPLASMS

Age group (Years)	Total no. of patients	Percentage(%)
<30	1	2.70
30-39	3	8.11
40-49	7	18.92
50-59	8	21.62
60-69	**10**	**27.03**
70-79	7	18.92
80-89	1	2.70
Total	**37**	**100**

Age of the patients in our study ranged from 1 year to 80 years with highest number of cases (10cases) in the 7th decade, followed by 8 cases in the 6th decade.

Discussion

The present study has laid emphasize on need of biopsy examination in the diagnosis of bladder lesions. Now a days, a synergetic approach of cystoscopy, histopathological biopsy, and urine cytology are in mainstay for diagnosis in urinary bladder lesion and its monitoring.[4]

In our study, the focus is on the histopathological diagnosis along with histological grading and staging of bladder tumours. For histological grading we used, WHO/ISUP (2016) classification in our study.

TABLE 4 : Comparison of Age-wise distribution of urinary bladder neoplasms with different series.

Age group (years)	Present study (%)	Vaidya et al5 2013 (%)	Shreshtha et al6 2016(%)
<30	2.70	2	2
30-39	8.11	4	8
40-49	18.92	7	21
50-59	21.62	20	29
60-69	27.03	33	30
70-79	18.92	20	7
80-89	2.70	7	3

In our study highest number of cases are in 60-69 year age group comprising 10 cases followed by the 50-59 year age group comprising 8 cases . The above observation has well similarity with Vaidya et al[5] and Shreshtha et al.[6]

TABLE: 5 Comparison of Male: Female Ratio with other series

Study	Male:Female Ratio
Present study	3.11:1
Shah et al7 (2016)	2.29:1
Vaidya et al5 (2013)	4.5:1
Lim et al8 (2009)	5.0:1

As shows in above table , the male to female ratio from various series highlights the association of bladder neoplasms and increased male susceptibility with wide variation in ratio. Male preponderance can be subjected to higher rate of cigarette smoking in male and more industrial exposure in male than female.

Conclusions and Summary

Total 37 TURBT as well as Radical Cystectomy specimens submitted to Department of Pathology at our institute during June 2019 to October 2020 were studied clinically and Histopathologically.

In our study, most of the bladder tumors seen in cystoscopic biopsies as well as cystectomy specimen were of urothelial origin.

Maximum numbers of patients are in age group 60-69 years (27%)

Males (75.67%) are more frequently affected as compared to female.

The most frequent Neoplastic findings in Urinary bladder is Invasive papillary Urothelial carcinoma (75.66%) .

Squamous differentiation was seen in 7.4% of urothelial carcinoma.

Most of these tumors were low grade Invasive urothelial carcinoma.

A biopsy or TURBT may show different grade from the one that will be found in the surgical specimen because it may happen that biopsy was taken from different area.

Leiomyoma (~2%) is rare tumors arising in bladder while pure squamous cell carcinoma comprising of ~5%.

It is important to recognize that grading is highly subjective and that in future various molecular and immunohistochemical studies will provide better reproducibility.

Ethical Clearance: Taken from Institutional ethical committee.

Sources of Funding: Self-funding.

Conflict of Interest: None

References

1. Goldblum JR, Lamps LW, McKenney JK, et al. Rosai and Ackerman's Surgical Pathology - 2 Volume Set. 11 ed. Philadelphia, PA: Elsevier - Health Sciences Division 2017.
2. Gray H. The anatomy of human body.. Philadelphia, PA: Lea & Febiger 1918. Extract from embryology part March 2012.
3. Kumar V, Abbas AK, Fausto N. Robbins and cotran pathologic basis of disease. 7 ed. London, England: W B Saunders 2004:1023-1058.
4. Mubarak M, Kazi J, Hashmi A, et al. Urinary bladder tumors in southern Pakistan: A histopathological perspective. *Middle East J Cancer* 2014;5(3):167-73.
5. Vaidya S, Lakhey M, K C S, et al. Urothelial tumours of the urinary bladder: a histopathological study of cystoscopic biopsies. *JNMA J Nepal Med Assoc* 2013;52(191):475-78.
6. Shrestha EP, Karmacharya K. Profiles of histopathological lesions of urinary bladder: A five years study. *J Pathol Nepal* 2016;6(12):1001-04. doi: 10.3126/jpn.v6i12.16287
7. Shah PY, Nanavati M, Patel RG, et al. Spectrum of lesions in urinary bladder -a histopathological study. *Int J Cur Res Rev* 2016;8(4):19-24.
8. Lim M, Adsay NV, Grignon D, et al. Urothelial carcinoma with villoglandular differentiation: a study of 14 cases. *Mod Pathol* 2009;22(10):1280-86.