

ORIGINAL ARTICLE

Spectrum of Lesions in Cystoscopic Bladder Biopsies -A Histopathological Study

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Abstract: *Background:* Diseases of the bladder, particularly inflammation (cystitis), constitute an important source of clinical signs and symptoms. Tumors of the bladder are an important source of both morbidity and mortality. *Objectives:* 1) To study the histopathological features of various lesions in bladder biopsies. 2) To study the frequency of different pathological lesions, particularly Transitional Cell Carcinoma (TCC) in urinary bladder biopsies. *Results:* Sixty cases of urinary bladder biopsies were received. Out of 60 patients, 43 were males and 17 were females. The spectrum of pathological lesions included inflammations, metaplastic lesions and tumours. Transitional cell carcinoma was the most common tumour seen in this study. A case of paraganglioma and malakoplakia were also seen. *Conclusions:* Our study has revealed that the bladder tumours are the commonest lesions in cystoscopic biopsies and TCC was the predominant tumour type.

Keywords: Bladder, TCC, Paraganglioma.

Introduction

Diseases of the bladder, particularly inflammation (cystitis), constitute an important source of clinical signs and symptoms. Usually, however, these disorders are more disabling than lethal. Neoplasms of bladder pose biologic and clinical challenges [1]. Tumors of the bladder are an important source of both morbidity and mortality. It is the second most common malignancy seen by the urologist [2]. Various risk factors include cigarette smoking, industrial exposure to acrylamine, schistosoma hematobium, cyclophosphamide, artificial sweeteners and long-acting use of analgesics. How these influence to induce cancer is unclear, but a number of cytogenetic and molecular alterations are heterogeneous [3].

In general, the prevalence of bladder tumours in developed countries is approximately 6-times higher compared with that in developing countries. The most common type of bladder cancer in developed countries is urothelial carcinoma, derived from the uroepithelium, which constitutes more than 90% of bladder cancer cases in USA, France or Italy. However, in other regions (e.g. Eastern and Northern Europe, Africa, Asia) the relative frequency of urothelial carcinoma of the bladder is lower [4]. The relative frequency of histological subtype of bladder carcinoma depends on the clinical setting. About 90% of bladder carcinoma reported from the West is transitional cell type. In large series reported from Egypt, squamous cell carcinoma (SCC) accounted for 59–73% of bilharzial bladder cases [3].

Objectives:

- 1) To study the histopathological features of various lesions in bladder biopsies.
- 2) To study the frequency of different pathological lesions, particularly Transitional Cell Carcinoma (TCC) in urinary bladder biopsies.

Material and Methods

Source & Method of collection of data: This was a five year study conducted in histopathology section of Department of Pathology, BLDEU's Shri BM Patil Medical College, Hospital & Research Centre, Bijapur from January 2006 to Dec 2010. All patients who visited the Surgery/Urology outpatient department and presenting with haematuria, dysuria etc. were included in the study. Cystoscopic bladder biopsies were performed. The biopsies were preserved in 10% formalin. Gross examination was done and embedded in paraffin. Light microscopy technique was used for diagnosis. Special stains and immunohistochemistry were applied, where ever required.

Sample size: All the cases of cystoscopic bladder biopsies, taken from our hospital from Jan 2006 to December 2010 were included in the study.

Results

Age (Yrs)	Male	Female	Total	Percentage (%)
11-20	05	00	05	8.33%
21-30	01	03	04	6.66%
31-40	02	02	04	6.66%
41-50	02	02	04	6.66%
51-60	16	07	23	38.3%
61-70	09	03	12	20%
71-80	07	00	07	11.6%
81-90	01	00	01	1.66%
Total	43	17	60	100

Diagnosis	No. of patients	Percentage (%)
Cystitis	19	33.9%
Eosinophilic cystitis	01	1.66%
Malakoplakia	01	1.66%
Metaplastic changes	06	10%
Paraganglioma	01	1.66%
Transitional Cell tumours	28	46.6%
Squamous cell carcinoma	02	3.33%
Adenocarcinoma	02	3.33%
Total	60	100

Out of 60 patients, 43 (71.6%) were males and 17 (28.3%) were females. The peak age of incidence was between 51-60 years (Table-1)

The spectrum of pathological lesions included inflammations, metaplastic lesions and tumours (Table-2).

Transitional cell tumours accounted for 28 cases (46.6%) of cases (Table -3) and Transitional cell carcinoma (TCC) was the most common tumour seen in this study with 12 low grade TCC and 15 high grade TCC (Fig-1,2) according to recent WHO

grading (Table-4). In this study, 2 cases of primary squamous cell carcinoma (Fig- 3) and adeno-carcinoma of bladder were diagnosed.

Table-3: WHO-Histological grading of transitional cell tumours		
Tumour grade	Observations	Percentage (%)
Papilloma	01	3.57%
TCC – Low grade	12	42.85%
TCC – High grade	15	53.57%
Total	28	100

Figure-1: Photomicrograph showing tumour cells arranged in a fascicular pattern – High grade TCC (Sarcomatoid variant with squamous differentiation). (100X)

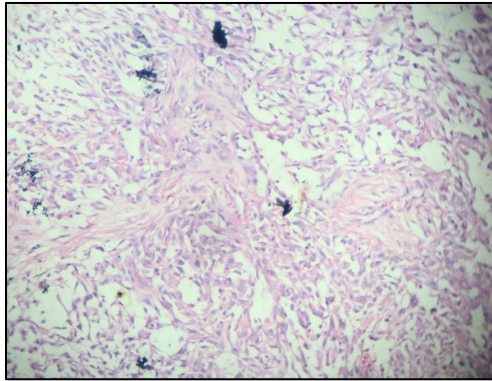


Figure-3: Photomicrograph showing tumour cells with keratinization-Primary Squamous cell carcinoma of bladder (100X).

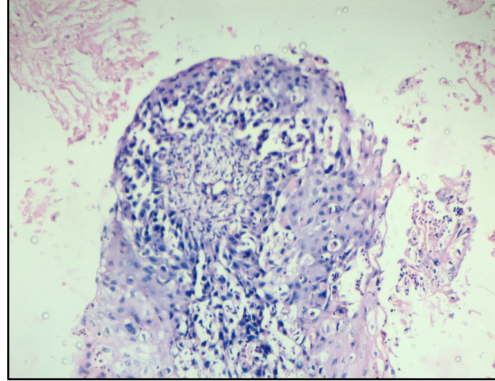


Figure-2: Photomicrograph showing malignant spindle cells. High grade TCC (Sarcomatoid variant with squamous differentiation). (400X)

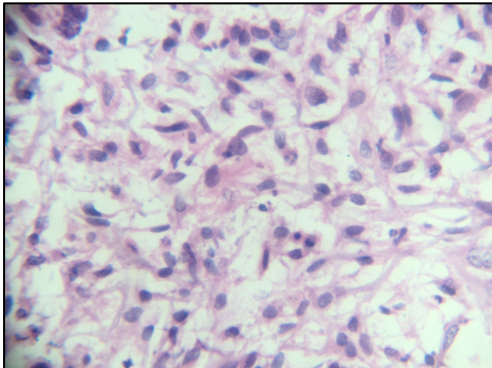
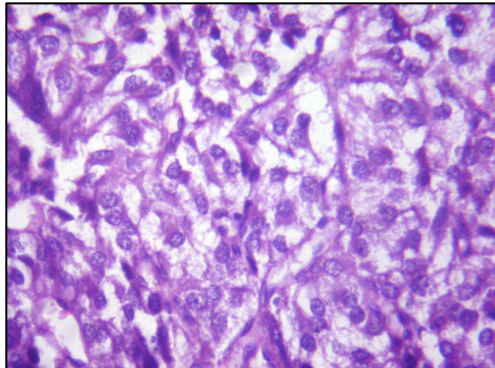


Figure-4: Photomicrograph showing tumour cells with salt pepper chromatin. Paraganglioma (400X)



A case of paraganglioma (Fig-4) was also noted and was confirmed by S100 positivity. A case of malakoplakia was diagnosed based on presence of PAS positive Michaelis-Gutmann bodies and plenty of macrophages.

Table- 4: Histologic features of urothelial papillary lesions [5]				
	Papilloma	Papillary neoplasm of low malignant potential	Low-grade papillary carcinoma	High-grade papillary carcinoma
Architecture				
Papillae	Delicate	Delicate. Occasional Fused	Fused, branching, and delicate	Fused, branching and delicate
Organization of cells	Identical to Normal	Polarity identical to normal. Any thickness Cohesive	Predominantly ordered, yet minimal crowding and minimal loss of polarity. Any thickness. Cohesive	Predominantly disordered with frequent loss of polarity. Any thickness. Often discohesive
Cytology				
Nuclear size	Identical to Normal	uniformly enlarged	Enlarged with variation in size	Enlarged with variation in size
Nuclear shape	Identical to Normal	Elongated, round-oval, Uniform	Round-oval. Slight variation in shape and contour	Moderate-marked pleomorphism
Nuclear chromatin	Fine	Fine	Mild variation within and between cells	Moderate-marked variation both within and between cells with hyperchromasia
Nucleoli	Absent	Absent to inconspicuous	Usually inconspicuous	Multiple prominent nucleoli
Mitoses	Absent	Rare, basal	Occasionally	Usually frequent
Umbrella cells	Uniformly Present	Present	Usually Present	May be absent

Discussion

The urinary bladder and renal pelvis are more common sites for urinary tract tumours than the ureters and urethra [6]. Majority of urinary tract tumours are epithelial. Both benign and malignant tumours occur, the latter being more common [1]. Bladder cancer is the 7th most common cancer worldwide. In general, the prevalence of bladder tumours in developed countries is approximately 6-times higher compared to developing countries. The most common type of bladder cancer in developed countries is urothelial carcinoma (90%) [4]. Patients included in this study were mostly representing population of Bijapur district of Karnataka. In our study, tumours make up highest percentage (55%) among these lesions, followed by acute and chronic non-specific inflammations (35%) and metaplastic changes (10%). The TCC accounted 81.81% of all tumours while the squamous cell carcinoma and adenocarcinoma were 6% respectively. In Sri Lanka, TCC accounted for 93.4% of primary bladder cancer, there was a male predominance with sex ratio of 6:1.

In Arabs, 83% of patients presented with superficial TCCB and 17% diagnosed with invasive disease with male to female ratio 13.4:1, and the mean age at presentation was 64 years. Ca UB occurs more in male with a male female ratio of 4.5:1 and a high incidence after 40 years of age. Inflammatory lesions were common in younger group especially females and the tumour was seen in slightly older age group predominantly men [3]. Tumour staging and grading currently are the two major factors for recurrence and progression, and for determination of treatment options for patients with bladder carcinoma [2]. Histological distribution according to WHO grading reveals that the maximum number of cases (53.57%) observed TCC- High grade, followed by low grade TCC with 42.85%. As compared to Matalka et al observations, their studied showed 40% cases of high grade TCC and 60% of low grade TCC. In our study, many of the cases were of high grade, may be because of the late presentation of the patient [2]. In most analysis, less than 10% of low grade cancers invade, but as many as 80% of high grade TCC are invasive [1]. In our study, out of 12 low grade TCC only 2 cases (16.6%) showed lamina propria invasion and out of 15 high grade TCC 13(86.66%) showed lamina propria invasion and 12(80%) showed muscular invasion.

Conclusions

Our study has revealed that the bladder tumours are the commonest lesions seen in cystoscopic bladder biopsies and TCC was the predominant tumour type. Besides, other investigations, cystoscopic bladder biopsies help in the early diagnosis and treatment of various bladder lesions.

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