

A study on histopathological spectrum of lesions in urinary bladder specimens in tertiary center in Bihar

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Abstract

Introduction- Urinary bladder pathology (benign or malignant) are a common cause of morbidity or mortality in general population, so knowing the types of lesions is helpful in management.

Objective- The purpose of this study to find out the histopathological spectrum of urinary bladder lesions in TURBT and cystoscopic biopsies and to study the frequency of different types of urinary bladder lesions particularly urothelial neoplasm in tertiary care centre of Bihar .

Material & Methods - 100 TURBT specimens of patients undergoing cystoscopic biopsies of all age and both sexes have been studied.

Results- Out of 100 patients undergoing cystoscopic biopsies, 30 cases were nonneoplastic and 70 cases were neoplastic, Out of those 70 cases, 21 were low grade urothelial carcinoma and 27 were high grade urothelial carcinoma.

Conclusion- Our study revealed that neoplastic lesions are more common. Most common age group is 51 to 60 years. High grade papillary urothelial carcinoma with muscles invasion was the commonest urothelial neoplasm at the time of presentation. Hence inclusion of detrusor muscle in the cystoscopic biopsy is of utmost importance.

Key Word- TURBT, Urothelial Tumour, Cystitis.

INTRODUCTION

Urinary bladder pathology (benign or malignant) are a common cause of morbidity or mortality in general population ; these are more disabling than lethal¹. The non-neoplastic lesions include cystitis, malakoplakia and tuberculosis², Among these, cystitis constitutes an important source of clinical signs and symptoms. Neoplastic lesions are responsible for significant morbidity and mortality throughout the world³. Amongst bladder tumors, urothelial carcinoma is common malignant tumor and comprise of 90% of primary tumor⁴. Urinary bladder cancer is the 6th most common cancer worldwide and second most common malignancy of the genitourinary tract after prostate cancer ⁵. Cystoscopy is the primary diagnostic tool for patients who are suspected of having bladder tumors which allows a direct visualization of the bladder mucosa

and biopsies of suspected lesions⁶. Physical examination, cystoscopic evaluation and histopathological analysis of biopsy material are mainstay of contemporary bladder cancer diagnosis and treatment⁷.

MATERIAL AND METHOD:

This study was a retrospective analysis of biopsies of urinary bladder approved by the ethical committee of Indira Gandhi Institute of Medical Sciences, Patna. The study was carried out in the department of pathology, I.G.I.M.S, in collaboration with the Urology department, I.G.I.M.S. It included 100 patients with urinary bladder lesions diagnosed on biopsy who attended the hospital. The study period was from March 2018 to March 2021. Data were collected from pathology archival. Clinical and Cystoscopic findings of all cases were collected. The material for the study comprise of biopsy from transurethral resection of bladder tumor (TURBT), bladder biopsy. All the TURBT biopsies received in the Department of Pathology, I.G.I.M.S., Patna were included in this study and autolysed specimen & Inadequate biopsy were excluded. Inadequate bladder biopsy was defined as that biopsy which could not be interpreted by pathologists due to an inadequate tissue content or poor preservation⁸.

The entire specimen was fixed in 10% formalin. The entire specimen was subjected to standard paraffin embedding and hematoxylin and eosin staining. The specimen was examined entirely and the detailed histomorphological examination was done. In specimen revealing neoplastic pathology, at least 20 fields were examined and grading was done. Then bladder tumors were studied according to WHO/ISOP (2016) classification. Light microscopy techniques were used for diagnosis. Special stains and immuno-histochemistry were applied whenever required.

Statistical analysis was performed using statistical package for social science (SPSS) software, version 21 and frequency & percentage were used as descriptive statistics for categorical & ordinal variables

RESULTS

Out of 100 cases 30 were non-neoplastic lesions and 70 were neoplastic lesions. Among the non-neoplastic lesions, Cystitis is the most common lesions(50 %) . Out of fifteen cases of cystitis, one was hemorrhagic cystitis, four were suppurative cystitis, seven were chronic cystitis (most common), two were eosinophilic cystitis and one was polypoidal cystitis (Table- 2). Twelve cases were metaplastic lesions which included six cases were cystitis glandularis, five were cystitis cystic and one was squamous metaplasia (Table- 3). Other non specific inflammation included one trauma case and necrotizing lesion with fibrous is one.

Among the neoplastic lesions (70 cases), most common were Papillary Urothelial neoplasm (sixty cases, i.e85 %)with 3 case of squamous cell carcinoma, one case of poorly differentiated carcinoma, two case of Adenocarcinoma, one case of mesenchymal tumors, one case of embryonal rhabdomyosarcoma andthree cases of transitional cell carcinoma with squamous differentiation (Fig-7).

Among urothelial neoplasm, most common were High grade papillary urothelial carcinoma invading muscle (forty six percent , n= 28/60) (Fig-6)and papillary low grade urothelial carcinoma invading lamina propria (Thirty six percent , n= 22/60) (Fig-5). Muscle invasion was most common with high grade carcinoma.

Age Group (yrs)	Sex		Total
	Male	Female	
0-10	1	0	1
11-20	1	1	2
21-30	2	0	2
31-40	3	2	5
41-50	10	6	16
51-60	13	9	22
61-70	25	11	36
71-80	9	6	15
81-90	1	0	1

Table-1 Age and Sex distribution of the study population.

Cystitis	Number (15)	Percentage
Hemorhagic Cystitis	1	6.7 % (n= 1/15)
Suppurative Cystitis	4	26.6 % (n= 4/15)
Chronic Cystitis	7	46.7 % (n= 7/15)
Eosinophilic Cystitis	2	13.3 % (n= 2/15)
Polypoidal Cystitis	1	6.7 % (n= 1/15)

Table- 2 Types of Cystitis

Metaplastic Lesions	Number(13)	Percentage
Cystitis glandularis	6	46.2 % (n= 6/13)
Cystitis cystic	5	38.4 % (n= 5/13)
Squamous metaplasia	2	15.4 % (n= 2/13)

Table-3 Types of Metaplastic Lesions of Urinary bladder

Nonspecific Inflammation	Number(2)
Trauma	1
Fistula	0
Diverticulum	0
Necrotizing lesion with Fibrosis	1
Table- 4 Nonspecific Inflammation	

	Number(70)	Percentage
Squamous Cell Carcinoma	3	4.2 % (n= 3/70)
Poorly differentiated Carcinoma	1	1.5 % (n= 1/70)
Adenocarcinoma	2	2.9 % (n= 2/70)
Mesenchymal Tumour	1	1.5 % (n= 1/70)
Transitional cell carcinoma with squamous differentiation	3	4.2 % (n= 3/70)
Urothelial Tumour	60	85.7 % (n= 60/70)
Table- 5 Types of Urinary bladder Neoplasm		

	Number(60)	Percentage
Urothelial Papilloma	2	3.3 % (n=2/60)
Inverted Papilloma	0	0 %
Urothelial Dysplasia	4	6.7 % (n= 4/60)
PUNLMMP	2	3.3% (n= 2/60)
Carcinoma in situ	2	3.3 % (n=2/60)
Infiltrative Urothelial carcinoma, low grade, invading lamina propria	22	36.7 % (n=22/60)
Infiltrative Urothelial carcinoma, high grade, invading muscle	28	46.7 % (n=28/60)
Table-6 Types of Urothelial Tumour		

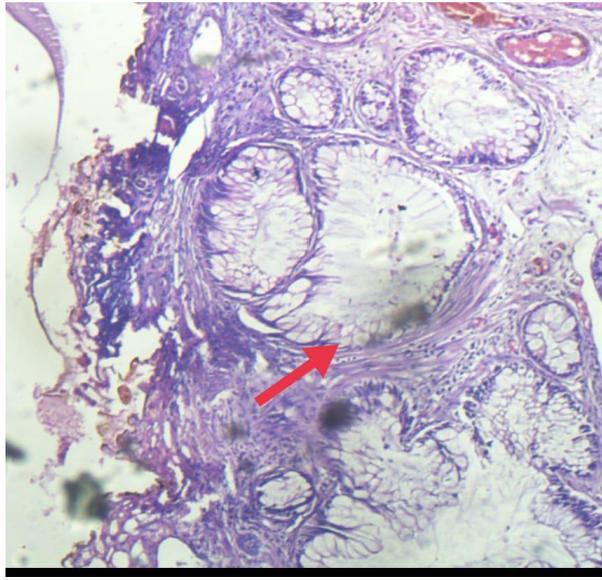


Figure-1. H&E stain, 10x - Cystitis glandularis of urinary bladder when lumen acquire glandular appearance.

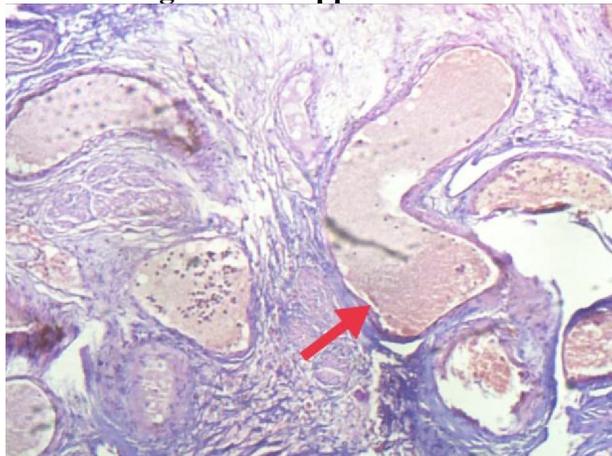


Figure- 2. H&E stain, 10x - Cystitis cystica show invaginated urothelial nest with a central lumen lined by urothelial cells.

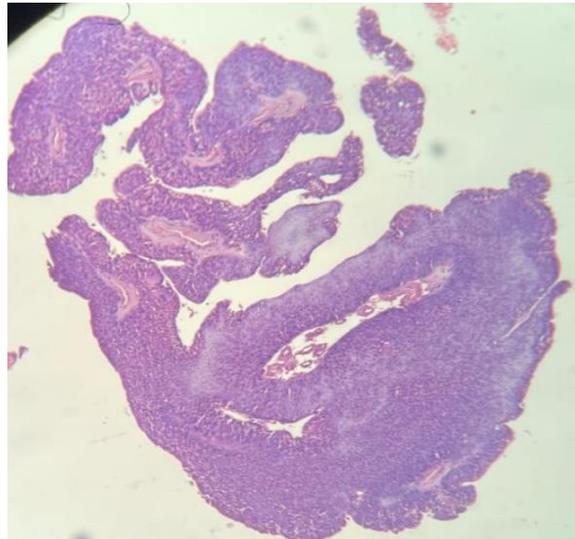


Figure- 3. H&E stain, 4x - PULMP (Papillary neoplasm of low malignant potential) of urinary bladder.

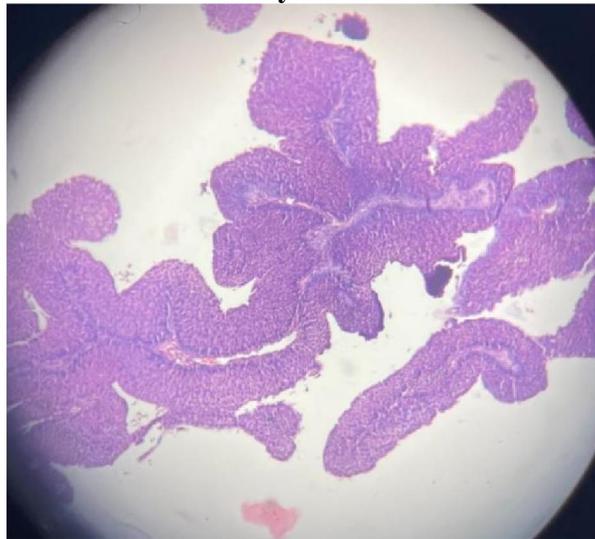


Figure- 4. H&E stain, 10x - PULMP (Papillary neoplasm of low malignant potential) of urinary bladder.

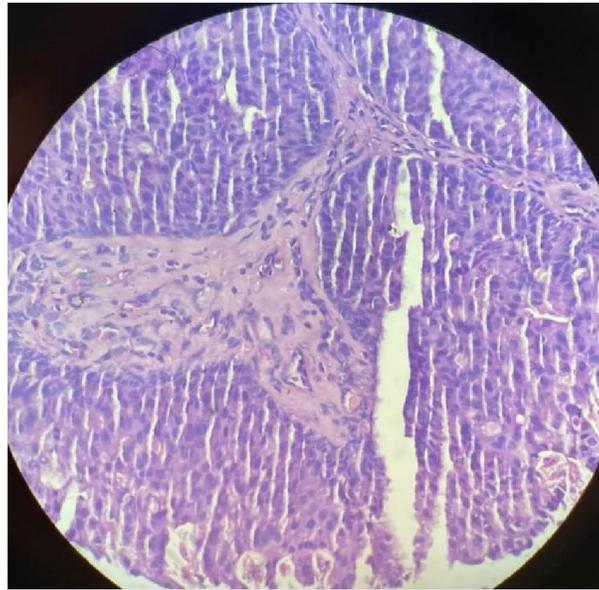


Figure- 5. H&E stain, 40x - Low grade Transitional cell carcinoma of urinary bladder.

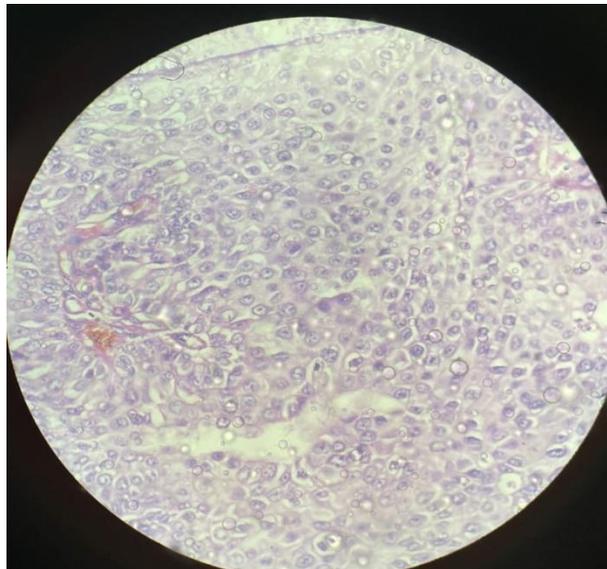


Figure-6. H&E stain, 40x - High grade Transitional cell carcinoma of urinary bladder.

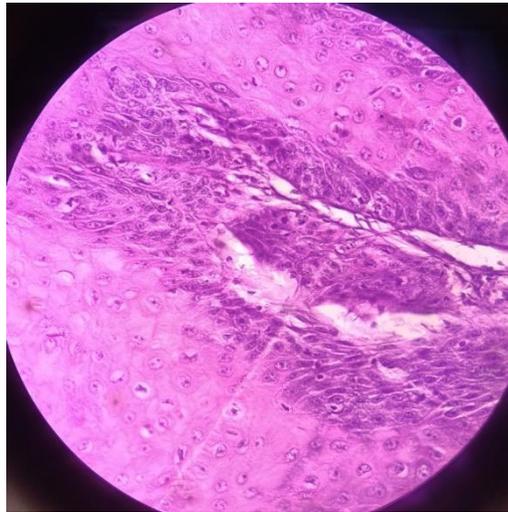


Figure-7. H&E stain, 40x - Squamous cell carcinoma of urinary bladder.

DISCUSSION

The present study is done mainly to highlight the importance of histopathological examination in the diagnosis of bladder lesions. In recent days the diagnosis and monitoring of bladder lesions are made by combination of cystoscopy, histopathology and urine cytology⁹. All these diagnostic methods have their own limitations and cannot diagnose the presence of bladder tumors at every point of time¹⁰.

Bladder cancer is the commonest malignancy of the urinary tract. Its incidence is two times higher in men than in women. Similar findings were observed by Hsan et al¹¹, Ploog et al¹², Goyal et al¹³ and Vaidya et al¹⁴ but ratio was 4 to 5 times higher in males than in women.

Most common age group in the study was 61-70 years with around 36% cases (Table-1) which correlate with Vaidya et al¹⁴ of 33.73 cases of 61-70 years. In this mean age of presentation was 52.2 years and in study by Matalka et al mean age of the patient was 60.6 years.

In our study, there is increased prevalence of invasive urothelial carcinoma than non invasive urothelial carcinoma which correlate with Anita et al¹⁵ and Christopher et al¹⁶.

Carcinoma in situ is a neoplastic change of urothelium considered to be a high grade neoplasm and is an indicator of progression of urothelial neoplasm that requires specific treatment¹⁵. In this study, incidence of carcinoma in situ was 2%. In contrary the incidence was 0.62% in a study done by Vaidya et al. Out of all urothelial neoplasm in the present study, 22 cases were papillary carcinoma infiltrating into lamina propria and 28 cases (28%) were showing invasion into muscularis propria. Other authors like Laishram et al¹⁷ shows 15.38% of superficially invasive bladder carcinoma and 30.77% of muscle invasion bladder carcinoma in study. However, the risk of disease progression does not solely depend on growth pattern and histological grade of tumor. It also depends on various other factors such as size, multifocality, time of recurrence, prior intravesical therapy. Much of the controversies regarding grading will be solved by use of ancillary techniques like immunohistochemistry (IHC) or molecular assay.

CONCLUSION

Our study revealed that neoplastic lesions are more common. Most common age group is 51 to 60 years. High grade papillary urothelial carcinoma with invasion was the commonest urothelial neoplasm at the time of presentation. Hence inclusion of detrusor muscle in the cystoscopic biopsy is of utmost importance.

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