

ORIGINAL ARTICLE

Histo-morphological Spectrum of Cystoscopic Biopsies in Kathmandu Model Hospital

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ABSTRACT

Introduction: Urinary bladder lesions are commonly encountered medical problems. Both non-neoplastic and neoplastic lesions are significant causes of morbidity. However, malignant lesions usually result in mortality. Cystoscopy guided biopsy determines the nature of lesion and thus helps in further management of patients. The objectives of this study were to find out the histo-pathological diagnosis and features of various bladder lesions and their frequencies.

Methods: This cross-sectional study was carried out in the Department of Pathology, Kathmandu Model Hospital. All the cystoscopic biopsies received from January 2021 to December 2023 were included in the study. Preserved tissue slides were examined under a light microscope by the primary investigator. The histo-pathological diagnosis of each lesion was recorded, along with specific features such as tumor type, grade and depth of invasion.

Results: Total 47 cystoscopic biopsies were studied. The majority of patients 12 (25.5%) were in age group 70-80 years and predominant 31 (66%) were male. Neoplastic lesions were more common 31 (66%) and infiltrating and non-invasive urothelial carcinoma constituted equal in number 14 each (45%). Among the non-neoplastic lesions, non-specific cystitis was the commonest 13 (82%).

Conclusion: Neoplastic lesions are more common than non-neoplastic lesions. Neoplastic lesions are more common in male and in age group 70-79 years. Infiltrating and non-invasive urothelial carcinoma are equally common. Non-specific cystitis is the commonest among the non-neoplastic lesions.

Keywords: Cystoscopy, Lesions, Neoplastic

INTRODUCTION

Urinary bladder is a hollow organ for reservoir for urine. Diseases of urinary bladder cause significant morbidity and mortality.¹ Bladder carcinoma accounts for the second most common malignancy of urinary tract.² It accounts for 9th and 19th cause for mortality for male and females respectively.³ More than 420,000 new cases and over 165,000 mortalities are annually reported globally.⁴ It is more common in developed

countries.⁵ The risk factors include smoking, physical inactivity, exposure to aromatic amines and schistosomiasis.⁶

Cystoscopy is a standard diagnostic tool for visualization of the bladder mucosa and obtaining biopsy from lesions.⁷ Biopsy allows assessment of histologic types, degree of differentiation and depth of tumor invasion helping in diagnosis and treatment.⁸ This study determines frequency and histologic spectrum of

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cystoscopic biopsy of urinary bladder lesions received in Kathmandu Model Hospital. It will help to determine common lesions of urinary bladder. Thus, helps in early diagnosis and management.

METHODS

This is a cross-sectional study conducted in the Pathology department of Kathmandu Model Hospital using hospital records. All the cases of cystoscopic biopsies with sufficient biopsy material and complete clinical data obtained in pathology department in the last three years (2021 January - 2023 December) were included in the study. Cases with inadequate sample size or incomplete clinical data were excluded from the analysis.

The ethical approval was granted by the institutional research committee of the Phect IRC. Histo-pathological data were retrieved from the Pathology department’s records including histo-pathology forms and registers. Preserved tissue slides were examined under a light microscope by the primary investigator. The histo-pathological diagnosis of each lesion was recorded, along with specific features such as tumor type, grade and depth of invasion.

Descriptive statistics were used to summarize the findings. Frequency and percentage of each histo-pathological diagnosis were calculated. Data were analyzed with respect to age, gender and type of lesion (neoplastic vs non-neoplastic). The primary outcomes measures were the frequency of different histo-pathological diagnoses and the distribution of lesions based on age, gender and type of bladder lesions.

RESULTS

Total 47 cystoscopic biopsy cases were taken in the period of three years. Out of these cases, 31 (66%) were male and 16 (34%) were female. The majority of cases were in age group of 71-80 years, 12 (25.5%) followed by in age group of 61-70 years, 10 (21.3%) with the least cases in age group of 21-30 and 31-40 years – 3 cases each (6.4%).

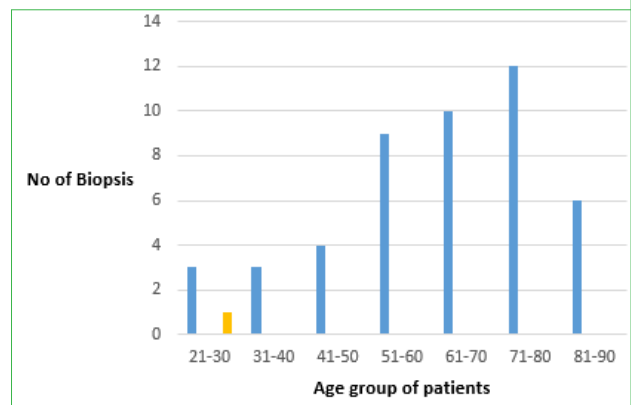


Figure 1: Age wise distribution of cystoscopic biopsies

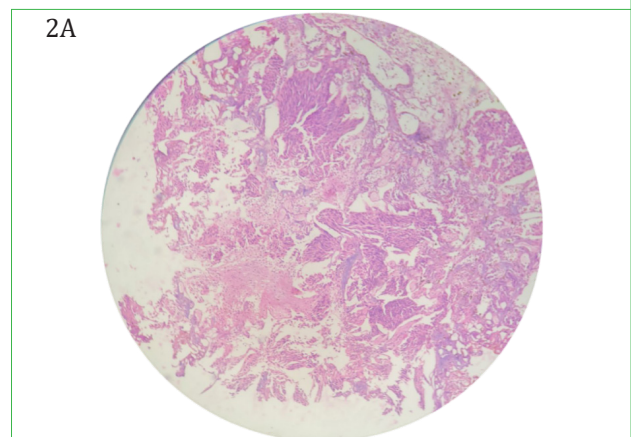


Figure 2A: Infiltrating urothelial carcinoma, lamina propria invasion; (Haematoxylin and Eosin; 10x)

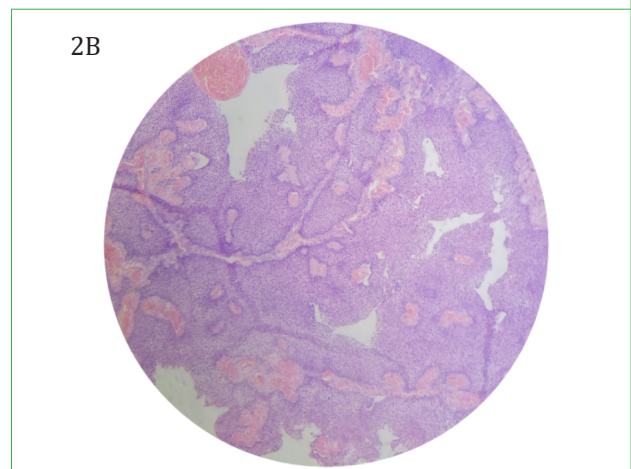


Figure 2B: Non-invasive papillary urothelial carcinoma, low grade; (Haematoxylin and Eosin; 10x)

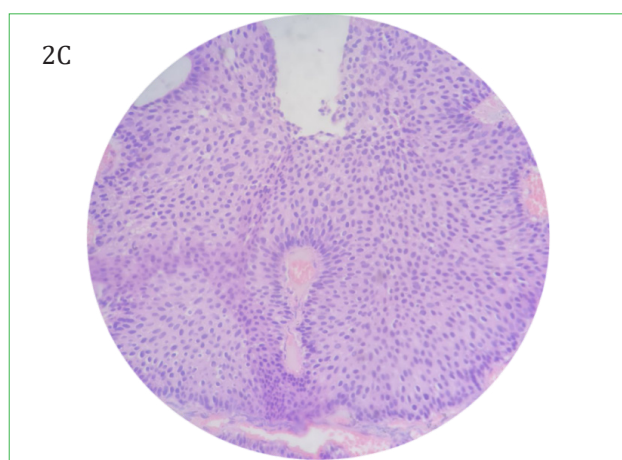


Figure 2C: Non-invasive papillary urothelial carcinoma, low grade; (Haematoxylin and Eosin; 40x)

Out of 47 biopsies, neoplastic lesions accounted for 31 (66%) and non-neoplastic lesions accounted for 16 (34%). Out of 16 non-neoplastic lesions, chronic non-specific cystitis was the commonest accounting for 13 cases (82%) followed by each case of Von Brunn's nest (6%), inverted papilloma (6%) and granulomatous lesion (6%). Among neoplastic lesions, non-invasive papillary urothelial carcinoma and infiltrating urothelial carcinoma were in equal number, 14 cases each (45%) followed by each case of neuro-endocrine carcinoma, squamous cell carcinoma and metastatic carcinoma. Among non-invasive carcinoma, non-invasive papillary urothelial carcinoma, high grade comprises of 6 cases (43%) and low grade comprises 8 cases (67%). Among infiltrating carcinoma, lamina propria invasion was in 12 (85%) and muscularis propria invasion was in 2 (15%) of all infiltrating urothelial carcinoma. Carcinoma was more commonly seen in male (80%) and in age group 71-80 years (29%).

Table 1: Histopathological diagnosis of cystoscopy bladder biopsies (n= 47).

Histopathological diagnosis	Number of cases
Non-neoplastic lesions	
Chronic cystitis	13 (82%)
Von Brunn's nest	1 (6%)
Cystitis glandularis	1 (6%)
Inverted papilloma	1 (6%)
Neoplastic lesions	

Non-invasive papillary urothelial carcinoma, low grade	8 (25.8%)
Non-invasive papillary urothelial carcinoma, high grade	6 (19.3%)
Infiltrating urothelial carcinoma	14 (45%)
Metastatic carcinoma	1 (3.33%)
Neuro-endocrine carcinoma	1 (3.33%)
Squamous cell carcinoma	1 (3.33%)

Table 2: Distribution according to layers of invasion in urothelial carcinoma.

Invasion in infiltrating carcinoma	
Lamina propria	12 (85%)
Muscularis propria	2 (15%)

DISCUSSION

Cystoscopy is the diagnostic tool for visualizing the bladder lesions and obtaining the biopsy of bladder lesions.⁷ Histopathology forms the core of diagnosis and hence plays vital role in diagnosis and treatment of neoplastic and non-neoplastic lesions.⁸ Present study showed 34% were female and 66% were male of total cystoscopic biopsies. Similar findings were found in study conducted by Dhakal et al⁹, Thapa et al¹⁰, Pudasaini et al¹¹ and Shrestha et al¹². Malignancy was more commonly seen in male and age group 70-79 years (29%). In study conducted by Shrestha et al¹², malignancy was most common in male and age group 70-79 years (31.91%) which is similar to our study. Similar findings were seen in study conducted by Dhakal et al⁹. Malignancy was seen in male (77.19%) in study done by Mohammadian et al¹³ which is similar to our study. Predominance of carcinoma in males may be due to higher prevalence of smoking and exposure to occupational hazards.

Present study showed 66% malignancy in total cystoscopic biopsies. Study done by Gupta et al¹⁴ showed 68.33% malignancy among the bladder lesions which shows concordance with our result. Similar finding was seen in study done by Thapa et al¹⁰ in which malignancy was found in 66.67% of cases. However, study done by Baidya et al¹⁵ showed maximum number of cases were of chronic cystitis (58.95%) which shows discordance with our result. Present study showed chronic non-

specific cystitis, the commonest one (82%), among the non-neoplastic lesions. Similar finding is seen in study done by Sedhain et al¹⁶ (72.2%), Dhakal et al⁹ (90%) and Shrestha et al¹² (75%). Only a single case of granulomatous cystitis (6%) is seen in our study which shows concordance with the study conducted by Dhakal et al⁹ (4%) and Thapa et al¹⁰ (3.5%).

Among the neoplastic lesions, non-invasive papillary urothelial carcinoma and infiltrating urothelial carcinoma are equal in number (45%) in our study. Study conducted by Pudasiani et al¹¹ showed 61% of non-invasive and 22% of infiltrating neoplasm. Shrestha et al¹² study showed 24.4% of non-invasive carcinoma and 75.5% of infiltrating carcinoma. This discordance with our result may be due to late medical consultation after onset of symptoms.

Muscularis propria invasion was seen in 15% of all infiltrating urothelial carcinoma. Comparable results are seen in study conducted by Thapa et al¹⁰ (24%) and Pudasiani et al¹¹ (26.7%). However, results are higher in study conducted by Dhakal et al⁹ (32.4%) and Shrestha et al¹² (75.55%). This discordance may be due to absence of muscularis propria in biopsies specimen which results in lamina propria invasion only. This study was conducted as a single centre. Hence, it may not represent the actual prevalence of our country. Moreover, we had not taken those cases that were not adequate for evaluation and had no proper details. In most of biopsy specimen, muscularis propria are not included. Due to which muscularis propria invasion could not be commented upon.

CONCLUSION

Urothelial carcinomas were more prevalent in males and age group 70-79 years. Both infiltrating and non-invasive carcinoma are equally common. Lamina propria invasion is seen more frequently than muscularis propria invasion. This may be due to absence of muscularis propria in biopsy specimen. Cystoscopic biopsy thus forms the gold standard in diagnosis and treatment of bladder carcinoma.

CONFLICT OF INTEREST

None

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