CASE REPORT

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A Rare Variant of Urothelial Carcinoma: Plasmacytoid Urothelial Carcinoma

Kazım CEVİZ[a], Muhammed Emin POLAT[a], Emre UZUN[a], Lütfi İhsan BOYACI[a], Cavit CEYLAN[a]

[a]Clinic of Urology, Ankara City Hospital, Ankara, Türkiye

ABSTRACT In these case reports, we aimed to show difficulty in diagnosing and treating plasmacytoid urothelial carcinoma due to aggressive behavior of the tumor, lack of standard treatment protocol, and differences from classical bladder cancer pathologic appearance. One of our cases was 71 years old and she had breast cancer at the same time and the other one was 74 years old and he had chronic myeloid leukemia as well. It is essential to be careful when making differential diagnoses whether the tumor is metastatic or primary. As the tissues are being investigated, immunohistochemical tests like CD138 and loss of E-cadherin can be helpful for the diagnosis.

Keywords: Plasmacytoid; carcinoma; bladder

Plasmacytoid urothelial carcinoma (PUC) is a rare bladder cancer variant, and we don't have enough knowledge about prognosis and results.[1]

In recent years, the number of described variants of bladder cancer is increased. PUC is included in the signet ring cell carcinoma and diffuse variants in the latest Urinary System and Male Genital Organ Tumors publication by the World Health Organization.[2] Firstly, PUC was described by Sahin et al. when they were searching a multiple myeloma case for bone metastasis.[3] The diagnosis of this variant is complex and immunohistochemical studies are required most of the time.[4] This report aimed to show the importance of holistic evaluation of the patients to differentiate primary bladder PUC from metastasis who have primary cancers like breast and stomach cancers.

CASE REPORTS

We described 2 PUC variant patients in this section.

CASE 1

71 years-old female patient with ductal type breast cancer diagnosis was admitted to the hospital with hematuria and suprapubic pain. In the ultrasonography, there was a 25×15 mm solid tumoral lesion on the right wall of the bladder. After the tumor's transurethral resection (TUR), pathologic evaluation was made with the breast cancer material. Due to focal expression of CD138 and carcinoembryonic antigen, loss of E-cadherin, beta-catenin expression, diffuse staining with cytokeratin-7 (CK-7) and GATA-3 PUC, its diagnosed as PUC (Figure 1, Figure 2, Figure 3, Figure 4). Case-1 was out of our follow-up after operation.

CASE 2

74 years-old male patient with chronic myeloid leukemia was admitted to the hospital with hematuria. In ultrasonography, a 45 mm tumoral lesion was detected, and TUR was applied. In the pathologic evaluation, low differentiated tumor tissues have had

Correspondence: Kazım CEVİZ
Clinic of Urology, Ankara City Hospital, Ankara, Türkiye
E-mail: kazimmzz@hotmail.com

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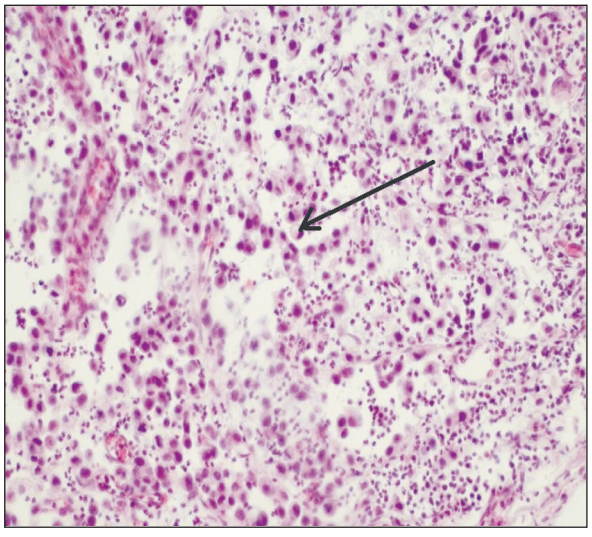

FIGURE 1: Signet ring cell appearance (H&E x100).

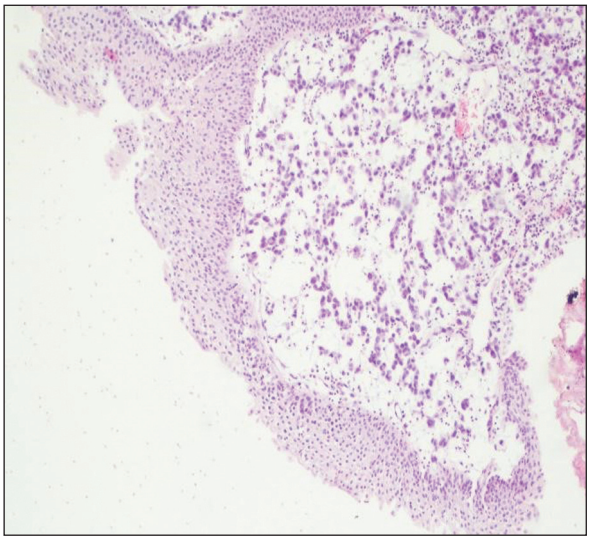

FIGURE 3: Discohesive tumor cells under the urothelial epithelium that are not associated with this epithelium (H&E x100).

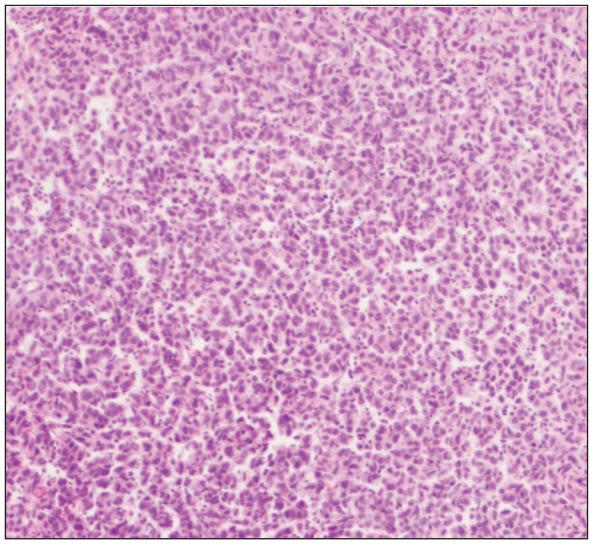

FIGURE 2: Plasmacytoid sites (H&E x100).

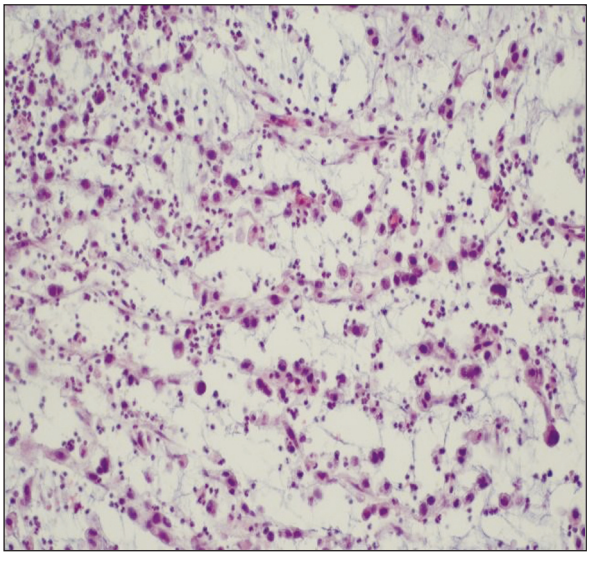

FIGURE 4: Discohesive poorly differentiated epithelial tumor between myxoid stroma (H&E x100).

pleomorphic atypic epithelial cells with a hyperchromatic nucleus, slightly eosinophilic cytoplasm, increased rate of mitosis. Tumor cells have a plasmacytoid morphology in large areas and a signet ring cell appearance consisting of discohesive cells in a loose myxoid stroma in some areas. In the cell's nucleus, GATA-3 expression was positive. In addition, pan-CK and vimentin were positive, and CD138 was positive focally. The tissues were not stained with uroplakin, CD45, CD34, CD31, P63, synaptophysin, chromogranin, high molecular weight-CK, desmin, myogenin, CK20, S100, CK7, E-cadherin. There was lamina propria invasion in the resected material, but the muscularis propria layer was not seen. So that, four weeks later, the re-TUR operation was performed. The tumor was seen as invaded. When we touched the lesion, it was seen from the outer part of the abdominal wall during

the surgery. So that the procedure was terminated. In the positron emission tomography-computerized tomography examination results, an invasive irregular lesion covered the bladder wall, extending into the perivesical adipose tissue and pelvic muscular structures. Also, there was a pathologic metabolic activity increase on the penis root and body, right iliac bones. Bone marrow has diffusely increased metabolic activity increase compatible with malignant infiltration. The patient was consulted to the medical oncology department, and further treatments were planned as gemcitabine+cisplatin by them. One dose of chemotherapy (ChT) regime was applied to the patient but after that acute kidney failure developed. No further ChT can be applied case-2 was dead eight months after starting date of the treatment. Written informed consent was obtained from both patients.

DISCUSSION

Urothelial carcinoma is a widespread malignancy of the genitourinary system.[5] PUC is a rare and newly described histologic tumor variant among urothelial carcinomas and it constitutes less than 3% of all these carcinomas.[6] It has specific features for the diagnosis, and the description of this variant has an essential role in predicting prognosis.

First of all, it has increased the risk of ureteral surgical margin positivity, lymph node positivity. And also, it has related to low survival rates, high tumor, node, metastasis grades. So that, the surgeons and pathology experts should define tissue carefully in the aspect of these variants.[7,8]

PUC is generally presented as dysuria, suprapubic pain, urgency and hematuria like other bladder tumors.[9] In differential diagnosis, we can consider both plasma cell originated neoplasms like cystitis with large B cell lymphoma, plasmacytomas, lymphomas, lymphoepitheliomas, metastatic carcinomas and especially the metastasis of breast and gastric plasma cell-rich neoplasms.[10] In advanced cases, there may be a bladder structure in the form of linitis plastica, and therefore, the absence of hematuria, which is one of the most important symptoms, may lead to late diagnosis.[9] It is primarily detected with a careful pathologic examination of the TUR material of the bladder. As microscopic findings, we can see the medium-sized and discohesive tumor cells, which have highly eosinophilic cytoplasms, tiny hyperchromatic nucleus, and frequently mitotic properties.[9] One case has been diagnosed with large and discohesive tumor cells in the urine cytology.[11] Also, staining positive with CD138 and loss of E-cadherin are immunohistochemical markers that help describe PUC.[4,12]

PUC has bad results with ChT, but in the literature, a case responds to the radical cystectomy after two doses of methotrexate, etoposide, vinblastine, and cisplatin ChT.[13] Neoadjuvant and adjuvant ChT have limited response but no significant effect on the survival rates.[14] This aggressive type of bladder cancer's most frequent metastasis site is the peritoneum and cancer antigen-125 can be used for the diagnosis and follow-up of this situation.[14,15] The diagnosis and treatment protocols aren't clarified yet, but the recommended modality for treatment is radical cystectomy after neoadjuvant or adjuvant ChT. The treatment decision must be made quickly because of the aggressive features of the tumor, as in our case.

Consequently, PUC is a rare and mortal tumor variant. We have to recognize it as early as possible. The patient must be evaluated holistically. If this type of variant is suspected, clinic and pathology experts must work in coordination. For the diagnosis, immunohistochemical markers are helpful, but more clinical studies are needed to explain accurate treatment modalities in the future.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Kazım Ceviz, Muhammed Emin Polat, Emre Uzun;* ***Design:*** *Kazım Ceviz, Muhammed Emin Polat;* ***Control/Supervision:*** *Cavit Ceylan;* ***Data Collection and/or Processing:*** *Lütfi İhsan Boyacı;* ***Analysis and/or Interpretation:*** *Kazım Ceviz, Muhammed Emin Polat;* ***Literature Review:*** *Kazım Ceviz, Muhammed Emin Polat;* ***Writing the Article:*** *Kazım Ceviz, Muhammed Emin Polat, Lütfi İhsan Boyacı;* ***Critical Review:*** *Emre Uzun, Cavit Ceylan;* ***References and Fundings:*** *Cavit Ceylan;* ***Materials:*** *Cavit Ceylan.*

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