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A case report of rare granular cell tumor of the urinary bladder

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ABSTRACT

Granular cell tumors (GCT) are uncommon tumors that originate in any part of the body. They have been mainly observed in the skin and soft tissue of the head and neck, and are mostly benign tumors. Urinary bladder GCT are extremely rare tumors. The diagnosis of urinary bladder GCT needs high clinical suspicion by the urologist and the pathologist. We herein report a case of rare granular cell tumor of the urinary bladder in a young woman.

1. Introduction

Granular cell tumors (GCT) are uncommon tumors which were described first by Arbikossoff, a Russian pathologist, in 1926 as myoblastoma on the assumption that it was of myocyte origin1. The tumor mainly affects the head and neck, more commonly the oral cavity, skin and soft tissue.[2] GCT of the genitourinary tract are extremely rare, up to date less than 30 cases of GCT of the urinary bladder were reported in the literatures.[3] The behavior of the tumor is mostly benign, with only two cases of malignant GCT of the urinary bladder were reported.[1,4]

2. Case presentation

A 34 years old female patient presented to our hospital in November 2020, with recurrent attacks of painless gross hematuria for the last four months. The condition associated with mild dysuria and suprapubic pain, with no fever. The patient appeared to be healthy apart from mild pallor, and her past medical and surgical history were unremarkable. Laboratory work up was done, urinalysis showed hematuria and mild pyuria, urine culture was negative for bacterial growth, her hemoglobin was 10.1 gm/dl, hematocrit 31, and other routine chemistry tests were normal. Ultrasonography showed normal urinary bladder wall thickness, a well define isoechoic (20mm*16mm) mass were seen in the posterolateral wall of the urinary bladder.

Computed tomography (CT) scan of abdomen and pelvis revealed no pathology apart from an 18*16 mm bladder wall lesion (mostly bladder tumor). Cystoscopy revealed a well-defined 1.5–2 cm bladder wall mass on the left side posterolaterally, about one cm proximal to the left ureteric orifice. The mass was exophytic, pedunculated, with normal mucosal covering. Complete transurethral resection of bladder tumor (TURBT) was done, the tumor chips were firm, white-cream color with moderate vascularity (Fig. 1).

Microscopical features were typical for GCT as shown in (Fig. 2), and were supported by the diffuse nuclear and cytoplasmic positivity for S100 immunostaining. while CD68 was negative for the tumor cells and positive for interdigitating macrophages and dendritic cells, furthermore, AE1/AE3 were negative (Fig. 3).

We followed the case for 12 months with serial ultrasound study every three months, furthermore, cystoscopy at sixth and twelfth month was normal with no any feature of recurrence.

3. Discussion

Granular cell tumors are rare, usually benign neoplasms that most commonly affect the skin and soft tissues, mainly in the head and neck region.[1,3,4] GCT of the genitourinary tract are exceptionally rare, they have been reported on the glans penis, penile shaft, corpora cavernosum, scrotum, and vulva.[4] GCT of the urinary bladder is very rare, with so far only 26 cases were reported in the literatures[3] and most of these cases have a benign course, with only two malignant GCT of the

Abbreviations: GCT, granular cell tumor; TURBT, transurethral resection of bladder tumor.

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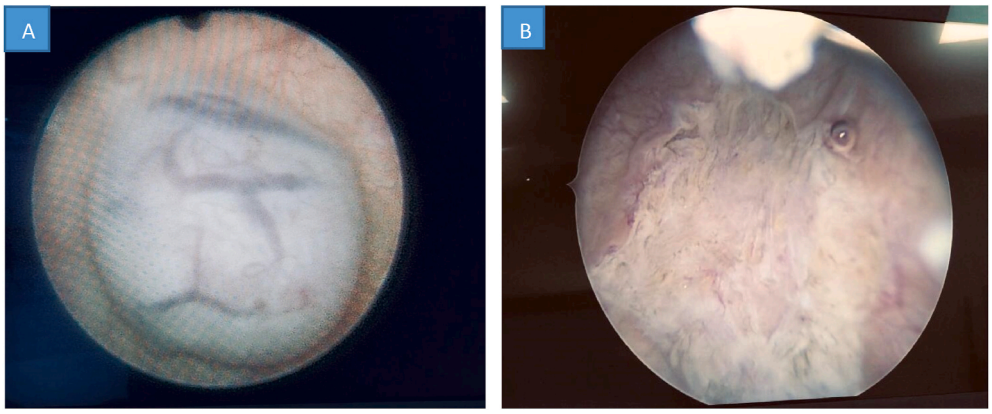

Fig. 1. A-cystoscopy appearance of the tumor, B- after complete TURBT.

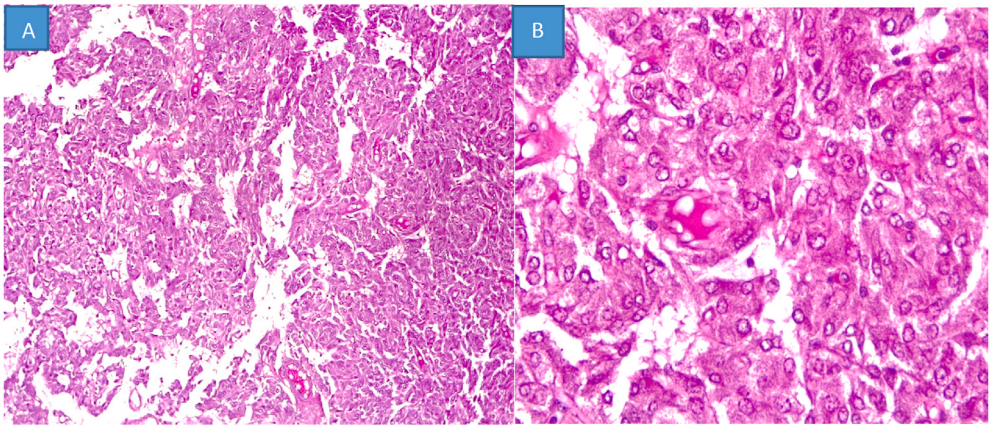

Fig. 2. A&B Multiple sections revealed sheets of polygonal cells with abundant granular cytoplasm, round uniform nuclei, arranged in solid and papillary configuration, covered focally by benign epithelium; islands of these granular cell tumors are seen infiltrating the submucosa, no necrosis, mitosis or pleomorphism was seen in the examined specimen.

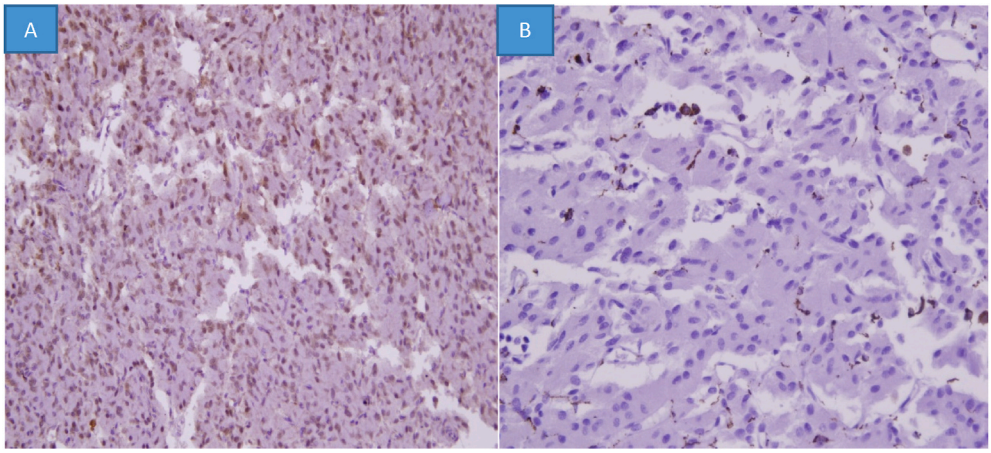

Fig. 3. Immunostaining A- Diffuse nuclear and cytoplasmic positivity for S100 protein stain.
B- AE1/AE3 negative, CD68 negative for tumor cells and positive for interdigitating macrophages and dendritic cells.

urinary bladder has been reported in the literature so far.[5] The condition affects both sexes at any age, but females during their 30–60s are predominantly affected.[1,3]

Granular cell tumor was first described by Abrisskosoff in 1926 as myoblastoma based on the assumption that its of myocytic origin. Recently, based on immunohistochemical and ultrastructural analysis, granular cell tumors are believed to have a neural origin5.

Morphologically, all anatomic site GCTs have the same histopathological characteristics. Polygonal cells with abundant granular cytoplasm containing fine eosinophilic granules and scattered larger droplets.[5]

It is important to differentiate benign from malignant GCT because of the difference in their treatment protocols. Six malignant features of GCT were described by Fan burg-smith et al., in 1998, these are,

necrosis, high mitotic activities, spindle tumor cells, vesicles with large nucleoli, high nuclear-to-cytoplasmic ratio, and pleomorphisim (10). More specifically they show positive staining for Ki-67. Lack of these morphologic features are helpful to exclude malignancy.[2]

Immunohistochemistry characteristics of GCT include, positive staining for protein S-100, calretinin, the alpha subunit of inhibin, laminin, HLA-DR, neurospecific enolase(NSE), epithelial membrane antigen(EMA), synaptophysin, CD68 and SOX10(1,4,7,9). The tumor cells are negative for epithelial markers.[1,4]

4. Conclusion

GCT are rare tumors of the urinary bladder, conservative treatment with TURBT is the treatment of choice. The exclusion of malignancy is very important to avoid radical treatment for benign coarse tumors. The diagnosis of GCT needs high clinical suspicion by the urologist and careful histopathological examination, including proper immunohistochemical tests to prove diagnosis and exclude malignancy.

Informed consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Author contributions

Concept- S.A.W.
Design-S.A.W., R.K.M.
Resources and Material-S.A.W., H.N.M.F.
Writing manuscript-S.A.W., H.N.M.F.
Literature search- A.A.A.; R.K.M.
Review- H.N.M.F.; A.A.A.

Declaration of competing interest

The authors declare that they have no any conflict of interest.

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