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# Micropapillary Urothelial Carcinoma – A Rare Aggressive Variant

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**IN BRIEF**

Urothelial neoplasms are a heterogeneous group of lesions, of which urothelial carcinoma is known for its divergent differentiation. Although majority of tumors are transitional cell carcinomas, the morphological spectrum of bladder cancer has expanded to include many new variants. The importance of recognition of these variants lies in the diagnostic, prognostic and therapeutic considerations that may occur as a result of a particular diagnosis. One such variant is micropapillary urothelial carcinoma [MPC]. Micropapillary carcinoma is an extremely rare but aggressive variant of urothelial carcinoma. The presence of this carcinoma should alert the urologists of its high grade and stage. We report a new case of bladder MPC in a 55year old male and highlight the significance of recognizing this aggressive tumor.

**Keywords:** Micropapillary, urothelial carcinoma

## Introduction

Bladder cancer is reported to affect thousands of patients each year. Although the majority comprises of transitional cell carcinoma, recognition of micro-papillary [MPC] variant is important in view of its ramifications for prognosis as well as approach to therapy. MPC was first described as a distinct pathological entity by Amin in 1994[1]. The histological features were distinctly reminiscent of papillary configuration seen in ovarian papillary serous tumors.

Histopathologically, the papillary component appears as clusters of cells with peripherally arranged nuclei, creating a rosette-like pattern. Clear spaces are seen surrounding the cells. Nuclei may vary in degree of anaplasia but most are high grade. The molecular characteristics of these tumors are poorly understood, probably due to their rarity[2].

## Case report

We report a case of a 55 year old gentleman who presented to the Urology OPD with complaints of painless hematuria off and on for the past one and a half years. Contrast Enhanced CT scan of the abdomen revealed a growth measuring 4.5 x 3 x 2 cms in the postero- lateral wall of the bladder along with enlarged intra-peritoneal lymph nodes.

Cystoscopic examination revealed a solid mass with some papillary projections present on the postero- lateral wall of the bladder. The patient underwent a transurethral resection of the bladder tumor (TURBT) and the tissue was sent for histopathological evaluation. On gross exmaination, multiple friable grey white pieces of soft tissues were seen. Microscopically, the neoplasm showed few short filiform papillae, some of them with fibro-vascular cores. The neoplastic cells showed moderate to marked pleomorphism

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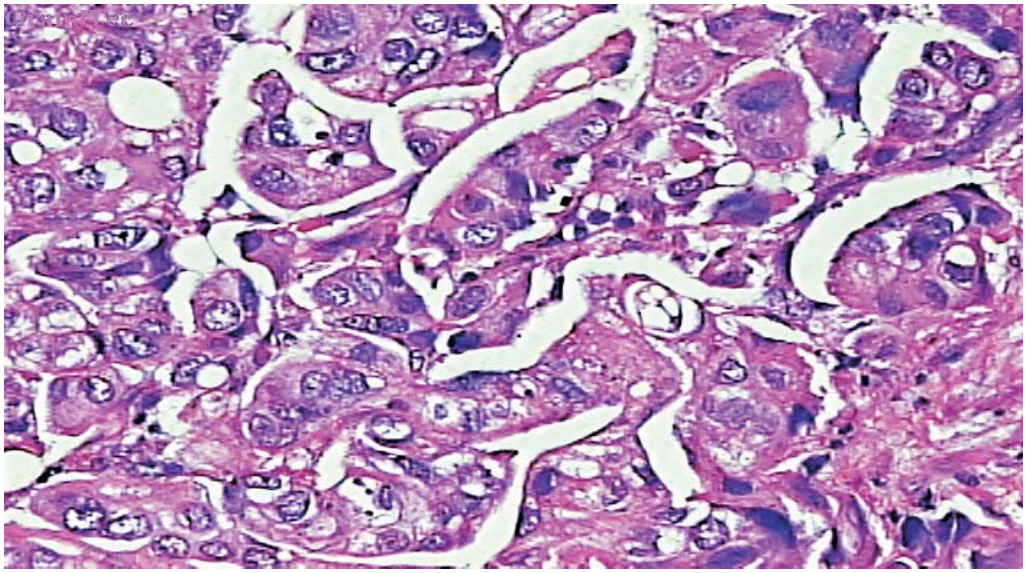
**Figure 1: Photomicrograph (40 X H&E) showing tumor cells arranged in a micropapillary configuration. Marked pleomorphism is seen in the tumor cells and cells are seen to be arranged in clusters with a clear space around them**



and were arranged in clusters surrounded by clear spaces lacking endothelial lining [Figure 1]. The bladder muscle was seen to be infiltrated by tumor cells. The mitotic count varied from 6 to 8 mitosis per 10 high power fields.

In view of the aggressive nature of the neoplasm, the patient underwent a radical cystectomy with formation of ileal conduit.

## Discussion

Micropapillary urothelial carcinoma [MPC] of the urinary bladder is a rare tumor. The overall incidence of these tumors is unclear, and it has been suggested that the incidence may be greater than currently reported[3].

There is a clear male predominance with a male: female ratio of 5:1 to 10:1 and it usually presents in the fifth to ninth decade of life [4,5]. After the initial recognition of MPC in the urinary bladder, additional reports of this entity within the ureter and renal pelvis have been reported in more recent years[6,7].

Histopathologically, the micropapillary variant is characterized by a surface component of slender delicate filiform papillary projections with secondary or tertiary branching without fibrovascular cores[4,8]. Samaratunga et al. in their study, however noted that some papillae contained central fibrovascular cores while others were devoid of them[9]. The invasive component consists of tightly cohesive nests lying in small clear spaces which lack endothelial lining[4,5,8,9]. This pattern is especially characteristic of MPC and is retained at metastatic sites. Awareness that these lacunae may mimic vascular-lymphatic invasion is important to prevent over diagnosis as it is an adverse prognosticator in urothelial carcinoma[4]. The present case also showed these histopathological findings. The mitotic count in MPC varies from few mitosis to numerous mitosis per high power field. Samaratunga et al. reported it to vary between 3 and 34 per 10 high power fields[9]. In our case the mitotic count varied from 6 to 8 per 10 high power fields. MPC is such an aggressive tumor, that even in the absence of muscularis propria in the biopsy, muscle invasion is assumed and thus, these patients should be managed aggressively[2,8].

Diagnosis of this variant is not difficult because of its unique morphology hence immunohistochemistry [IHC] for diagnosis is not necessary[5]. Distinction from other entities has not been a problem for those aware of this variant[2]. Metastatic MPC of the bladder can mimic metastatic carcinoma from ovary, breast and lung which are morphologically similar

to MPC. It is important to be able to distinguish between these tumors as treatment and prognosis are different for each. This differentiation can be made on the basis of IHC. MPC of urothelial origin is positive for CK7 and CK20 while those of ovarian, breast or lung origin are most likely CK7 positive but CK20 negative[4,5,8,9]. CA-125 immunoreactivity is seen in 35-43% cases of MPC of urothelial origin[9].

There is no standard treatment protocol for the management of MPC[8]. The role of chemotherapy in the treatment of patients with micropapillary bladder cancer remains to be elucidated. Some studies have suggested that neo-adjuvant chemotherapy is ineffective in micropapillary variant of bladder cancer[8,10]. Intravesical Bacillus Calmette Guerin (BCG) therapy is also often ineffective in cases of MPC[4]. In light of minimal success with chemotherapy or radiotherapy, radical cystectomy is indicated. A study by Kamat et al. suggested that, once a diagnosis of micropapillary bladder cancer has been made, every attempt should be made to facilitate an expeditious radical cystectomy[10].

The importance in identifying this unusual histological variant resides in its dismal prognosis. It has a tendency to present at high stage. Patients typically present with usually an advanced stage of disease [ III or IV] at the time of diagnosis[8].

In conclusion, micropapillary type of urothelial carcinoma is a rare variant of bladder cancer with high metastatic potential and poor prognosis. Radical cystectomy provides a chance of cure in patients with surgically resectable disease. Therefore, recognition of this subtype is extremely important. The poor outcome of the patients emphasizes the need for an early and accurate diagnosis and treatment.

**Conflict of interest**- None

The manuscript has been read and approved by all the authors, and the requirements for authorship as stated earlier in this document have been met, and each author believes that the manuscript represents honest work.

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