

# Histopathological Study of Urinary Bladder Tumors at Tertiary Care Centre - A Retrospective Study of 2 Years

Roma Singh<sup>1</sup>, Dr. Nipun Saproo<sup>2</sup>

<sup>1</sup>Assistant Professor L. N Medical College and Research Centre, Bhopal, M.P., India

<sup>2</sup>Senior Resident Department of Neurology Medanta The Medicity, Gurgaon, Inida

<sup>2</sup>Corresponding author Email: [sapsoonipun\[at\]gmail.com](mailto:sapsoonipun[at]gmail.com)  
9650092985

**Abstract:** ***Background:** The main aim of this study was to analyze the histomorphological patterns of urinary bladder tumours in relation with age and sex and to analyse the relation between stage and grade of urothelial tumors. **Methods:** This is a retrospective study of 2 years. 90 cases of bladder tumours were studied in the age group between 30 - 80 years. The consecutive cases from both TURBT biopsies and cystectomy specimen were included in the analysis. **Result:** The maximum no. of cases was in the eighth decade. Low grade urothelial carcinoma constituted the maximum number of cases (40 %). Muscle invasion was seen more commonly in high grade carcinoma. **Conclusion:** Urothelial carcinoma is the most common bladder tumour with male preponderance, most common age group is 8<sup>th</sup> decade. The inclusion of smooth muscle in the biopsy specimen needs to be emphasized as there is direct correlation between advancing tumour grade and muscle invasion.*

**Keywords:** Bladder, Urothelial, Cystectomy, TURBT, Low grade, High grade, invasion.

## 1. Introduction

Urinary bladder cancer is the 7th most common cancer worldwide.<sup>1</sup> Cancer of the urinary bladder accounts for about 3.2% of all cancers worldwide. Urinary bladder cancer accounts for approximately 7% cancers and 3% of cancer mortality in West.<sup>2</sup> As per Indian cancer registry data in men, it is the ninth most common cancer accounting for 3.9% of all cancers.<sup>3</sup> About 95% are of epithelial origin, the remaining being mesenchymal tumors.

Urothelial (Transitional cell) neoplasms comprise approximately 90% of all primary tumor of this organ.<sup>2</sup> Cases of squamous cell carcinoma 5%<sup>3</sup> primary adenocarcinoma 2%<sup>3</sup> small cell carcinoma and sarcomas are encountered much less frequently. Carcinoma of the bladder affects men more than women at a ratio of 3 to 4: 1.4 In 85% cases, most common presenting symptom is painless hematuria.<sup>5</sup>

Urine cytology may be performed; however, diagnosis usually requires cystoscopy and biopsy. These two had been the gold standards in the diagnosis of bladder cancers and in the follow up period. Transurethral resection of the bladder tumour (TURBT) is the initial step in the management of non - muscle invasive tumours.

The main aim of this study was to analyze the histomorphological patterns of urinary bladder tumours especially urothelial neoplasms in relation with age and sex and to analyse the relation between stage and grade of urothelial tumors.

## 2. Materials and Methods

This is a retrospective study of 2 years from October 2016 to September 2018 which was carried out in the Department of Pathology, L. N Medical College and research centre Bhopal, Madhya Pradesh, India. 90 cases of bladder tumours were received in the study period. Age of the patients ranged between 30 - 80 years. The consecutive cases from both TURBT biopsies and cystectomy specimen were included in the analysis.

The pathologic grading of the urothelial neoplasms was done in accordance with the 1998 ISUP/2004 WHO classification.<sup>1</sup> The tumours may be of flat or papillary type or a combination of both. They can be non - invasive or invasive. The non - invasive papillary urothelial neoplasms were divided into four categories designated as papilloma, papillary urothelial neoplasm of low malignant potential (PUNLUMP), low grade urothelial carcinoma and high grade urothelial carcinoma. Invasive tumours may be of low or high grade and they can either invade lamina propria or muscularis propria or beyond.

### Inclusion criteria:

- 1) All the patients with bladder tumour in the age group 30 - 80 years.
- 2) Cases from both TURBT biopsies and cystectomy specimen were included in the analysis

### Exclusion criteria:

- 1) Suboptimal biopsies with crushing artefacts were excluded.
- 2) Cases with history of bladder tumour recurrence were excluded

The statistical analysis was done using SPSS 19 software

### 3. Result

In this study 90 cases of bladder tumours were reviewed including 79 TURBT specimens and 11 radical cystectomy specimens

Table no.1 shows that the maximum no. of cases were in the age group >70 years, and the male to female ratio was 3.5: 1 (with 77.8% males and 22.2% females.

**Table 1:** Age and sex distribution of bladder tumours

Age group	Male	Female	Total
31 - 40	02 (2.2%)	01 (1.1%)	03 (3.3%)
41 - 50	06 (6.6%)	03 (3.3%)	09 (10%)
51 - 60	09 (10%)	04 (4.4%)	13 (14.4%)
61 - 70	20 (22.2%)	05 (5.5%)	25 (27.8%)
71 - 80	33 (37%)	07 (7.7%)	40 (44.4%)
Total	70 (77.8%)	20 (22.2%)	90

**Table 3:** Lamina propria invasion in different grades of papillary Urothelial tumors

Lesion	Lamina propria invasion	Muscle invasion	No invasion	Not included
High grade (31)	08 (25.8 %)	14 (45.1%)	05 (16%)	04 (12.9%)
Low Grade (36)	12 (33%)	02 (5.5%)	19 (52.7%)	03 (8.3%)
PUNLMP (10)	-	-	-	-
Total (77)	20 (25.9%)	16 (20.7%)	24 (31.1%)	07 (9 %)

### 4. Discussion

Urinary bladder tumours are heterogeneous group of tumours with different subtypes and behavioural patterns. In this study a total of 90 cases of bladder tumors were included. The maximum no. of cases were seen in the age group more than 70 years. (44.4 %) similar findings were seen in other studies.<sup>6, 7</sup>The male to female ratio was 3.5: 1. Similar findings were seen in the study of Johansson et al.<sup>9</sup>The higher incidence in males is probably related to difference in smoking habits and occupational exposure as well as due to anatomic difference or hormonal factors.<sup>8</sup>

In this study, urothelial carcinoma was the most common tumour of urinary bladder which is similar to the reports of western literature.<sup>9</sup>In our study SCC accounted for 1.1 %. Variability is noted in the incidence of squamous cell carcinoma (SCC) of the bladder. SCC accounts for 1% of bladder cancers in England, 3 to 7% in the United States.<sup>5</sup>In our study the incidence of low grade urothelial cancer (40%) was higher than high grade urothelial cancer (36%). Similar findings were seen in the study.<sup>6, 12</sup>However M Sathyl et al<sup>16</sup> reported higher incidence of high grade urothelial cancer (62.85%) and 25 % of low grade urothelial cancer.<sup>11</sup>

In our study high grade urothelial cancer showed higher incidence of muscle invasion (45.1%) as compared to low grade urothelial cancer. This shows that as the grade increases the chances of muscle invasion increases.<sup>13</sup>The inclusion of muscle in the biopsy may therefore prevent under staging in many patients.

Table number 2 shows that the most common lesion was low grade urothelial carcinoma (40%) while the least common was squamous cell carcinoma (1.1%)

**Table 2:** Histopathological diagnosis of urinary bladder tumors

Histopathological diagnosis	Number/ %
Urothelial papilloma	05 (5.5%)
Inverted urothelial papilloma	03 (3.3%)
Urothelial dysplasia	02 (2.2%)
PUNLMP	10 (11%)
Low grade urothelial carcinoma	36 (40%)
High grade urothelial carcinoma	31 (34%)
Adenocarcinoma	02 (2.2%)
Squamous cell carcinoma	01 (1.1%)
Total 90	

Table number 3 shows that muscle invasion was most commonly seen in high grade lesion (45.1%) while it was less common in low grade lesion (5.5%)

### 5. Conclusion

Urothelial carcinoma is the most common bladder tumour with male preponderance; Most common age group is 8<sup>th</sup> decade. Older patients present more with high grade tumours, while low grade tumors are more common in younger population. The inclusion of smooth muscle in the biopsy specimen needs to be emphasized as there is direct correlation between advancing tumour grade and muscle invasion

### References

- [1] Eble JN. Classification of tumours: pathology and genetics of tumours of the urinary system and male genital organs. World Health Organization Classification of Tumours.2004: 255 - 7.
- [2] Vinay Kumar. The lower urinary tract and male genital system. Robbins and Cotran Pathologic Basis of Disease, 8th ed. Philadelphia, PA: Saunders/Elsevier; 2010. p.976 - 81.
- [3] Rosai J. Bladder. In: Juan Rosai, editor. Rosai and Ackerman's Surgical Pathology, 10th ed. vol (1). St. Louis: Mosby; 2011. p.1247 - 71.
- [4] Reuter VE. The Urothelial tract: Renal pelvis, Ureter, Urinary Bladder and Urethra. In: Stacey E. Mills. Sternberg's diagnostic surgical pathology, 4th ed. Vol (3). Philadelphia: Lippincott Williams and Wilkins; 2004. p.2035 - 74.
- [5] Johansson SL, Cohen SM. Epidemiology and etiology of bladder cancer. SeminSurgOncol 1997; 13: 291 - 8.
- [6] Laishram RS, Kipgen P, Laishram S, Khuraijam S, Sharma DC. Urothelial tumors of the urinary bladder in Manipur: A histopathological perspective. Asian Pac J Cancer Prev 2012; 13 (6): 2477 - 9.

- [7] Waihenya C G, Mungai P N. Pattern of transitional cell carcinoma of the urinary bladder as seen at Kenyatta National hospital, Naorobi. *East Afr Med J* 2004; 81: 114 - 9.
- [8] Gupta P, Jain M, Kapoor R, Muruganandham K, Srivastava A, Mandhani A. Impact of age and gender on the clinicopathological characteristics of bladder cancer. *Indian J Urol* 2009; 25: 207 - 10.
- [9] Rabbani F, Cordon - Cardo C. Mutation of cell cycle regulators and their impact on superficial bladder cancer. *UrolClin North Am* 2000; 27: 83 - 102.
- [10] Sathya M and ChinnaswamyP. Urinary bladder cancer: A clinicopathological and histological study. *J. Med. Sci* 2014; 14 (4): 206 - 9.
- [11] Vaidya S, M. Lakhey, K. C. Sabira and S. Hirachand. Urothelial tumours of the urinary bladder; A histopathological study of cystoscopic biopsies. *J. NepalMed. Assoc* 2013; 52: 475 - 8.
- [12] Ahmed Z, Muzaffer S, Khan M, Kayani N, Pervez S, Husseini AS, Hasan SH. Transitional cell carcinomas of the urinary bladder. A histopathological study. *Journal of Pakistan Medical Association.*2002; 52 (9): 396.
- [13] Husain N, Shumo A, Mekki S, Dawi N, Elsid M. A clinicopathological study of urinary bladder neoplasms in patients at three centers in Khartoum, Sudan. *Sudan J Med Sci* 2009; 4: 249 - 55.