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Original Research Article.

Histopathological Spectrum of Urinary Bladder Biopsies

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ABSTRACT

Aim & Objectives: To study the histopathological spectrum of various lesions in the urinary bladder biopsies and to assess various types of urinary bladder lesions with regard to frequency, age and sex distribution.

Materials & Methods: The study was carried out in the Department of Pathology, Teerthanker Mahaveer Medical College, Moradabad. All Trans urethral resection of bladder tumor biopsies were collected & analysed including relevant clinical information.

Results: The present study was conducted over a period of one and half year; during which a total of 50 lesions were submitted for histopathological examination which were evaluated. 90% of them were neoplastic rest 10% were diagnosed as cystitis. 84% of them were male. One third of them were found to be in age group of 61-70 years which is found to be the commonest age group in our study. Hematuria is the commonest clinical presentation. Two third of the cases were High grade urothelial carcinoma.

Conclusion: Most common presenting complaint was haematuria which on cystoscopy showed presence of growth. Of these biopsy specimens most common lesions were found to be neoplastic with majority being high grade urothelial carcinoma two third of which showed muscle invasion.

Keywords: Bladder, Neoplastic, Urothelial Lesions.

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INTRODUCTION

Urinary bladder diseases are quite frequent in clinical practices. Urinary bladder disorders can be non-neoplastic or neoplastic. Among non-neoplastic diseases, cystitis is one of the important reasons for symptomatic manifestation. Urinary bladder cancer is an important cause of cancer related morbidity and mortality with a consecutive increase in incidence throughout the world. It is the 7th most common type of cancer worldwide.[1] Among men it is the fourth most common cancer and eighth most common malignancy in women.[2] Bladder cancer is more frequent in developed countries rather than in developing countries.

Every 9 out of 10 bladder cancer cases diagnosed turn out to be transitional cell carcinoma (TCC), thus showing the dominance of TCC over other types that include squamous cell carcinoma (SCC), adenocarcinoma and other less frequent types of bladder cancer which collectively account for the remaining 1 out of 10 bladder cancer cases.[3] Exposures to tobacco smoke, occupational toxins, and environmental sources of heavy metals such as arsenic are the major reported risk factors for TCC.[4-7]

The primary sign associated with bladder carcinoma is hematuria[8], however, it is often non-specific and requires further investigation.

Although, cystoscopy remains as the primary screening tool for patients that allow a direct visualization of the bladder mucosa and biopsies of the suspected lesions[9], however, it cannot provide the accurate diagnosis and histopathology is the only resort for most accurate and definitive diagnosis.

MATERIALS AND METHODS

This is a study conducted in the Department of Pathology of Teerthanker Mahaveer Medical College, Moradabad over a period of one and half year (Feb 2017 to Sep. 2018). It includes 50 cases of cystoscopic biopsies. All patients who visited urology Out Patient Department (OPD) and subjected to cystoscopic biopsy were included in this study.

The cystoscopic biopsies taken by Urologist were sent to the Department of Pathology for processing. Biopsies were fixed in 10% neutral buffered formalin for 24 hours before the tissue is processed for paraffin blocking. 3-4 micron sections were cut and the prepared slides were stained with Hematoxylin and Eosin (H & E) stain.

The histopathological features were studied and relevant findings were noted. Patient's history, clinical diagnoses were also obtained from the patient's record file and histopathological requisition forms. Standard diagnostic criterias were used to diagnose based in morphological findings.

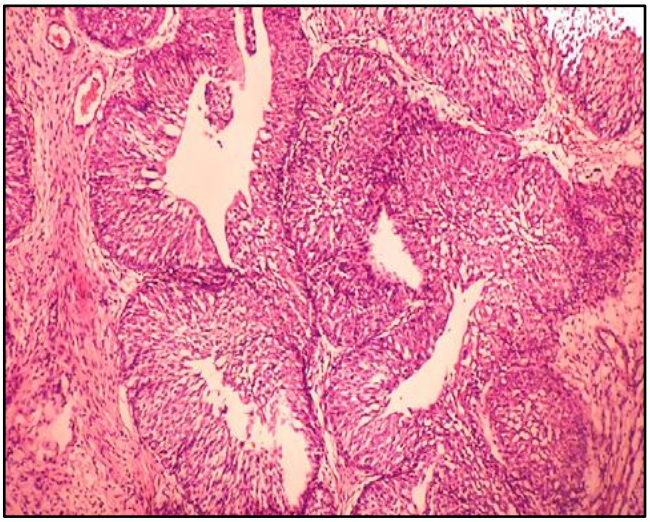

Fig 1: Low grade urothelial carcinoma (H&E:400X).

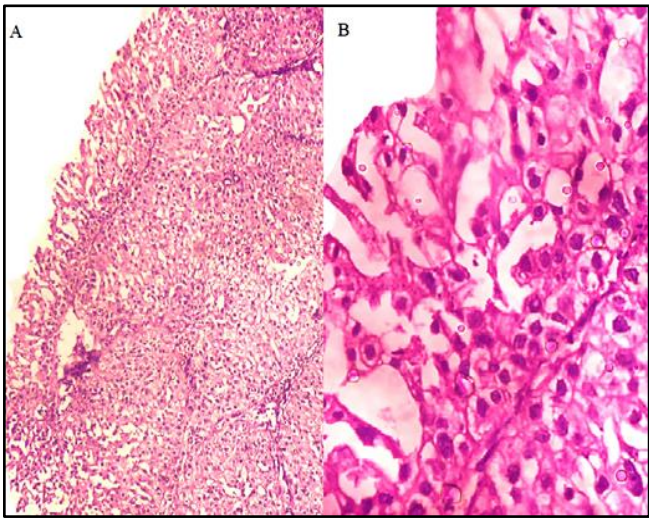

Fig 2: A- High grade urothelial carcinoma (H&E:100X). B- High grade urothelial carcinoma (H&E:400X).

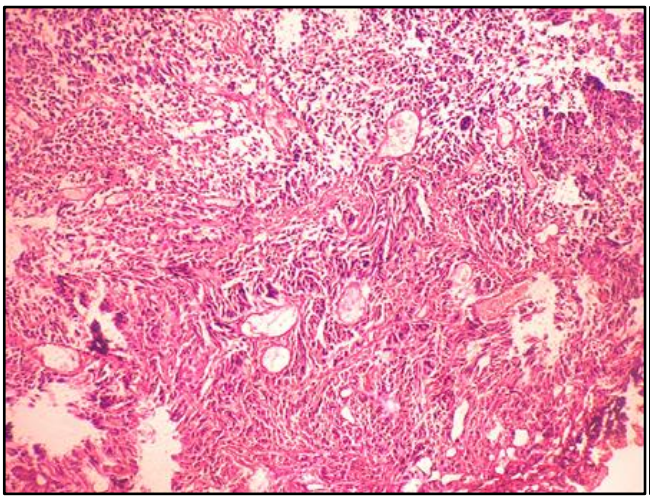

Fig 3: Urothelial carcinoma with muscle invasion (H&E:400X).

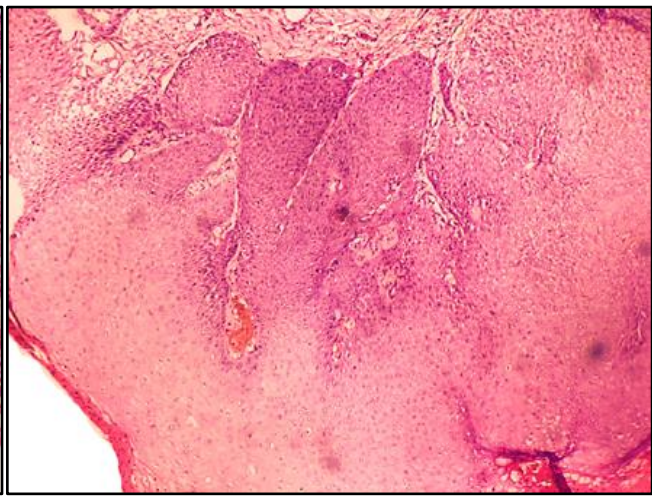

Fig 4: Squamous cell carcinoma(H&E:400X)

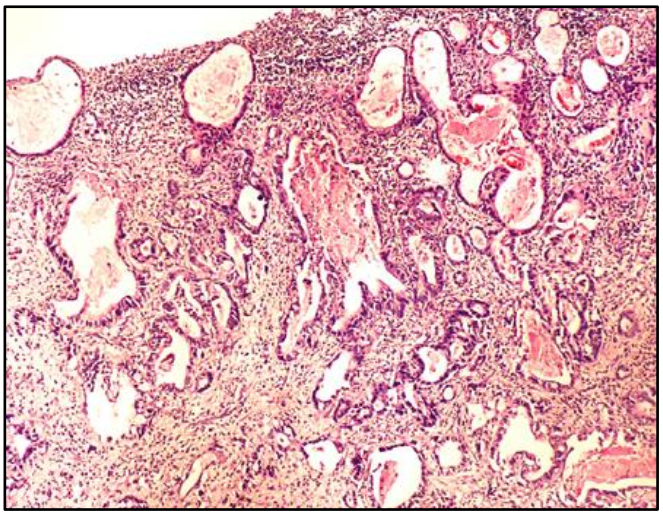

Fig 5: Adenocarcinoma (H&E:400X).

RESULTS

In the present study a total of 50 TURBT were evaluated. Age of cases enrolled in the study ranged from 26 to 80 years. Mean age of cases was 58.85±13.98 years.

Majority of patients were in the age group between 61 and 80 years. Majority of patients were males (84%), with 76% being smokers, and 4% had habit of tobacco chewing. Of all the patients who were biopsied, Hematuria was found to be the commonest clinical presentation; other complaints were abdominal pain (54%), increased frequency (46%), dysuria (40%), urgency (38%) and incomplete voiding (22%). Fever (10%), lower limb edema (8%), weight loss and nocturia (4% each) were relatively less common clinical features (Table 1).

Out of 50 cases evaluated, majority were malignant (90%) out of which urothelial carcinoma constituted 84% followed by squamous cell carcinoma (4%) and adenocarcinoma (2%). Remaining 5 cases were diagnosed as cystitis out of which interstitial cystitis and eosinophilic cystitis were two in number followed by one case of granumatous cystitis. Majority of urothelial carcinoma cases were high grade (73.8%) and low grade comprised (26.2%). On histopathogical assessment all cases which were diagnosed as high grade urothelial carcinoma showed large hyperchromatic nuclei with prominent nucleoli. Loss of umbrella cells were found frequently in high grade urothelial carcinoma (98.5%) compared to that of low grade (27.3%). Muscle invasion was seen in 77.4% of high grade urothelial carcinoma which was completely absent in low grade urothelial carcinoma.

Table 1: Clinical Profile of Cases enrolled in the study (n=50)

SN	Feature	No. of cases	Percentage
1.	**Hematuria**	50	100
2.	**Increased frequency**	23	46
3.	**Urgency**	19	38
4.	**Dysuria**	20	40
5.	**Nocturia**	2	4
6.	**Incomplete voiding**	11	22
7.	**Abdominal pain**	27	54
8.	**Fever**	5	10
9.	**Lower limb oedema**	4	8
10.	**Weight loss**	2	4

Table 2: Histopathological Features of Urothelial Carcinoma

Histopathological features	High grade urothelial carcinoma		Low grade urothelial carcinoma	
	Cases (n=31)	Percentage (%)	Cases (n=11)	Percentage (%)
Large hyperchromatic nuclei	31	100	4	36.3
Prominent nucleoli	31	100	1	9.09
Loss of Umberella cells	28	98.5	3	27.3
Muscle invasion	24	77.4	0	0

DISCUSSION

Diseases of the urinary bladder, irrespective of their malignancy status are responsible for significant morbidity and mortality. Although, newer technologies are helpful in their diagnosis and treatment yet they hold a considerable interest for their varied clinical and histopathological spectrum. In view of the varied spectrum of underlying pathologies, it is of interest to understand the histopathological profile of urinary bladder lesions. Hence, the present study was carried out with an aim to study the histopathological features of various lesions in the urinary bladder biopsies and to correlate the same with age, sex and other demographic characteristics.

For this purpose, a total of 50 urinary bladder biopsy specimens were evaluated. Majority (52%) were above 60 years of age with mean age of 58.85 years and sex ratio of 5.25, which is similar the findings published by Mubarak et al.[10] (mean age 57.5 years and sex ratio of 5.33). Hematuria, is found to be universal complaint as seen in the study of Gupta et al (97%).[11] and thus hematuria must be evaluated thoroughly in order to rule out malignancy. Personal habits like smoking, tobacco intake and alcoholism were seen in 76%, 4% and 20% patients respectively in our study. These findings are comparable to that by Gupta et al.[11] who reported incidence of smoking to be 74% and 22% respectively in males and females in their study. In the present study, owing to a dominance of males, the overall proportions of smokers were relatively higher.

Majority of urothelial carcinoma cases were high grade (73.8%) and low grade comprised (26.2%). On histopathogical assessment all cases which were diagnosed as high grade urothelial carcinoma showed large hyperchromatic nuclei with prominent nucleoli, Kwon J et al[12] also used these indicators hyperchromasia and prominent nucleoli for the malignancy. Loss of umbrella cells were found frequently in high grade urothelial carcinoma (98.5%) compared to that of low grade (27.3%). Muscle invasion was seen in 77.4% of high grade urothelial carcinoma which was completely absent in low grade urothelial carcinoma.

Among different malignant lesions, urothelial carcinoma was the most common (84%) followed by squamous cell carcinoma (4%) and adenocarcinoma (2%) respectively which is similar to what is reported in other studies[10,13-20] ranging from 64.7% to 100%.

In present study, non-neoplastic cases constitutes 5% which is in contrast to findings by Susmitha et al.[21] (41.67%), Forae et al.[17] (41.7%) and Baidya et al.[18] (61.11%) probably because this study was done at a tertiary care centre situated in rural part of northern India where patients present late. In present study, all the 5 non-malignant cases were found to be cystitis which is similar to studies conducted by Susmitha et al.[21] (95%), and Baidya et al.[18] (96.5%) Forae et al.[17] in their study, although found cystitis as one of the most common non-malignant conditions (41.7%) but reported other non-malignant conditions like schistosomiasis, inverted papilloma, malakoplakia, angiofibroma and inflammatory

polyps as other non-malignant conditions constituting significant proportion of cases. We found 56% of cases to be invasive which is different from the studies conducted by Mubarak et al.[10] and Thapa N et al.[22] who reported lesser proportion of invasive lesions as 38% and 22% respectively.

Two third of all urothelial carcinoma was found to be high grade (73.8%) and remaining one third (26.2%) were low grade which is similar to the study conducted by Sharma et al.[23] who in their study reported high grade (56.4%) to be more common as compared to low grade (43.6%) & Forae et al.[17] who found high grade carcinoma to be more commoner (61.3%). Thapa N et al.[21] and Thapa R et al.[24] however in their study reported low grade carcinoma to be more common 77.78% and 62.22% respectively.

CONCLUSION

We conclude that of the patients who underwent biopsy, most common presenting complaint was hematuria which on cystoscopy showed presence of growth. Of these biopsy specimens most common lesions were found to be neoplastic with majority being high grade urothelial carcinoma two third of which showed muscle invasion; thus emphasized the need of biopsy & Histopathological examination in all elderly patients presenting with hematuria.

REFERENCES

1. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C et al. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer. 2013; Available from: http://globocan.iarc.fr/Pages/ fact_sheets_population.aspx (Accessed 4th April, 2018).

2. Parkin DM, Whelan SL, Ferlay J, Teppo L, Thomas DB, editors. Cancer Incidence in Five Continents. Vol. VIII. Lyon, France: IARC Publications No. 155; 2002.

3. Jemal A, Murray T, Ward E, Samuels A, Tiwan R, Ghafoor A, Feuer E, Thun M. Cancer statistics.CA Cancer J Clin. 2005; 55: 10–30.

4. Ferlay J, Bray F, Pisani P, Parkin DM. GLOBOCAN 2002: Cancer Incidence, Mortality and Prevalence Worldwide IARC Cancer Base No. 5. version 2.0. IARC Press; Lyon: 2004.

5. Kurkure AP. Cancer incidence and patterns in urban Maharashtra.Consolidated report of the population based cancer registries. 2001. (Accessed on 11th April, 2017). Available at: karmayog.org/cancer/upload/11591/maharashtrareport2001.pdf

6. National Cancer Registry Programme.Chapter 2. Three-year report of Population Based Cancer Registries: 2012-14. Indian Council of Medical Research, 2016. last accessed 11th April, 2017 Available:http://www.ncrpindia.org/ALL_NCRP_REPORTS/PBCR_REPORT_2012_2014/ALL_CONTENT/PDF_Printed_Version/Chapter2_Printed.pdf,

7. Lynch CF, Cohen MB. Urinary system. Cancer. 1995;75:316–29.

8. Golka K, Wiese A, Asseannato G, Bolt H. Occupational exposure and urological cancer. World J Urol. 2004;21:382–98.

9. Morales K, Ryan L, Kuo T, Wu M, Chen C. Risk of internal cancers from arsenic in drinking water. Environ Health Perspect. 2000;108:655–62

10. Mubarak M, Kazi JI, Hashmi A, Hussain M, Naqvi SA, Rizvi SAH. Urinary Bladder Tumors in Southern Pakistan: A Histopathological Perspective. Middle East Journal of Cancer 2014; 5(3): 167-73.

11. 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;25:207-1.

12. Kwon J, Cho N, Choi Y, Lim S, Cho Y, Jun S et al. Level of mitoses in non-muscle invasive papillary urothelial carcinomas (pTa and pT1) at initial bladder biopsy is a simple and powerful predictor of clinical outcome: a multi-center study in South Korea. Diagnostic Pathology. 2017;12(1).

13. Mahesh Kumar U and B.R. Yelikar, Spectrum of Lesions in Cystoscopic Bladder Biopsies: A Histopathological study. Al Ameen J Medical Sci 2012;5 (2):132-136.

14. Laishram RS, Kipgen P, LaishramS,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.

15. Sathya M, Chinnaswamy P. urinary bladder cancer: A clinicopathological and histological study. J Med Sci 2014; 14:206-9.

16. Pudasaini S, Subedi N, Prasad KBR, Rauniyar SK, Joshi BR, Bhomi KK. Cystoscopic bladder biopsies: A histopathological study. Nepal Med Coll J 2014; 16(1): 9-12.

17. Goyal VK, Vyas SP, Kothari DC. Spectrum of Lesions in Urinary Bladder Biopsies: Histopathological Study. Int. J. Dent. Med. Res. 2015; 1(6): 42-6.

18. Forae GD, Ugiagbe EE, Mekoma DF. A descriptive study of bladder tumors in Benin City, Nigeria: An analysis of histopathological patterns. Saudi Surg J 2016;4:113-7.

19. Baidya R, Sigdel B, Baidhya NL. Histopathological study of cystoscopic bladder biopsies. Journal of Pathology of Nepal 2015; 5: 717-9.

20. Aparna C, Thumma RR, Devi CP, Vanapalli SVRLJ, Mounika TDN. Histological Spectrum of Urothelial Lesions – Experience of A Single Tertiary Care Institute. Int. J. Contemp. Med. Res. 2016; 3(6): 1731-3.

21. Susmitha S, Patil GS, Patil SB.A Study on Histopathological Spectrum of Lesions in Urinary Bladder Specimens. Annals of Pathology and Laboratory Medicine 2018; 5(5): A489-95.

22. Thapa N, Agbo CA, Agrawal CS. Transurethral resection of bladder tumour (TURBT) : experience of a tertiary centre. Jos Journal of Medicine 2017; 11(1): 17-9.

23. Sharma M, Goswami KC, Gupta S. Urinary Bladder Carcinoma: A Clinicopathological Study. Int. J. Scientific Res. 2017; 6(6): 198-200.

24. Thapa R, Lakhey M, Bhatta AD. Spectrum of histomorphological diagnosis in cystoscopic bladder biopsies. Journal of Pathology of Nepal 2017; 7: 1062-5.

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