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Clinicopathological Study of Urinary Bladder Lesions: A Retrospective Study

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Abstract

Background: Seventh most common tumor is urinary bladder tumor among which urothelial carcinoma constitutes 90% of primary bladder tumor. Both neoplastic and non neoplastic diseases produce clinical signs and symptoms. Though the non-neoplastic diseases are disabling, the neoplastic lesions are the source of mortality. This study was conducted to analyze frequency and clinical features of various histopathological lesions of bladder tumors. *Materials and Methods:* this retrospective study was carried out in the department of pathology, Narayana medical college, Nellore. Clinicopathological data of bladder biopsies received from urology department were analyzed. *Results:* 68 bladder biopsies were studied. Among them 53 cases were neoplastic and 15 cases were non neoplastic lesions. Both neoplastic and non-neoplastic lesions showed male predominance. Neoplastic lesions were noted in the age group of 61-70 years (28.3%) . Non-neoplastic lesions showed predominance in the 31- 40 years age group. Among the neoplastic lesion low grade papillary urothelial carcinoma invading lamina propria constituted maximum number (32.1%) followed by high grade urothelial carcinoma invading muscle layer (24.4%). Few rare tumors like urachal adenoacrcinoma, mucinous adenocarcinoma, sarcomatoid urothelial carcinoma were also encountered in our study. Among the non-neoplastic lesions, granulomatous cystitis were maximum (46.6%) followed by non-specific chronic cystitis, cystitis cystica, cystitis glandularis and eosinophilic cystitis. *Conclusion:* In the bladder neoplastic lesions are more common than non-neoplastic lesions. Among the neoplastic lesions, papillary urothelial neoplasms are commonest. Grading of urothelial carcinoma along with presence or absence of muscle invasion is an important prognostic factor. Clinical signs and symptoms like haematuria should not be neglected as it may lead to advanced stage of neoplastic lesions at the time of diagnosis.

Keywords: Bladder Lesions; Urothelial Tumors; Non Neoplastic Lesions.

Introduction

Among the diseases of urinary bladder neoplastic diseases are more common than non - neoplastic diseases. Urinary bladder tumor is the 7th commonest tumor world wide and among the bladder tumors, urothelial carcinoma is commonest accounting for 90% of primary bladder tumors [1]. Bladder cancer is an important cause of morbity and mortality. It ranks 7th & 6th most common cancers in the United States and Asian countries respectively, thus indicating the higher prevalence of bladder tumor in the developed countries when compared to the developing countries [2].

Cigarette smoking, cyclophosphamide, industrial exposure to acrylamine, artificial sweetners, long acting use of analgesics and Schitosoma hematobium infection are the various risk factors. Though the exact pathogenesis is not known various cytogenetic and molecular alterations were implicated [3].

Primary diagnostic tool for diagnosis urinary bladder tumor is cystoscopy. Bladder cytology plays an important role in giving clue to clinician. Histopathology is the gold standard for diagnosis bladder tumor [4].

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This retrospective study was carried to evaluate various pathological lesions of urinary bladder and to study the frequency of urine bladder tumors.

Materials & Methods

Our study was 2 years retrospective study conducted in the department of pathology, Narayana Medical College & Hospital, Nellore. Cystoscopic biopsies received from urology departments were included in our study. Autolysed specimens and inadequate biopsies were excluded from our study. Patient details like age, sex and clinical presentations were retrived from the requisition forms. Specimens were fixed and routine processing was done. After section cutting, slides were stained with Haematoxylin and Eosin. Slides were reviewed for the histopathological features including, tumor type, grade and for the presence of the muscle invasion. Grading of tumor was done according 2004 world health organization classification system. Data was tabulated and evaluated for the analysis.

Results

In our study we analyzed 68 Bladder biopsies. Among the bladder biopsies analyzed 53 showed neoplastic lesions and 15 showed non – neoplastic lesions.

Out of 15 non neoplastic lesions, most common lesion was Granulomatous cystitis (46.6%) with Non – specific chronic cystitis being next common lesion (26.6%) (Table 1). Other lesions were cystitis cystica, cystitis glandularis, eosinophilic cystitis and suppurative inflammation. Male predominace was noted in non-neoplastic bladder lesions. The lesions were found more in younger age group of 31-40 years (Table 2).

Among the 53 neoplastic lesions, most common was papillary urothelial low grade carcinoma invading lamina propria (32.1%). Next common lesion was papillary urothelial carcinoma high grade invading muscularis (24.4%). Among the high grade urothelial carcinoma, more number of cases showed muscle invasion. Other rare tumors encountered in our study

Table 1: Frequency of different lesions in bladder biopsies

Lesions	No of Cases (n= 15)	Percentage
Cystitis cystic	1	6.7
Cystitis glandularis	1	6.7
Eosinophylic cystitis	1	6.7
Granulomatous cystitis	7	46.6
Non specific chronic cystitis	4	26.6
Supperative inflammation	1	6.7

Table 2: Age & sex distribution in non – neoplastic lesions of bladder

Age group	Male (n= 9)	Female (n= 6)	Total (n= 15)
0-10	-	-	-
10-20	-	-	-
21-30	1	1	2
31-40	2	2	4
41-50	1	-	1
51-60	1	2	3
61-70	3		3
71-80	1	1	2
>80			

Table 3: Spectrum of neoplastic bladder lesions

Lesion	Number of cases (n=53)	Percentage
Papillary Urothelial Carcinoma Low Grade	7	13.2
Papillary Urothelial Carcinoma invading lamina propria	17	32.1
Papillary Urothelial Carcinoma High Grade	2	3.8
Papillary Urothelial Carcinoma high grade invading lamina propria	10	18.9
Papillary Urothelial Carcinoma high grade invading muscularis	13	24.4
Sarcomatoid UC	1	1.9
Urachal adenocarcinoma	1	1.9
Mucinous adenocarcinoma	1	1.9
Squamous cell carcinoma	1	1.9

Table 4: Sex & Age distribution among neoplastic bladder lesion

Age in years	Male (n= 32)	Female (n= 21)	Total (n= 53)
0-10	-	-	
10-20	-	-	
21-30	1		1.9
31-40	1	2	5.7
41-50	5	6	20.8
51-60	9	4	24.5
61-70	8	7	28.5
71-80	7	2	16.98
>81	1		1.9

were sarcomatoid urothelial carcinoma, urachal adenocarcinoma, mucinous adenocarcinoma and squamous cell carcinoma (Table 3).

Neoplastic lesions were found mostly in the elderly age group of 61–70 years (28.5%) with male predominance (Table 4).

In our study 55 case (81%) presented with hematuria, 6 cases (8%) presented with pain abdomen and 7 cases (11%) presented with urgency.

Discussion

In clinical practice, most common urinary bladder lesions encountered are bladder tumors. Bladder tumors are more prevalent in the developed countries than developing countries. In USA, Italy and France, urothelial carcinomas constitutes more than 90% bladder tumors. However in Northern and Eastern Europe, Asia and Africa, the frequency of urothelial carcinoma is low [5].

The frequency of various types of bladder carcinomas varies depending upon the clinical settings. Transitional cell carcinoma is most commonest bladder carcinoma in west, where as squamous cell carcinoma accounts for 59–73% of bladder cancers in egypt which is endemic for Schistosoma haematobium [3].

Urine cytology is considered to be the important diagnostic tool for detecting bladder cancer. However high grade tumors are detected more accurately than in low grade tumors in cytology [4]. Cytoscopic biopsy provides the urologist with the information regarding the histological subtype, grade and stage of the bladder tumor, which helps them to take the decision regarding the treatment procedure.

In our study neoplastic lesions were more when compared to non neoplastic lesions which coincided with the study done by Pooja Y et al [6].

Eosinophilic cystitis presents as edematous polyp or ulcers on cystoscopy and lamina propria shows predominantly eosinophils on microscopy. We encountered single case in our study. Granulomatous cystitis presenting as erythematous or polypoidal lesion on cystoscopy shows granulomas with epithelioid histiocytes on microscopy [7]. In our study we encountered 7 cases of granulomatous cystitis (46.6 %).

Male predominance was noted in our study with male to female ratio of 1.51:1 which coincided with studies done by Hasan et al where male to female ratio was (2.58:1) [3]. In our study, though the benign lesions were seen in young age group, urothelial carcinomas were noted more in elderly age group (61- 70 years) (28.3%) which correlated with studies done by Vaidhya et al which showed that 33.73% of cases were in the agre group 61–70 years [8].

We found that 94.3 % of total bladder tumor cases were urothelial carcinomas which were correlating with study done by Sharma et al (9.91%) [9]. Among the urothelial carcinoma high grade carcinomas were more common than low grade in our study which correlated with study done by Bhavana et al. Out of 23 cases of invasive high grade urothelial carcinomas 13 cases showed muscle invasion and remaining 10 cases showed invasion into lamina propria. Similar findings were seen in study done by Vaidhya etal where out of 67 cases, 20 cases of high grade tumors showed muscle invasion and 4 cases of low grade [8]. In our study 17 cases of low grade tumors showed invasion into lamina propria but no case was noted with muscle invasion.

In our study we encountered a single case of sarcomatoid urothelial carcinoma, which presented as polypoidal lesion in bladder. Microscopy of these lesion show both epithelial component and mesenchymal differentiattion with prominent myxoid stroma [10].

Urachal adenocarcinoma arising from the urachus which is embryonic allantois and cloacal remnant. In adult life regressed urachus is seen as cord connecting the umbilicus and anterior dome of the bladder. Microscopically tumor reveals, tumor cells in the

mucinous background and surface shows normal transitional epithelium [11].

One case of mucinous adenocarcinoma was reported which microscopically revealed tumor cells floating in the pools of mucin. It is a rare tumor which constitutes 0.5 to 2% of all malignant tumors of bladder [12]. In the mucinous adenocarcinoma the transitional epithelium will be dysplastic where as in urachal adenocarcinoma the epithelium will be normal. In both the tumors underlying tissue shows signet ring cells and pools of mucin.

Conclusion

In our study neoplastic lesions were more common in the urinary bladder when compared to non-neoplastic lesions. Among neoplastic lesions papillary carcinoma low grade was more common than high grade lesions. High grade tumors with muscle invasion were common and low grade tumors did not show muscle invasion. Hematuria was the commonest presentation among neoplastic and non-neoplastic lesion. Clinical signs and symptoms like haematuria should not be neglected as it may lead to advanced stage of neoplastic lesions at the time of diagnosis.

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