

# Histopathological Study of Urinary Bladder Tumors- A 10 Year Study

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**Abstract:** Urinary bladder cancer is the sixth most common cancer worldwide and the fourth most common cancer in men. Histopathology is an important tool to grade and type different types of bladder tumors. The aim of this study is to evaluate and grade different types of bladder tumors along with presence or absence of invasion over a period of 10 years. This is a prospective study of 261 cases presenting with bladder growth operated in the Urology Department J L N Medical College Ajmer between January 2006 and December 2015. Histopathological examination of the biopsies submitted in pathology department was done and typing and grading of the tumors was done using WHO/ISUP Grading System. Results showed that the maximum prevalence of bladder tumors was seen between the age group of 61 to 70 years. (35.2%) with a male preponderance (82.3%). The commonest type of carcinoma was Urothelial carcinoma (92.7%). The commonest Urothelial tumour was non-invasive high grade papillary carcinoma. (29.1%).

**Keywords:** Urothelial Carcinoma, Histopathological study, Urinary bladder

## 1. Introduction

Urinary bladder cancer is one of the most important causes of carcinoma related deaths in developed and developing countries such as India. Urinary bladder cancer is the sixth most common cancer worldwide and the second most common malignancy of the genitourinary tract after prostate cancer<sup>1</sup>. Bladder neoplasms account for 6% and 2% of the cancer incidence in men and women respectively. Most cases present in patients over the age of 50 years<sup>2,3</sup>. There are approximately 50,000 new cases and 10,000 deaths from Urothelial carcinoma in each year in United States<sup>4</sup>.

Cigarette smoking, industrial exposures to aryl amines, schistosoma haematobium and long term use of analgesics have been implicated in the causation of Urothelial carcinoma. The incidence of Carcinoma of the bladder is higher in men than in women, at a ratio of 3 to 4:1<sup>5</sup>. This difference is probably accounted by differences in smoking habits and occupational exposures in the two sexes.

Haematuria (gross and microscopic) is the most common sign and is seen in more than 75% of the patients. 75% of the patients present with superficial disease whereas 20% and 5% present with invasive and metastatic disease respectively<sup>6</sup>.

Urothelial carcinoma is the most common tumour of the bladder, representing 90% of malignancies<sup>7</sup>. The remaining 10% comprise all other types of carcinomas, a small number of sarcomas and mixed tumours. About 80% of the patients are between the age of 50 and 80 years.

Transurethral resection of bladder tumours provides material necessary for histopathological diagnosis and also allows assessment of the degree of differentiation and depth of tumour invasion useful for diagnostic and prognostic assessment<sup>7</sup>. The aim of the present prospective study conducted over a period of 10 years was to study the histopathological features of various tumours of the urinary

bladder, assess the age and sex incidence along with grade and type of bladder growth

## 2. Material and Methods

The present study was conducted in The Department of Pathology and the Department of Urology, J.L.N Medical College Ajmer over a period of 10 years (Jan 2006 to Dec 2015)

Cystoscopic TURBT biopsies of all patients were received from department of Urology J.L.N Medical College and hospital Ajmer. The clinical complaints, age, sex, relevant history, USG, Cystoscopic, CT, MRI findings and any significant preoperative and operative findings were also obtained from the patient record file. Biopsies were fixed in 10% formalin and the tissue was processed after noting down the gross findings. Five micron sections were cut and the prepared slides were stained with haematoxylin and eosin (H&E) stain.

The bladder tumours were graded and typed based on WHO classification of Urothelial neoplasms. All tumours were evaluated using the following criteria – histopathological type, pattern of growth, depth of invasion and lymphatic or vascular invasion.

## 3. Result

In our study a total of 261 Cystoscopic biopsies were included over a period of 10 years (from January 2006 to December 2015). Out of these cases 215(82.3%) were males and 46(17.7%) were females with a male to female ratio of 4.6:1 (Table .1)

**Table 1:** Sex distribution of cases

Sex	No: of patients	Percentage
Male	215	82.3%
Female	46	17.7%
Total	261	100%

The ages of the patients in our study were in the range of 22 years to 90 years with maximum patients in the age group of 61-70 years. The mean age of presentation was 61.5 years.

(Table -2)

**Table 2:** Agewise incidence of the cases

Age group(years)	No:of cases	Percentage
21-30	04	1.5%
31-40	15	5.7%
41-50	34	13%
51-60	68	26.1%
61-70	92	35.2%
71-80	38	14.6%
81-90	10	3.8%

Out of 261 cases 140 cases (53.6%) were above 60 years and 208 cases (79.7%) were above 50 years. 216 cases (82.7%) came with urinary complaints like difficulty and burning micturition and 156 cases (59.7%) came with gross or microscopic haematuria.

Urothelial neoplasm was the commonest tumour (92.7%) in the urinary bladder. 2% cases were adenocarcinoma, 3% cases were squamous cell carcinoma, and there were 1 case (0.4%) of small cell neuroendocrine carcinoma and 1 case (0.4%) of sarcomatoid carcinoma. There were 4 cases (1.5%) of urothelial carcinoma with mixed epithelial features. (Table-3)

**Table 3:** Histopathological diagnosis

S. No	Histopathological diagnosis	No. of cases	Percentage
1	Urothelial carcinoma	242	92.7%
2	Adenocarcinoma	05	2%
3	Squamous cell carcinoma	08	3%
4	Small cell neuroendocrine carcinoma	01	0.4%
5	Sarcomatoid carcinoma	01	0.4%
6	Urothelial carcinoma with mixed epithelial features	04	1.5%
	Total	261	100%

Among the urothelial neoplasms, the most common histopathological diagnosis was non-invasive papillary Urothelial carcinoma, high grade (29.1%) (Fig 1) followed by infiltrating urothelial carcinoma (22.6%) and non-invasive papillary Urothelial carcinoma low grade (20.3%) (Fig. 2). This correlates well with other studies<sup>2,3,8</sup>.

#### 4. Discussion

In the present study cystoscopic biopsies of 261 patients with bladder growth were taken. Out of these 82.3% cases were males and 17.7% cases were females with a male female ratio of 4.6:1. This is in concordance to studies conducted elsewhere<sup>9,13,14</sup>.

In our study 140 cases (53.6%) cases were above 60 years and 208 cases (79.7%) cases were above 50 years. This correlates with that reported in existing literature.

Patients with bladder growth usually present with painless haematuria. This are their dominant and sometimes only

clinical manifestation<sup>11</sup>. In our study 59.7% cases had complaints of haematuria.

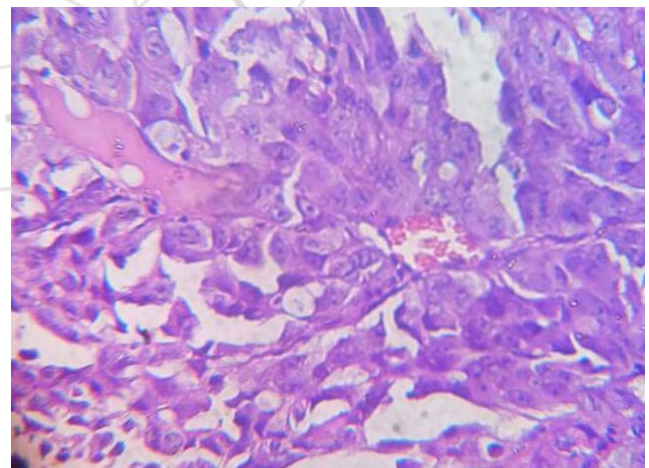
Other irritative symptoms like frequency, urgency and dysuria may accompany haematuria. These symptoms may be the initial presentation of bladder cancers. Mayo clinic experience with CIS reveals that 80% of the patients presented with irritative symptoms and two thirds of these patients did not have haematuria. Thus in patients with irritative bladder symptoms not related to an active infection or other defined urologic disease, the urologist must consider a diagnosis of bladder cancer<sup>12</sup>. In our study 82.7% cases came with complaints of irritative symptoms like dysuria and frequency.

Urothelial tumour was the commonest type of malignant lesion with an incidence of 92.7% (242 cases) in our study. Existing literature reveals that about 90% of malignant bladder tumours are usual urothelial tumors<sup>15</sup>. There were 2% cases of adenocarcinoma in our study which is in accordance to studies conducted elsewhere<sup>16,17</sup>.

Transitional cell carcinoma or Urothelial Carcinoma can arise anywhere in the bladder, the commonest sites being lateral walls followed by posterior wall and trigone. In our study cystoscopic findings regarding the site of the tumour was provided in 45.6% cases and the commonest site observed was postero-lateral wall of the urinary bladder in most cases.

#### 5. Conclusion

This study documents a high frequency of urothelial tumour, with a male preponderance in the age group above 60 years. In our study superficial non-invasive papillary urothelial tumour high grade was the commonest type. Muscle invasion correlates with higher grade hence the importance of including detrusor muscle in the biopsy.



**Figure 1:** High Grade urothelial carcinoma

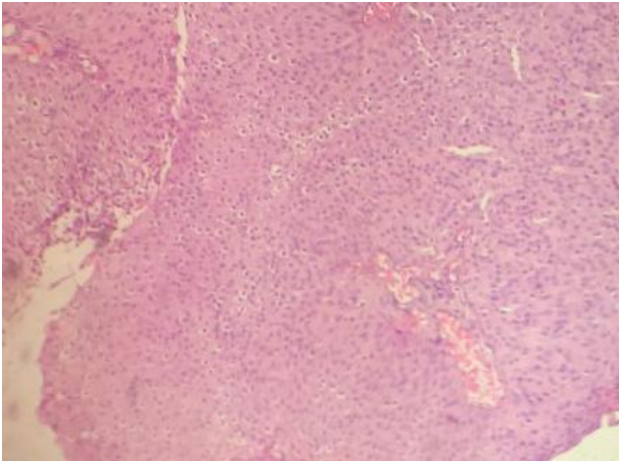


Figure 2: Low Grade urothelial carcinoma

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