Oncology

Osteoclast-type giant cell carcinoma of the urinary bladder: An unusual and aggressive variant of urothelial carcinoma

Can Osman\textsuperscript{b,∗}, Bozkurt Muammer\textsuperscript{c}, Ozer Murat\textsuperscript{b}, Aydin Tamer\textsuperscript{b}, Altunrende Fatih\textsuperscript{a}

\textsuperscript{a} Department of Urology, University of Health Sciences, Okmeydani Training and Research Hospital, Istanbul, Turkey
\textsuperscript{b} Department of Pathology, University of Health Sciences, Okmeydani Training and Research Hospital, Istanbul, Turkey

Introduction

Bladder cancer usually develop from transitional cells covering inner surface of the urinary system. However, 10–25% of all histologies may be different from transitional cells. These subtypes are called “variant histology”.\textsuperscript{1} According the 2016 World Health Organization Classification of Urinary System Tumors, variant histology of bladder carcinomas were interpreted.(Table 1).

In these variant tumor subtypes, osteoclast-type giant cell(OGC) tumors are extremely uncommon and have been found generally in some organs like pancreas, breast and gallbladder.\textsuperscript{2} OGC carcinoma of the bladder has been reported in the literature about 30 cases. Largest case series has been reported with six cases by Baydar.\textsuperscript{3}

Because of rarity of cases, survival and prognosis knowledge of the OGC carcinoma in bladder is limited. In this manuscript, we report a 55-year-old male patient with OGC carcinoma of the bladder and disease management.

Case presentation

A 55-year-old man admitted to the hospital with painless gross hematuria about one month. Systemic examination performed and medical history evaluated. Patient did not have any other systemic disease. Patient had used one package cigarette per a day 40 years along. On physical examination, digital rectal examination of prostate gland consistency was fibroadenoma and there was no nodule or other pathology. In laboratory examination PSA value was 2,20 ng/mL. Cystourethroscopy performed and the tumor defined about 7 cm diameter. Computed tomography of the thorax revealed no obvious metastasis or lymph nodes. Abdominal computed tomography revealed a tumor starting from the bladder neck and extending to the wall on the right side about 7 cm(Fig. 1). Furthermore, CT showed lymph nodes adjacent periavesical fat tissue and right external iliac vascular structures.

Transurethral resection pathology resulted as OGC carcinoma and the tumor was high grade and invasive to detrusor. Therefore radical cystoprostatectomy and ileal conduit plus extended lymph node dissection was performed. Tumor was invaded perivesical fatty tissue and prostatic stroma. Extended lymph node dissection was reported as 4 cm carcinoma in the right external iliac lymph node. According to the results of imaging studies and final pathology, the stage of the disease was interpreted as T4aN1M0. Additionally, pathology reported as Gleason 3 + 3 = 6 prostatic adenocarcinoma and the surgical margins was negative.

On pathological findings, the multinuclear tumor cells displayed as a varying of nuclear atypia(Fig. 2a) and OGC cells was positive for CD68(Fig. 2b), focally positive for uroplakin and negative for CK20 and demisin.

There was not any complication during hospitalization. Ten days after the operation, the patient was discharged in a stable condition. The case was discussed with a medical oncologist and adjuvant chemotherapy treatment was decided. After four courses of adjuvant chemotherapy regime including Gemcitabine and Cisplatin the patient’s vital condition deteriorated. The patient had massive pulmonary infections and low blood oxygen levels. After this stage, the patient was followed up in the intensive care unit and died one month later. As a result, the period from diagnosis to death was 10 months.

Discussion

Variant histologies of bladder carcinomas are admitted a considerable independent predictor of overall survival and recurrence-free survival.\textsuperscript{4} The absence of a standard treatment regimes is one of the most important problem. Variant histologies have different responses ranges for radiotherapy and chemotherapy.

In the literature previous cases were older than 70 years old. Our patient was male like previously reported cases and 55 years old that also younger than the mean age in the literature.

The symptoms of OGC carcinomas in the urinary system are non-specific. In gaint cell tumors of bone, symptoms can be occur in early time. However according the previous cases in the literature, OGC carcinoms of the urinary system presents at advanced stages. Hematuria is the earliest symptom in bladder carcinoma and our patient was suffered from painless gross hematuria.

\textsuperscript{∗} Corresponding author. Kaptanpasa district, Okmeydani training and research hospital, Sisli, Istanbul, Turkey.
\textit{E-mail address:} osmancan01@hotmail.com (C. Osman).

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Cases in the literature, OGCs have been found positive for vimentin and cell surface proteins CD68 and CD45, and negative for cytokeratin and epithelial membrane antigen on immunohistochemical analysis.\(^5\) In our case, according to our pathological findings, it was seen as focal positive for uroplakin and positive for vimentin and CD68. Focal positive vimentin can be related OGCs prognosis. Additionally, CK20 and desmin was negative. Nevertheless, more investigations need for explain this phenomenon exactly.

In 2006 six case series of osteoclastic giant cell carcinoma in the urinary tract published by D baydar et al.\(^3\) Three of six cases were located in renal pelvis and the other three cases were in the bladder. And the pathological stage was T3 in four cases and T1 in two cases. In our case tumor was located in the urinary bladder and pathological stage was more advanced as T4a.

The best known treatment approach is surgery for variant histologies. Surgery is recommended because of poor prognosis. So we have performed radical cystoprostatectomy and ileal conduit plus extended lymph node dissection. However according to the results of final pathology adjuvant treatment was necessary.

In treatment of transitional cell carcinoma, adjuvant chemotherapy protocols such as MEK (mitoxantrone, etoposide and cyclosporin) are used. In our case after the operation, patient had 4 course adjuvant chemotherapy as Gemcitabine and cisplatin. Patient did not receive any radiotherapy treatment. However, prognosis was poor despite radical surgery and adjuvant chemotherapy treatments. Utilities of such adjuvant chemotherapy protocols in invasive OGC carcinomas need more large population-based studies.

In bone tumors, giant cell carcinomas are sensitive for adjuvant radiotherapy. Therefore radiation therapy can be useful in giant cell carcinomas in bladder carcinomas. Previous case reports showed us that wide surgical resection is prevalent consensus for OGC tumors in bladder until chemotherapy or radiotherapy treatments benefits are established.\(^3\)

The prognosis is very poor in OGC of the urinary system. In the follow-up of the cases previously reported in the literature, patients died due to disease in about 15 months.\(^3\) Our patient had not metastasis and survival was 10 months from the first diagnosis. Even if there is no distant metastasis at OGC tumors of the urinary system, dissease prognosis can be extremely poor.

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### Table 1

| Variant histologies of urothelial carcinoma. |
|---------------------------------------------|
| Variants of Invasive Urothelial Carcinoma    |
| Squamous Differentiation                     |
| Glandular Differentiation                    |
| Nested pattern                               |
| Myoepithelia-like                            |
| Myoepithelial carcinoma                      |
| Myoepithelioma-like                          |
| Plasmacytoid and lymphoma-like               |
| Sarcomatoid/Carcinosarcoma                   |
| Giant cell                                   |
| Trophoblastic Differentiation                |
| Clear cell                                   |
| Lipid cell                                   |
| Undifferentiated                             |

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**Fig. 1.** Abdominal computed tomography shows irregular right lateral wall thickness of the urinary bladder.

**Fig. 2.** a: Multinuclear giant cells 2b: Osteoclast-like giant cell undifferentiated carcinoma (arrow) is positive for CD68.