

A CLINICO-HISTOPATHOLOGICAL STUDY OF URINARY BLADDER LESIONS

Siddhi Kumari Pandey¹, Ranu Tiwari Mishra², F. S. Solanki³, Sanjay Totade⁴, Jagmohan Singh Dhakar⁵

Received : 10/05/2023
Received in revised form : 21/05/2023
Accepted : 03/06/2023

Keywords:

Urinary bladder lesions, cystoscopy, TURBT.

Corresponding Author:

Dr. Ranu Tiwari Mishra,
Email: ranu.m7317@gmail.com

DOI: 10.47009/jamp.2023.5.4.22

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (4); 95-102



¹Postgraduate Resident, Department of Pathology, N.S.C.B. Medical College & Hospital, Jabalpur (M.P.), India.

²Designated Professor, Department of Pathology, N.S.C.B. Medical College & Hospital, Jabalpur (M.P.), India.

³Associate Professor, Department of Surgery, N.S.C.B. Medical College & Hospital, Jabalpur (M.P.), India.

⁴Professor & Head of Department of Pathology, N.S.C.B. Medical College & Hospital, Jabalpur (M.P.), India.

⁵Statistician cum tutor, Department of Community Medicine, N.S.C.B. Medical college & Hospital, Jabalpur (M.P.), India.

Abstract

Background: Lesions of urinary bladder range from inflammatory conditions, infections, metaplastic lesions, to benign and malignant tumors & metastatic lesions which cause significant morbidity and mortality. **Objective:** To evaluate histopathological features of various urinary bladder lesions and classify urinary bladder neoplasms as per WHO/ISUP 2016 Histological Classification. To study their age and gender distribution and correlation with cystoscopic & clinical findings. **Materials and Methods:** A cross-sectional study was done which included 75 cases of bladder lesions received in Department of Pathology, NSCB Medical College, Jabalpur. Patient particulars and cystoscopic details were noted. According to CAP protocol, representative sections were given, H&E stained slides were prepared & reporting was done. IHC was done in required cases. **Results:** Among 75 cases, the age range was 20-85 years, majority were reported in 51-60years (21 cases). There was male preponderance with Male : Female ratio 5.8 : 1. Hematuria was commonest clinical presentation seen in 69 cases (92%). There were 63 (84%) TURBT specimens & 12 (16%) cystectomy specimens received. Non-neoplastic cases were 4 (5.3%) and neoplastic were 71 (94.7%). On cystoscopy, papillary growth was most common finding seen in 54 cases (72%) and lateral bladder wall was involved in majority, 40 cases (53.33%). Among 4 cases of non-neoplastic lesions, one case each of granulomatous cystitis, chronic non-specific cystitis, cystitis cystica et glandularis and bladder exstrophy was reported. Among 71 neoplastic cases, 68 cases (95.77%) were malignant. Urothelial carcinoma was most common malignancy seen in 61 cases (85.91%) followed by 3 cases (4.22%) of adenocarcinoma, 2 cases (2.81%) of squamous cell carcinoma and 1 cases each of extrauterine low-grade endometrial stromal sarcoma and granular cell tumor. **Conclusion:** Invasion of the muscle layer correlates with high grade tumor and not including the muscularis propria in TURBT specimens may lead to understaging of the tumors. So, the importance of muscularis propria inclusion in TURBT specimen should be emphasized to categorise whether the tumor is muscle invasive or not. Histopathological examination of the resected specimen is the gold standard, which not only categorizes the urinary bladder neoplasms but also helps in proper grading and staging of the tumor so that patients can be managed appropriately.

INTRODUCTION

As per Globocan 2020 data, urinary bladder cancer is overall 11th most common cancer worldwide, with an estimated 5,73,278 new cases and 2,12,536

deaths.^[1] In India, bladder cancer incidence in men 20,470 cases along with cumulative risk of 1 in 250; & in women new cases are 5,403 with cumulative risk of 1 in 1014.^[2] Bladder Tumors are the 2nd

most common tumors of genitourinary tract after prostate cancer.^[3]

The non-neoplastic lesions include inflammatory disorders comprising various types of cystitis, malakoplakia, tuberculosis, schistosomiasis.^[4] Neoplastic lesions are more common in men than women with respective age standardized(world) incidence of 9.5/100,000 in men and 2.4 per 100000 in women, almost 4 times more common in men globally.^[1] Bladder cancer occurrence and mortality increases sharply with age, about two third of the cases occur among persons of 65 years and older.^[5] Risk factors for bladder cancer are cigarette smoking, chronic cystitis, heavy long term exposure of cyclophosphamide and analgesics, occupational exposure of carcinogens, aryl amines; 2-naphthylamine and related compounds in dye industry workers and Schistosoma haematobium infection, local irradiation and urachal remnants.^[6]

Haematuria is earliest and most common symptom of primary bladder cancer which could be full-course, intermittent and painless gross haematuria, and may be accompanied by blood clots.^[7]

Most neoplasms arise from lateral wall and posterior wall. 95% bladder cancer are of epithelial cell origin and among them 90% are urothelial carcinoma, 5% squamous cell carcinoma, in less than 2% adenocarcinoma.^[6]

Cystoscopic examination of the bladder with specimen collection by either biopsy or Transurethral resection of bladder tumor (TURBT) & its histopathological examination is the gold standard to provide accurate diagnosis and treatment. Urine cytology examination serves as a screening test.

Objectives

- To evaluate histopathological features of various urinary bladder lesions and classify urinary bladder neoplasms as per WHO/ISUP 2016 histological classification of tumors of the urinary system, in TURBT specimens or Cystoscopic biopsy /specimens presenting in Department of Pathology, N.S.C.B. Medical college and Hospital, Jabalpur.
- To study the Age and Gender distribution of various urinary bladder lesions.

- To correlate preoperative cystoscopy findings and clinical presentation of patients with histopathological findings of urinary bladder lesions.

MATERIALS AND METHODS

This cross-sectional observational study was done from 1st March 2021 to 31st August 2022 which included 75 cases received in Department of Pathology, NSCB Medical College. Patient particulars and cystoscopic details were noted. Grossing of the formalin-fixed specimens was done according to CAP protocol^[8] for cystectomy specimens, representative sections were processed, H&E staining was done, and reporting was done according to WHO 2016 / ISUP classification^[9]. IHC was done in required cases. Ethical approval was obtained from institutional ethical committee.

Inclusion Criteria

All TURBT specimens, cystectomy specimens, received in Pathology department during the period of study were included.

Exclusion Criteria

Autolyzed specimens, inadequate biopsies were excluded from the study.

Statistical Analysis: Data was entered in excel sheet and was analyzed with the help of SPSS23.0 software for windows. Categorical variables were summarized as percentage (%).

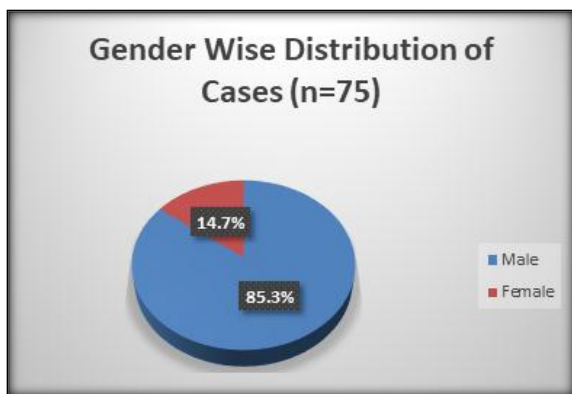
RESULTS

Among 75 surgical specimens, majority were transurethral resection of bladder tumor (TURBT) specimens 84% (n=63) whereas cystectomy specimens constituted 16% (n=12).

Urinary bladder lesions were found to be more common in older age group compared to the younger age group. Maximum cases were reported from 51 - 60 years of age, 21 cases (28%) followed by 61 - 70 years of age group and 41-50 years of age group, 13 cases (17.3%) each forming the age range from 20 - 85 years.

Table 1: Age Wise Distribution of Cases (n=75)

Age Group (Years)	Total No. of Cases	Percentage %
11-20	1	1.3%
21-30	5	6.7%
31-40	11	14.7%
41-50	13	17.3%
51-60	21	28.0%
61-70	13	17.3%
71-80	6	8.0%
81-90	5	6.7%
Total cases	75	100 %



Gender Wise Distribution of Cases (n=75)

Male preponderance was observed in this study with male to female ratio of 5.8: 1.

Hematuria was the most common clinical presentation seen in 69 cases (92%) followed by

Table 2: Distribution of Cases According To Nature of Lesions (n=75)

Type Of Lesion	No. Of Cases	Percentage %
Non-Neoplastic Lesions	4	5.3%
Neoplastic lesions	71	94.7%
Total cases	75	100%

Cystoscopy revealed growth in neoplastic lesions whereas out of 4 non -neoplastic lesions, two cases showed irregularly thickened bladder wall which turned out to be cystitis cystica et glandularis, one case showed small tubercle like lesion diagnosed as necrotizing granulomatous cystitis and no lesion was seen in a case of bladder exstrophy. Among malignancy 72% (n= 54cases) showed papillary growth where as 24% (n=18 cases) had a solid growth pattern.

Unifocal growth was seen in 72% (n=54 cases) whereas 24% (n=18 cases) lesions were multifocal. Diffuse thickening of bladder wall was observed in 2.7% cases (n=2).

53.33% (n=40) cases, the lesions were on lateral bladder wall followed by posterior bladder wall involvement in 12 cases (16%).

Among 4 non-neoplastic lesions, histopathological examination showed one case each of granulomatous cystitis, chronic non-specific cystitis, cystitis cystica et glandularis and bladder exstrophy.

Malignancy was found to be most common cause of urinary bladder lesions. Out of 71 neoplastic cases, 68 cases (95.77%) were malignant. Among 71 cases of neoplastic lesions, urothelial carcinoma was the commonest malignancy diagnosed in TURBT specimens as well as in cystectomy specimens n = 61 (85.91%). Three cases (4.22%) of adenocarcinoma, 2 cases of squamous cell

dysuria and increased frequency of urination. One case of adenocarcinoma of urinary bladder had a complaint of fecaluria.

Smoking and bladder stones were found to be an important associated factors with urinary bladder lesions. Majority (29.3%) of the patients had more than one addiction in the form of smoking, tobacco consumption and alcohol intake.

Histopathological examination showed a wide spectrum of lesions ranging from congenital anomaly to inflammatory pathology and malignancy. Neoplastic lesions were more commonly encountered than non-neoplastic lesions and accounted for 94.7% (n=71 cases) whereas non-neoplastic lesions were 5.3% (n= 4 cases).

carcinoma (2.81%) and 1 case each of extrauterine low-grade endometrial stromal sarcoma and granular cell tumor was also reported.

Among 61 cases of urothelial carcinoma, majority were high grade urothelial carcinoma n=42 cases (68.85%) and low grade urothelial carcinoma constituted 19 cases (31.14%).

Six cases showed squamous differentiation (14.28%) and glandular differentiation was seen 5 cases (11.9%.) among 42 high grade urothelial carcinoma cases.

All cases of high grade urothelial carcinoma showed lamina propria invasion whereas 20 cases (47.61%) showed muscularis propria invasion. 8 cases (19.04%) were non muscle invasive and in 14 cases (33.33%) detrusor muscle was not included in TURBT specimens, hence in these cases muscle invasion cannot be assessed.

Low grade urothelial carcinoma was diagnosed in 19 (25.33%) cases. Out of 19 cases, 17 (89.47%) cases were invasive and showed lamina propria invasion, 2 cases were non- invasive urothelial carcinoma and none had shown muscle invasion.

A rare case of Granular cell tumor of urinary bladder was also diagnosed. Secondary neoplasms of the urinary bladder are extremely rare, one case of low-grade endometrial stromal sarcoma (ESS) was diagnosed in TURBT specimen from a 48 years old post hysterectomy patient. Both lesions were confirmed by immunohistochemistry.

Table 3: Final Histopathological Diagnosis of The Urinary Bladder Lesions (n=75)

Histopathological Diagnosis	No. of Cases	Percentage %
NEOPLASTIC LESIONS		
Urothelial Neoplasms		
Infiltrating urothelial carcinoma		

Low grade urothelial carcinoma	17	22.67%
High grade urothelial carcinoma	42	56%
Non invasive urothelial lesions		
Urothelial Dysplasia	03	4%
Non invasive papillary urothelial carcinoma, Low grade	02	2.7%
Adenocarcinoma	03	4.0%
Squamous cell carcinoma	02	2.7%
Mesenchymal tumor	01	1.3%
Granular cell tumor		
Extrauterine Low-grade endometrial stromal sarcoma	01	1.3%
NON-NEOPLASTIC LESIONS		
Bladder exstrophy	01	1.3%
Chronic nonspecific cystitis	01	1.3%
Granulomatous cystitis	01	1.3%
Cystitis cystica et glandularis	01	1.3%
Total cases	75	100%

DISCUSSION

In present study we found majority of patient in age group of 51 - 60 years (n=21; 28.8%) followed by 41-50 years and 61-70 years (n=13;17.3%) each. The age range of 20 to 85 years. Total no. of cases between 41-60 years were n=34 (45.3%). Similarly, the study done by Aparna et al^[10] also reported the occurrence of majority of cases between 41-60 years of age 16 cases (42%). In present study youngest age of malignancy was of 26 years age in which diagnosis of low grade urothelial carcinoma was given. However S. Preethmol et al.^[11] and Somya Agarwal et al^[12] found maximum number of cases in 61-80 years of age.

In the present study Male to Female ratio was 5.8:1. Similarly male preponderance was also observed by S Preethmol et al.^[11], Somya Agrarwal et al.^[12], Deepika sharma et al.^[13] in their study with M:F ratio of 6.9:1, 5.25:1 and 6.9:1 respectively.

Patients presented with multiple complaints. The most common clinical presentation was hematuria in n=69 cases (92%), followed by dysuria in n=38 (50.7%) cases, increased frequency of urination in n=27 (36%) cases & urgency was seen in n=18(24%) cases. n=8 (10.66%) patients presented with abdominal pain, n=7 (9.33%) cases had nocturia and n=6 (8%) cases had complaints of lower back pain/flank pain. Passing blood clots in urine & constipation was seen in n=2 (2.7%) cases. Urinary retention, urinary flow obstruction and fecaluria was seen in n=1 (1.3%) case each. The findings of this study were found to be in concordance with the various studies.

A study done by Preeti N Jhaveri et al.^[14] also encountered hematuria as most common complaint in 86.48%, followed by dysuria in 5.4% cases, abdominal pain in 5.4% cases. A study done by D. Paudel et al.^[15] also observed hematuria in n=30/51 (58.8%) cases followed by burning micturition in n=10 (19.6%), frequent urination and lower abdominal pain in n=11(19.6%) cases each. Kausar Z et al^[16] also found hematuria as most common symptom accounting for 88%, followed dysuria in 46% cases, strangury in 35% cases.

In the present study, smoking was the most common addiction seen in n=34 (45.3%) cases followed by tobacco intake in n=22 (29.3%) cases and alcoholism in n=16 (21.3%) cases. Higher proportion of male smokers were seen in urothelial carcinoma cases. Similarly, study conducted by S preethmol et al.^[11] and Soumya A et al.^[12] also accounted 73.98% and 76% cases were smokers respectively who developed bladder cancer.

Out of 75 cases, majority had papillary growth in n=54 cases (72%) followed by solid growth in n=18 cases (24%). Diffuse thickening of bladder wall was seen in n=2 (2.7%) cases & one case (1.3%) had no lesion on cystoscopy. Similar findings were seen in study done by Kausar Z et al^[16] where 86% had papillary growth followed by 10% solid growth. A study done by Srikausthubha et al.^[17] showed out of 50 cases, 24 cases were diagnosed as urothelial neoplasm, of which 21 cases (87.5%) had papillary exophytic growth and 3 cases (12.5%) showed solid lesions.

In present study, on cystoscopy, majority of the lesions were seen in Lateral bladder wall in n=40 (53.33%) cases, followed by Posterior bladder wall in n=12 (16%) cases. The findings were in concordance with various studies. Study done by Preeti N Jhaveri et al.^[14] and Srikousthubha.^[17] also found lateral bladder wall involvement as the most common site in 46% and 64% cases respectively. Posterior bladder wall involvement accounted for 26% and 28% cases respectively. Anterior bladder wall involvement was seen only in one case and also in most of the other studies mentioned, anterior bladder wall involvement was rare except for Preeti N Jhaveri et al^[14] who found anterior bladder wall involvement in 22% cases.

In present study, among 75 cases, most commonly encountered lesions were neoplastic n=71 (94.7%) and non-neoplastic lesions were only n=4 (5.3%) cases. Similar to this, study conducted by, S Preethmol et al.^[11], Somya A et al.^[12] Paudel D et al.^[15] also showed 93.8%, 90% and 86% of neoplastic lesions respectively in their studies as a predominant urinary bladder lesion.

Out of 4 non-neoplastic cases, two cases n=2 (50%) were seen in 31-40 years of age group; one case of chronic non-specific cystitis and another one was granulomatous cystitis, followed by one case of bladder exstrophy n=1 (25%) in 20 years & one case of cystitis cystica et glandularis in 42 years of age. All four cases were male. Similar results were obtained in various studies. Study done by Somya A et al.^[12], Paudel D. et al.^[15], got 5 (10%) and 7(14%) non-neoplastic cases respectively, mainly among the younger age groups and most of them were cystitis.

In present study, among 71 neoplastic cases; urothelial carcinoma was the most common type comprised of 61 cases (71.83%) followed by adenocarcinoma 3 cases (4.22%) and 2 cases of Squamous cell carcinoma (2.81%). One case each of extrauterine low-grade endometrial stromal sarcoma and Granular cell tumor were also reported. Findings are in concordance with study done by Saumya A et al.^[12] showed 84% Preeti N Jhaveri et al.^[14] showed 81.08%, Paudel D et al.^[15] showed 76.47%, Kirti Priya et al.^[18] showed 85.71%, Dhatwalia A et al.^[19] showed 94.5%, and Sathya Mylsamy et al.^[20] showed 74% of urothelial carcinoma as most predominant type among neoplastic lesions.

Among n=61 cases of urothelial carcinoma, n=42 (68.85%) were of high grade urothelial carcinoma and low grade urothelial carcinoma were n=19 (31.14%). Similarly, C. Aparna et al.^[10] reported 16 cases (72.72%), Somya et al.^[12] reported 73.8% cases, Dravid N V et al.^[21] found 51 cases (66.23%) of high grade urothelial carcinoma.

Low grade urothelial carcinoma was characterized by papillae having thin fibrovascular core covered by variable thickness of urothelium, having ordered layering of enlarged, mildly pleomorphic nuclei. Mitosis was seen in suprabasal layer, atypical forms were not seen. There was presence of umbrella cell layer on the top.

High grade urothelial carcinoma showed variable architectural patterns and characterised by cords, nests, sheets, single cells and fused papillae invading the lamina propria and muscularis propria. Papillae were lined by neoplastic urothelium with high grade nuclear features, prominent nucleoli, frequent mitotic figures.

In present study, lamina propria invasion was seen in 89.47% of low grade urothelial carcinoma and in all cases of High grade urothelial carcinoma cases. Similar results were found in study done by Kirti Priya et al.^[18] (2022) where in both low grade and high grade urothelial carcinoma cases, lamina propria invasion was seen in all cases. Lamina propria invasion was identified by irregularly shaped, variable sized nests or dis cohesive tumor cells in the lamina propria with desmoplastic stromal reaction, peritumoral inflammatory response, presence of retraction artifact around the tumor nests.

Muscularis propria (Detrusor muscle) invasion was seen in High grade urothelial carcinoma. Among 19 cases of low grade urothelial carcinoma, none had shown muscle invasion. In 42 cases of high grade urothelial carcinoma, 20 cases (47.6%) showed muscle invasion, whereas 8 cases (19.04%) did not show muscle invasion. 14 cases of high grade urothelial carcinoma didn't included detrusor muscle in TURBT specimens so their muscle invasion status could not be assessed. Similar study done by Somya A et al.^[12] showed muscle invasion in 77.4% cases of high grade urothelial carcinoma and muscle invasion was not seen in low grade urothelial carcinoma. A study done by Kirti P et al.^[18] found 28 out of 60 cases (46.67%) of infiltrating high grade urothelial carcinoma invading muscle. Muscularis propria invasion was identified by tumor cell infiltrating the large, thick, compact muscle bundles (pT2 stage) and must be differentiated from pT1 stage where tumor invasion of small discontinuous wispy bundles of smooth muscles of muscularis mucosae was seen.

Out of 61 cases of urothelial carcinoma, squamous differentiation was seen in n=6 cases (9.8%) and glandular differentiation in n=5 cases (8.1%). Study done by Preeti N Jhaveri et al.^[14] showed 28 out of 30 cases of urothelial carcinoma without any differentiation and squamous differentiation in 2 cases (6.6%). Similar study done by Kirti Priya et al.^[18] found out of 63 cases of urothelial carcinoma, 60 cases (95.2%) without any differentiation and 3 cases (4.76%) had squamous differentiation.

A case of Granular cell tumor was diagnosed in 40 years old female. Microscopy showed tumor composed of nests and sheets of tumor cells. Cells were round to polygonal with spindle morphology at places. Cells had abundant granular eosinophilic cytoplasm. There was mild to moderate nuclear atypia with vesicular nuclei containing occasional prominent nucleoli. Mitotic activity was inconspicuous. The tumor infiltrated the inner half of detrusor muscle. On IHC, the tumor cells showed cytoplasmic and nuclear S100 positivity, hence confirmed the diagnosis of Granular cell tumor.

A rare case of Extrauterine Low- grade Endometrial Stromal Sarcoma was diagnosed on a TURBT specimen from a 48 years old female presented with complaint of hematuria. She was earlier diagnosed outside as leiomyoma of urinary bladder on biopsy & had a past history of hysterectomy 9 years back which showed adenomyosis. Microscopy showed densely cellular nests of tumor cells in the underlying muscularis propria. The tumor cells had small uniform oval nuclei with scanty cytoplasm along with small size spiral arterioles admixed with the tumor cells resembling the stromal cells of proliferative endometrium. These monotonous oval to spindle cells show whorling around blood vessels and irregular densely cellular nests of tumor cells showing characteristic permeative tongue-like pattern of muscular invasion. IHC was performed

which showed diffuse positivity for CD 10 and strong nuclear positivity for ER .

There were total 12 cystectomy specimens received. Among them, 7 cases diagnosed as high grade invasive urothelial carcinoma and 2 cases as high grade urothelial carcinoma with glandular differentiation and 1 case each of well differentiated squamous cell carcinoma and granular cell tumor.

TURBT findings in patients who underwent cystectomy were correlated. There were five cases, in which first TURBT was done followed by cystectomy procedure. Among five cases, four cases were diagnosed as high grade urothelial carcinoma

on TURBT which on resection specimen also diagnosed as high grade urothelial carcinoma although one case showed glandular differentiation in addition to urothelial carcinoma component. One case was diagnosed as a squamous cell carcinoma moderately differentiated (grade 2) which on cystectomy specimen diagnosed as well differentiated squamous cell carcinoma (grade 1). This can happen as only a small portion of the tumor tissue is taken out in biopsy which may not be representative of entire tumor tissue.

Table 4: Correlation Between Histopathological Diagnosis In TURBT & Cystectomy Specimens (n=5)

Total Cases	Diagnosis In TURBT Specimens	Diagnosis In Radical cystectomy Specimens
1	High grade urothelial carcinoma	High grade urothelial carcinoma
2	High grade urothelial carcinoma	High grade urothelial carcinoma
3	High grade Urothelial Carcinoma	High grade urothelial carcinoma
4	High grade urothelial carcinoma	HGUC with glandular differentiation
5	Squamous Cell Carcinoma (Moderately differentiated)	Squamous Cell Carcinoma (Well differentiated)

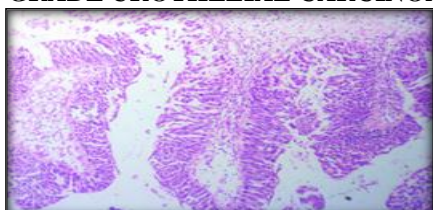
CONCLUSION

Histopathological examination of the resected specimen is the gold standard, which not only categorizes the urinary bladder neoplasms but also helps in proper grading and staging of the tumor, so that patients can be managed appropriately. In few cases, discrepancies were noted between clinic-radiological diagnosis and histological findings. Some cases were misdiagnosed and in some others, incidental findings were missed, which were picked up and confirmed by histological examination of the resected specimen.



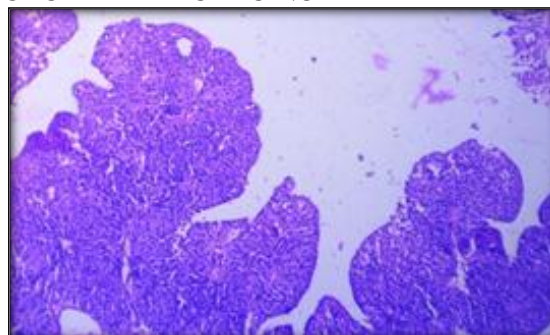
Gross Image - Cystectomy specimen showing bulky, solid, grey white necrotic friable tumor filling the bladder lumen

LOW GRADE UROTHELIAL CARCINOMA



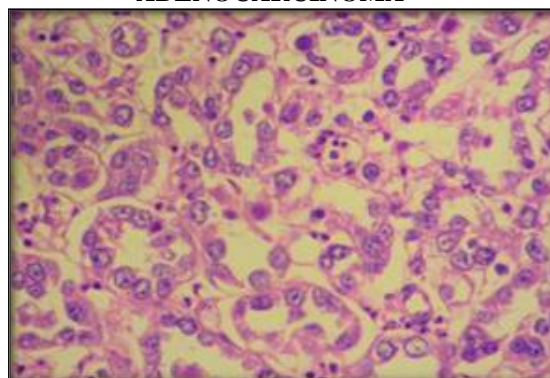
Photomicrograph - Long, slender papillae with fibrovascular core lined by neoplastic urothelium without fusion or branching.(100x)

MICROSCOPY OF HIGH GRADE UROTHELIAL CARCINOMA



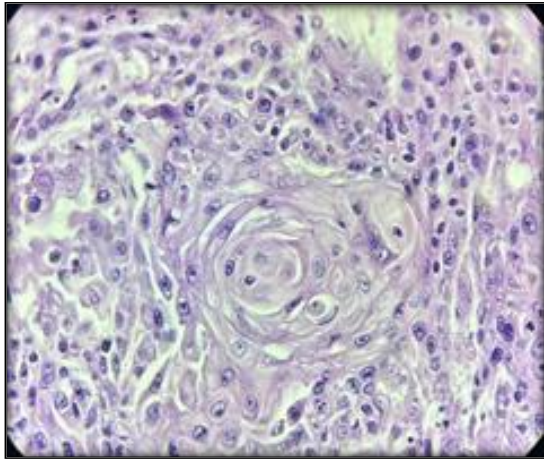
Photomicrograph - H&E sections show compact, branched and fused papillae lined by neoplastic urothelium with marked nuclear atypia (100x).

ADENOCARCINOMA



Photomicrograph - Neoplastic cells arranged in glandular pattern seen in lamina propria. (H &E stain 400x)

SQUAMOUS CELL CARCINOMA



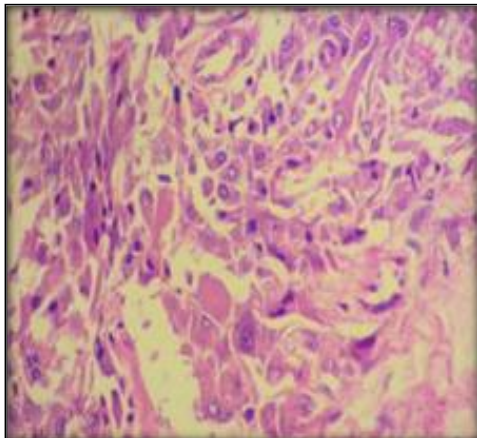
Photomicrograph - Well differentiated squamous cell carcinoma with keratin pearl formation. (H&E 400x)

GRANULAR CELL TUMOR



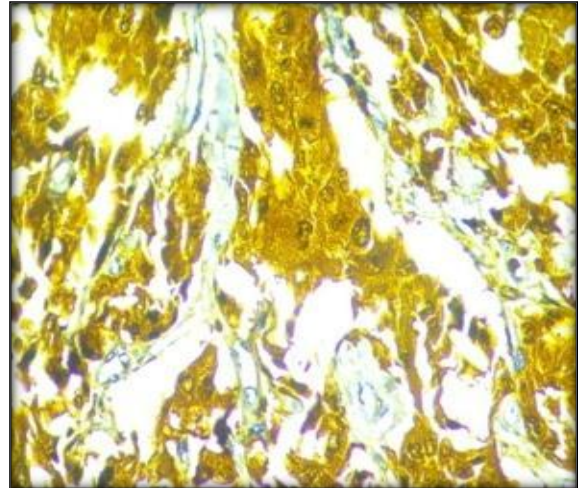
Gross Image - Specimen showed well circumscribed, nodular yellow brown tumor at the base of urinary bladder measuring (4.9 x 4.5 x 2.8)cm.

MICROSCOPY OF GRANULAR CELL TUMOR



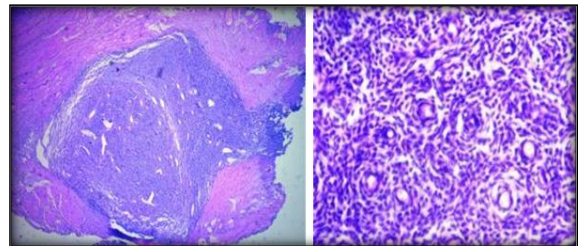
Photomicrograph - Showing round to polygonal and spindle cells having abundant eosinophilic granular cytoplasm. Cell showed mild to moderate nuclear atypia with vesicular nuclei and occasional nucleoli. Tumor cells infiltrating detrusor muscle fibres. (H&E stain 400x)

IMMUNOHISTOCHEMISTRY



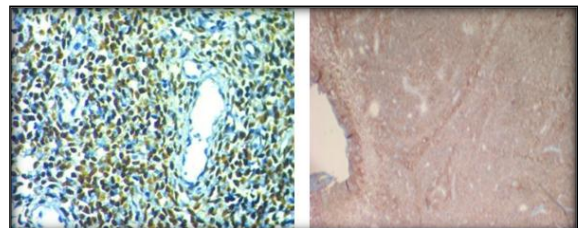
Photomicrograph - Tumor cells showed cytoplasmic and nuclear S 100 positivity. (S-100 stain, 400 x)

MICROSCOPY OF EXTRAUTERINE LOW-GRADE ENDOMETRIAL STROMAL SARCOMA



Photomicrographs - Show tumor cells had small oval nuclei with scanty cytoplasm, small size spiral arterioles admixed with the tumor cells resembling stromal cells of proliferative endometrium with permeative tongue-like pattern of muscular invasion (H&E 100x, 400x)

IMMUNOHISTOCHEMISTRY



IHC showed strong nuclear positivity for ER and diffuse positivity for CD 10. (ER & CD10 stains)

REFERENCES

1. Globocan 2020 fact sheet. The Global cancer observatory WHO, Nov 2020; page 1-2.
2. Mathur P, Krishnan SK, Chaturvedi M, et al. Cancer statistics 2020: Report from National Cancer Registry programme, India .JCO Global oncology 2020;6: 1063-1075.
3. Shah A, Shrivastava M, Samdurkar A, sigdel G. Spectrum of lesions in urinary bladder: A histopathological study journal of Universal College of Medical Science. 2018;6(2):24-27.
4. Stacey E Mills, Sternberg's Diagnostic surgical pathology, chapter 44 Urothelial tract, 6th edition: page 2049-2095, Wolters Kluwer, 2011.
5. Sharma M, Goswami KC, Gupta S, Urinary bladder carcinoma: A clinicopathological study, International Journal of scientific research June-2017;6(6): 2277-8179 page 198.
6. Robbins and Cotran pathologic basis of disease, chapter lower urinary tract and male genita system; 10th edition, vol2:page 955-962, Elsevier; 2020.
7. Zhu CZ, Ting HN, Kwan NH et al. A review on the accuracy of bladder cancer detection methods, journal of cancer 2019; volume 10 (17): 4038-4044.
8. Zhou M, John R, Sringle et al. Protocol for the examination of specimens from the patients with carcinoma of Urinary Bladder,2017.College of American pathologist (CAP).
9. WHO Classification of Tumours of the Urinary System and Male Genital Organs,4th edition, International Agency for Research on Cancer, Lyon 2016, Chapter 2 Tumors of the urinary tract; Page 108-110.
10. C. Aparna, M.D.¹, Rayapa Reddy Thumma² et al, Histological Spectrum of Urothelial Lesions- Experience of A Single Tertiary Care Institute, International Journal Of Contemporary Medical Research, Vol. 3 | Issue 6 | June 2016.
11. S Preethamol¹, PS Prasanth², Histomorphological Study of Urinary Bladder Biopsies- A Retrospective Study in a Tertiary Care Centre, Kerala, India Journal of Clinical and Diagnostic Research. 2021 Oct, Vol-15(10): EC39-EC43.
12. Somya Agarwal^{1*}, Shyamoli Dutta², Seema Awasthi³, Ashutosh Kumar³, Deepti Arora⁴, Histopathological Spectrum of Urinary Bladder Biopsies, Int J Med Res Prof. 2019 Mar; 5(2):94-97.
13. Dr. Deepika Sharma¹, Dr. Nisha Sharma² et al; Histopathological Spectrum of Urinary Bladder Tumors: One Year Study in a Tertiary Health Care Center, IJRR 2022, July, Vol:9, Issue:7, Pages: 6-10.
14. Preeti N Jhaveri¹, Seva V Makwana^{2,*} et al, A histopathological study of urinary bladder neoplasms, Indian Journal of Pathology and Oncology, 2021;8(1):59-63.
15. Paudel D¹, Regmi H² et al, Spectrum and Presentation of Urinary Bladder Growth: a Single-Center Retrospective Study,Nepalese Medical Journal, 2021, Vol. 4, 485-488.
16. Kausar Z¹, Reddy K D² et al, A Clinicopathological Study of Urinary Bladder Neoplasms on Trans Urethral Resected Bladder Tumours (Turbt chips) - At a Tertiary Care Center, International Journal of Health Sciences & Research, Jan 2017, Vol.7;Issue:1; 58-62.
17. Srikousthubha¹, Sukesh² Et Al, Profile Of Lesions In Cystoscopic Bladder Biopsies: A Histopathological Study, J Clin Diagn Res. 2013 Aug; 7(8): 1602-1612.
18. Kirti Priya¹, Rashmi Rani Bharti^{2*}, Deepak Kumar³, Kshiti Atreya⁴, Bipin Kumar⁵, A study on histopathological spectrum of lesions in urinary bladder specimens in tertiary center in Bihar. European Journal of Molecular & Clinical Medicine, Volume 09, Issue 03, 2022.
19. Dhatwalia A¹, Sharma SK², Kumar V³, Histopathological Profile of Urinary Bladder Tumours at Tertiary Care Centre in a Northern State of India: A cross sectional study. International Journal of Research and Review. 2020; 7(6): 156-159.
20. Mylsamy S and Kanakasabapathi, Histopathological Study TURBT Biopsies of Urinary Bladder Cancer,2017,Trends in Medical Research, 12; Pages 51-54.
21. Dravid NV¹, Rajeshwari K¹, Karibasappa GN² et al. Histomorphological profile of lesions in cystoscopic bladder biopsies - a prospective study in North Maharashtra. Int Clin Pathol J. 2016;3(1):161-166.