



Primary signet-ring cell adenocarcinoma of the bladder-A case report and review of literature

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ABSTRACT

Cases of adenocarcinoma of the bladder are extremely low - 2%, respectively. Primary signet-ring cell carcinoma (SRCC) of the bladder accounts for 0.12–0.6% among the different histological subtypes of bladder carcinomas.

We present a rare case of SRCC with clinical manifestations of hematuria (two times) treated with transurethral resection of the bladder (TURB).

Primary ring cell carcinoma of the bladder is an extremely rare and aggressive tumor. In this case, presented by us, probably due to early diagnosis and radical resection, the prognosis is encouraging.

1. Introduction

According to GLOBOCAN, bladder cancer ranks 10th or 3% of all cancers worldwide.¹ It is characterized by an increasing trend in frequency, especially in developed countries. Most tumors are histologically classified as urothelial. Cases of adenocarcinoma of the bladder are extremely low - 2%, respectively. Primary signet-ring cell carcinoma (SRCC) of the bladder accounts for 0.12–0.6% among the different histological subtypes of bladder carcinomas. This type of bladder cancer was first described in 1955 by Saphire. So far, data on just over 300 cases with such a finding have been published in the literature. Characteristics of this type of tumor are its poor prognosis and its tendency to resistance to known chemotherapeutics and radiotherapy.²

We present a rare case of SRCC with clinical manifestations of hematuria (two times) treated with transurethral resection of the bladder (TURB).

2. Case presentation

A 65-year-old Caucasian female reported for two consecutive episodes of hematuria within 6 months, accompanied by the presence of blood clots. There were no other symptoms concerning the genitourinary system. Weight loss of about 5kg for the last six months was

registered. The first episode of hematuria was treated conservatively with quinolones and vitamin C by a general practitioner with a relative response (masking of symptoms). She had a medical history for arterial hypertension-treated with beta-blocker and ischemic heart disease for which received anticoagulant therapy. Two months before admission she was Covid-19 positive and successfully healed. There was no past family history for malignancies.

The general physical examination was normal. Basic laboratory examinations of complete blood count and serum biochemistry were within normal values. Urinalysis revealed macroscopic hematuria.

Abdominal ultrasound showed no pathological abnormalities in the kidneys. Examination of the bladder revealed the presence of a hetero-echoic formation on the fundus with a size of about 1.5 cm.

Subsequent cystoscopy visualized a papillary tumor formation with a diameter of about 1.5 cm, involving the fundus of the bladder. Deep TURB was performed including the muscle layer of the bladder wall.

The histopathological investigation revealed: "Poorly differentiated mucinous adenocarcinoma with signet ring features without presence of urothelial carcinoma or any other subtypes" (Fig. 1) and "At higher magnification, the foamy cytoplasm of the cells and the nuclei pushed into the periphery (arrows) can be seen, creating the illusion that there is a ring (cell membrane) with the ring facing inwards (the nucleus)." (Fig. 2). As a conclusion a primary signet-ring cell carcinoma of the

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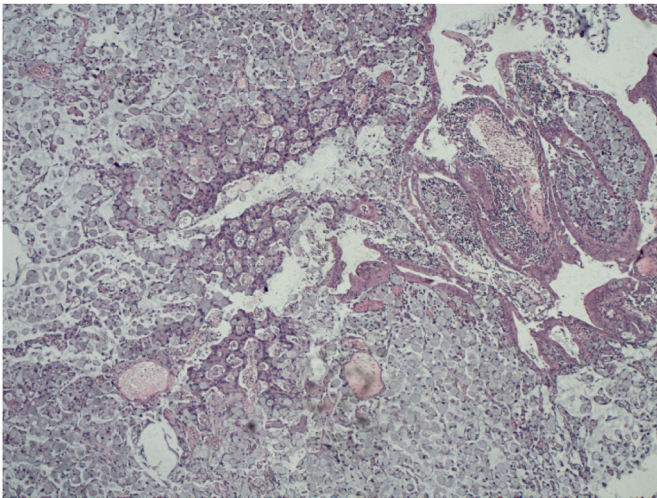


Fig. 1. Poorly differentiated mucinous adenocarcinoma with signet ring features 40X; H&E.

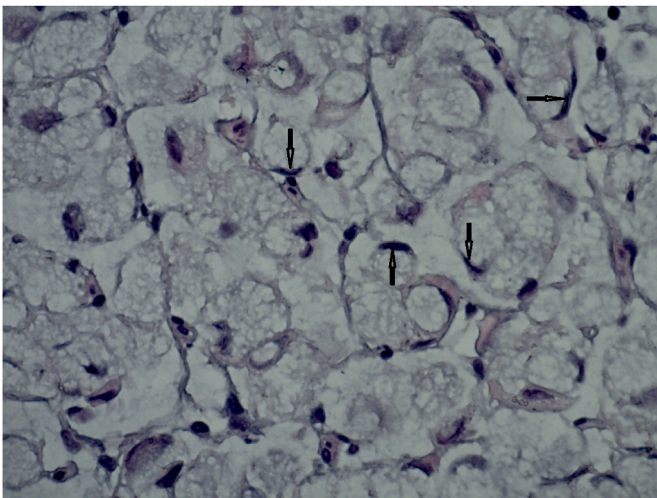


Fig. 2. Foamy cytoplasm of the cells and the nuclei pushed into the periphery, creating the illusion that there is a ring with the ring facing inwards 100X; H&E.

bladder was accepted. In addition, a positive immunohistochemical study for Cytokeratin 7 and Cytokeratin 20 was performed.

Staging computed tomography - T1N0M0 was performed. To exclude a primary focus from the gastrointestinal tract, negative upper and lower endoscopy were performed. The patient is currently undergoing intracavitary chemotherapy and has had two negative cystoscopies for her follow-up period of 12 months.

3. Discussion

Cases of adenocarcinomas of the bladder represent only 0.5–2% of all primary malignant tumors affecting this organ.¹ SRCC is a neoplasm that usually affects the stomach, colon, breast, pancreas, lung, prostate, or gallbladder. Most of the cases found in the urinary bladder are secondary

as a result by a direct extension or metastatic spread by hematogenous or lymphatic route.³ A classic feature of this type of tumors is their poor differentiation. The typical age for its appearance is the sixth decade, and most of the cases have been observed in men (sex ratio M: F = 11: 2). The most common symptoms in patients with SRCC are: hematuria, dysuria, frequent urination, incontinence or urinary retention.⁴ This type of tumor is most often presented as a diffuse infiltrating form. The histological picture shows the disease-specific cells with a nucleus pushed into the periphery. It is extremely important to differentiate primary carcinomas from metastases from other affected organs due to the different therapeutic strategies that are applied. Primary adenocarcinomas of the bladder are much rarer than secondary ones, among which colon adenocarcinoma is the most common variant involving the bladder. The following pathological features have been identified that are used to distinguish primary from secondary adenocarcinomas: polypoid formation affecting the bladder mucosa, glandular or mucosal metaplasia, Brunner's nests, transitional and squamous carcinoma foci. The prognosis of SRCC is extremely poor, with 25% of patients already having metastases at the time of diagnosis, and half of them being classified as stage IV.⁵ The treatment of this type of tumor is multimodal and includes surgery (radical cystectomy or TURB), chemotherapy and radiation therapy.⁵

In our case, all clinical, imaging, histological and immunohistochemical studies support the diagnosis of primary signet-ring cell cancer of the bladder. Immunohistochemical studies showed positive expression of CK7 and CK20. Signet-ring cell carcinoma in most cases is characterized by a poor prognosis. It is a real challenge to treat this pathology in its advanced cases. However, in our clinical case, deep transurethral resection of the tumor and adjuvant intravesical chemotherapy were performed. From the cystoscopies and ultrasonographies performed in the 12-month follow-up period, there was no evidence of tumor recurrence. In our opinion, TURB is a therapeutic option in selected patients with localized adenocarcinoma of the bladder, who would find it difficult to tolerate such a major surgical intervention as radical cystectomy.

4. Conclusions

Primary ring cell carcinoma of the bladder is an extremely rare and aggressive tumor. In this case, presented by us, probably due to early diagnosis and radical resection, the prognosis is encouraging.

Declaration of competing interest

The authors declare that they have no competing interests.

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