Sarcomatoid Carcinoma of Urinary Bladder: a Case Report

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Abstract

Sarcomatoid carcinoma is an extremely rare aggressive tumor variant comprising about 0.3% of all primary tumors of the urinary bladder and carries an overall dismal prognosis. Diagnosis is important and is sometimes difficult. Immunohistochemistry plays an important role in establishing diagnosis. We report a case with sarcomatoid variant of bladder urothelial carcinoma and review the pathologic features. A 65-year-old male on evaluation of long standing obstructive voiding symptoms and intermittent hematuria found to have a bladder mass. Magnetic resonance urography revealed a 35 × 45 mm mass at dome of urinary bladder with perivesical fat infiltration. He underwent transurethral resection and histopathology revealed pT1 high-grade malignant spindle cell tumor. He underwent radical cystoprostatectomy with bilateral extended pelvic lymphadenectomy with EPLND with ileal conduit urine diversion. Histopathology revealed high-grade muscle invasive spindle cell tumor. The diagnosis was uncertain and two differential diagnosis were kept, sarcomatoid carcinoma and pleomorphic sarcoma. Finally, IHC confirmed the final diagnosis of sarcomatoid carcinoma as it was positive for cytokeratin, CK – 8/18, GATA 3. All lymph nodes were negative for metastasis (pT2, N0, Mx). Recognition of the rare variants of the urinary bladder urothelial tumors is imperative as it affects the overall management and hence prognosis. Immunohistochemistry plays a paramount role in establishing the diagnosis.

Keywords Bladder cancer · Sarcomatoid variant · Immunohistochemistry

Introduction

Bladder urothelial cancer has a propensity for divergent differentiation. Different variants include squamous, glandular, micropapillary, nested, lymphepithelioma-like, plasmacytoid, and sarcomatoid. These are rare and usually carry a poor prognosis. Sarcomatoid carcinoma also known as malignant mixed mesodermal carcinoma, pseudo sarcoma, or spindle cell carcinoma constitutes 0.3% of all primary urothelial tumors of bladder. It usually presents with lower urinary tract symptoms and hematuria and management involves a multimodal approach [1–3]. Diagnosis is sometimes difficult on histopathology and immunohistochemistry plays an important role in establishing the diagnosis. Herein, we report case with

sarcomatoid carcinoma of urinary bladder and describe its histopathology and immunohistochemistry features.

Material and Methods

A 65-year-old male presented with long standing obstructive lower urinary tract symptoms and intermittent turbiduria. Ultrasonography revealed a urinary bladder tumor of 3 × 4 cm over the dome with normal upper tract. Renal functions (serum creatinine 1.6 mg%, eGFR 61 ml/min) were deranged in as he was diabetic with diabetic nephropathy. Subsequent magnetic resonance urography revealed a heterogeneously enhancing 35 × 47 mm mass at dome of urinary bladder with perivesical fat infiltration. Planes with rectum were maintained. Prostate, bilateral vas deferens, and seminal vesicles were grossly normal. There was no size significant pelvic lymphadenopathy. Metastatic work up including chest X-ray and bone scan were normal. He underwent transurethral resection of bladder tumor. Endoscopically, there was a 4 × 5 cm broad-based solid mass with superficial calcifications over the dome of the bladder. Rest of the bladder was normal. Histopathology of TURBT chips revealed pT1 high-grade

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Fig. 1 T2-weighted MR image revealing a heterogeneously enhancing bladder mass involving the dome of the urinary bladder with Foleys catheter in situ

Fig. 2 **a** H&E stained ($\times 200$) histopathology slide showing spindle-shaped cells consistent with spindle cell tumor. **b** H&E stained ($\times 400$) histopathology slide showing spindle shaped cells arranged in fascicles and sheets consistent with sarcomatoid carcinoma or pleomorphic sarcoma

malignant spindle cell tumor. In deep biopsy, muscle was present and was involved by the tumor (Figs. 1, 2, and 3).

Results

He underwent radical cystoprostatectomy with bilateral extended pelvic lymphadenectomy with EPLND with ileal conduit urine diversion with Wallace-type ureteroileal anastomosis. Histopathology revealed high-grade muscle invasive spindle cell tumor. Perivesical fat was free of tumor. All lymph nodes (37) were free of malignancy. Prostate, bilateral seminal vesicles, vas deferens, and ureteric margins were free of tumor (pT2, N0, Mx). The diagnosis was uncertain and sarcomatoid

carcinoma or pleomorphic sarcoma were kept as differential diagnoses. Finally, IHC confirmed the final diagnosis of sarcomatoid carcinoma as it was positive for EMA, SMA, P63, and desmin and negative for cytokeratin, CK – 8/18, GATA 3, S – 100. He was subjected to adjuvant chemotherapy with gemcitabine and carboplatin. Patient is doing fine at 7 months of follow-up.

Discussion

Transitional cell carcinoma is the most common urothelial bladder neoplasm. It has many known pathologic variants like micropapillary, squamous differentiation, glandular

Fig. 3 Histopathology of tumor. **a, b, c** Tumor cells positive for cytokeratin, EMA, smooth muscle antigen

differentiation, sarcomatoid differentiation, inverted or nested pattern. Sarcomatoid differentiation is a rare variant with incidence ranging from 0.1 to 0.3% [1]. It usually presents at a younger age with mean age of 66 years and is more common in males with male to female ratio of 3:1. [3]. Exact etiology is not known, but association with radiation and cyclophosphamide exposure has been described [1, 2, 4]. Usually presents in the same manner as other urothelial carcinomas of bladder with hematuria being the most common presenting symptom. Due to aggressive nature of disease, it usually diagnosed at advanced stage. Most common location is lateral walls of bladder [4]. Macroscopically, seen as polypoidal or large broad based mass with edematous, hemorrhagic or cystic component. On histology, it is biphasic with malignant epithelial and predominant mesenchymal elements [2, 4]. Spindle cell component is typically seen in high-grade disease as seen in the present case. Diagnosis is confirmed on IHC markers including, vimentin, cytokeratin, epithelial membrane antigen and or smooth muscle antigen [4].

There is no consensus on standard treatment because of its rarity and lack of randomized controlled trials and multimodal approach including surgery and chemoradiotherapy is needed. As tumor is aggressive and usually present at advanced stage, transurethral resection of bladder tumor or partial cystectomy is inappropriate. The overall survival is better for those who treated with radical cystectomy [2, 3, 5]. Radical cystoprostatectomy is considered as mainstay of treatment, but recurrences still tend to develop after surgery. And hence adjuvant therapy in form of radiotherapy or chemotherapy is given to prevent recurrences. They are especially indicated in high risk cases like those with high grade, margin positivity, lymphnode positivity, and extravesical spread. Role of

neoadjuvant therapy in advanced cases was studied in few studies [2, 4]. Prognosis is even worse than high-grade urothelial carcinoma. Five year survival is 17% as compared to 47% in urothelial carcinoma [3].

Conclusion

Sarcomatoid carcinoma is a rare variant with different therapeutic and diagnostic implications. Importance of early diagnosis of one of these rare variants lies in the prognostic and therapeutic considerations. Histopathology and immunohistochemistry play an important role in establishing the diagnosis and hence guiding the further management.

References

1. Mallik AU, Rahman MZ, Sarker MMR (2010) Sarcomatoid carcinoma of urinary bladder—a case report. *Banglajol* 4(1):28–29
2. Bansal A, Kumar N, Sharma SC (2013) Sarcomatoid variant of urothelial carcinoma of the urinary bladder. *J Cancer Res Therapeutics* 9(4):571–573
3. Wang J, Gillaspie C, Kunadharaju R, Talmon GA, Enke C (2011) Sarcomatoid urothelial carcinoma: a single cancer center experience. *World J Oncol* 2(4):175–180
4. Sanchez JEH, Figueira YR, Gonzalez RT, Lopez RM, Tejeda LMG (2014) Sarcomatoid carcinoma of the urinary bladder: a case report and review of the literature. *J Med Cases* 5(2):116–119
5. Mittal V, Rupala KK, Yadav R, Suryavanshi M (2017) Giant sarcomatoid carcinoma with osseous metaplasia from urinary bladder diverticulum. *Indian J Surgical Oncology*:1–4