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Case Report

Metastasis of Renal Cell Carcinoma to the Urinary Bladder: Case Report

Böbrek Hücreli Karsinomun Mesaneye Metastazı: Olgu Sunumu

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Highlights

- Metastasis to the bladder may rarely be seen in renal cell carcinoma cases.
- Case management is difficult due to the lack of consensus on the treatment procedure in the case of renal cell carcinoma metastasis to the bladder.

Abstract

Renal cell carcinoma (RCC) is the most common malignant type among kidney tumors, with a rate of 90% in adults. Distant metastasis is seen in 30% of patients with Renal Cell Carcinoma at the time of diagnosis. In this study, we aimed to present two very rare cases of bladder metastases. Case 1; A 65-year-old male patient with nodular thickening and mass in the bladder wall around the right ureteral orifice. Case 2; The patient, who had undergone nephrectomy operation due to a mass in the left kidney, was hospitalized with the complaint of hematuria and a mass in the bladder was detected in the examination.Although metastasis of Renal Cell Carcinoma to the bladder is not common, it should be kept in mind in routine control examinations and investigated for metastasis.

Keywords: Renal cell carcinoma, Metastasis, Urinary bladder

ÖZ

Renal hücreli karsinom (RCC), yetişkinlerde %90 oranında böbrek tümörleri arasında en sık görülen malign tiptir. Renal Hücreli Karsinomalı hastaların % 30'unda tanı anında uzak metastaz görülmektedir. Bu çalışmada çok nadir görülen iki mesane metastazı olgusunu sunmayı amaçladık. OLGU 1; Sağ üreter ağzı çevresinde mesane duvarında nodüler kalınlaşma ve kitlesi olan 65 yaşında erkek hasta. OLGU 2; Sol böbrekte kitle nedeniyle nefrektomi operasyonu geçiren hasta hematüri şikayeti ile hastaneye yatırıldı ve yapılan muayenede mesanede kitle tespit edildi. Renal Hücreli Karsinomun mesaneye metastazı sık olmamakla birlikte rutin kontrol muayenelerinde akılda tutulmalı ve metastaz açısından araştırılmalıdır.

Anahtar Kelimeler: : Böbrek hücreli karsinom, Metastaz, Mesane

Introduction

Renal cell carcinoma (RCC) is the most common malignant type among kidney tumors, with a rate of 90% in adults. Distant metastasis is seen in 30% of the cases at the time of diagnosis (1). In 20% of the cases, metastases develop during follow-up (2). Radical nephrectomy is the gold standard approach in the treatment of RCC. Despite this radical surgical approach, early or late metastasis is seen in 20-30% of patients during follow-up (2). RCC tends to spread to almost every organ, but the most common sites of metastasis are lung, lymph node, bone, brain and liver.

Approximately 65 cases of metastatic RCC to the urinary bladder were identified so far. Among these, clear cell RCC was the most common histological type (92%) (3). As for the rest, only two cases of papillary RCC were reported (4).

In this study, we will present two clear cell RCC cases with metastasis to the urinary bladder.

Cases

Case 1; A 65-year-old male patient underwent right radical nephrectomy in 2019 due to a 6x5x3 cm right renal mass starting from the lower pole and filling the right renal pelvis, and a 9.5x5x2 cm right adrenal adenoma. Pathological examination revealed right adrenal cortical adenoma and clear cell RCC with invasion to perinephric tissue and pelvis. Invasion to the renal sinuses and veins was not detected. The pathological stage was determined as T3aN0M0. In the follow-up, cystoscopy was performed at the first year due to bladder related symptoms such as hematuria, burning in urination, and cystitis, and a solid mass of 4x3 cm was observed on the right orifice. Right kidney was not observed during upper abdominal CT. A nodular thickening and mass were determined in the bladder wall around the right ureteral orifice. The patient underwent Tur-B, and the pathology was determined as RCC and Clear Cell Type Metastasis (figure 1a).

Case 2; Our second case had left radical nephrectomy due to an 8x6x3 cm renal mass in the left kidney in 2013 in an external center. Pathology was reported asT2N0M0 clear cell RCC. The patient was hospitalized in 2021 due to the complaint of hematuria, and examination revealed a mass in the urinary bladder. A mass was detected in the superior of the left lateral wall of the bladder in the metastasis control CT (figure 2), and bladder resection was performed. The pathology of the specimen was identified as clear cell RCC, as seen in figure 1b.

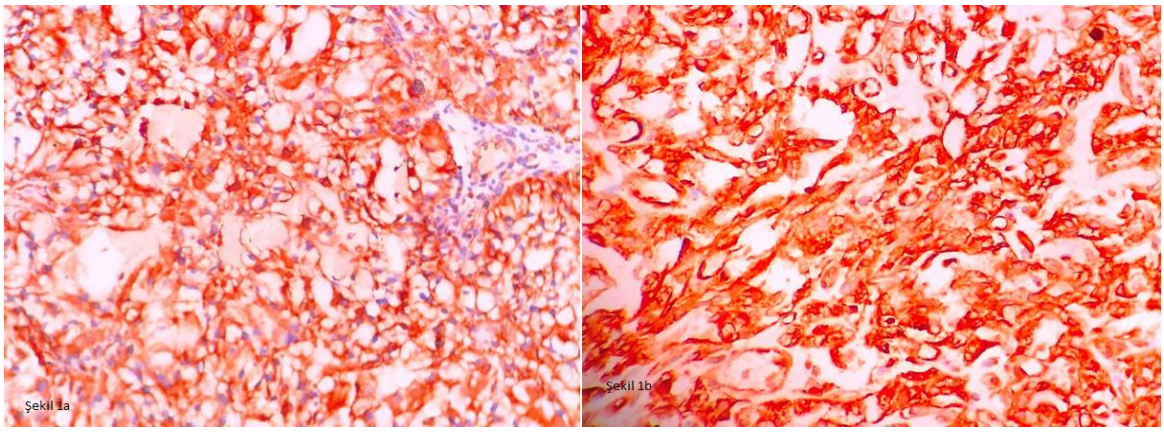

Figure 1 (a, b): (a): Clear Cell RCC specimen (H&Ex40) composed of tumor cells with alveolar and acinar pattern, displaying hemorrhage and a congested small fine vessel network between tumor islets, conspicuous cell membrane, clear eosinophilic cytoplasm in patches that lost lipid or glycogen content in most areas (H&Ex40). **(b):** Clear Cell RCC specimen (H&Ex40) consisting of cells with well-defined cellular borders, clear cytoplasm, and nuclei approximately twice the size of normal tubule cells at high magnification, and prominent nucleoli that can be distinguished at 40x magnification (H&Ex40).

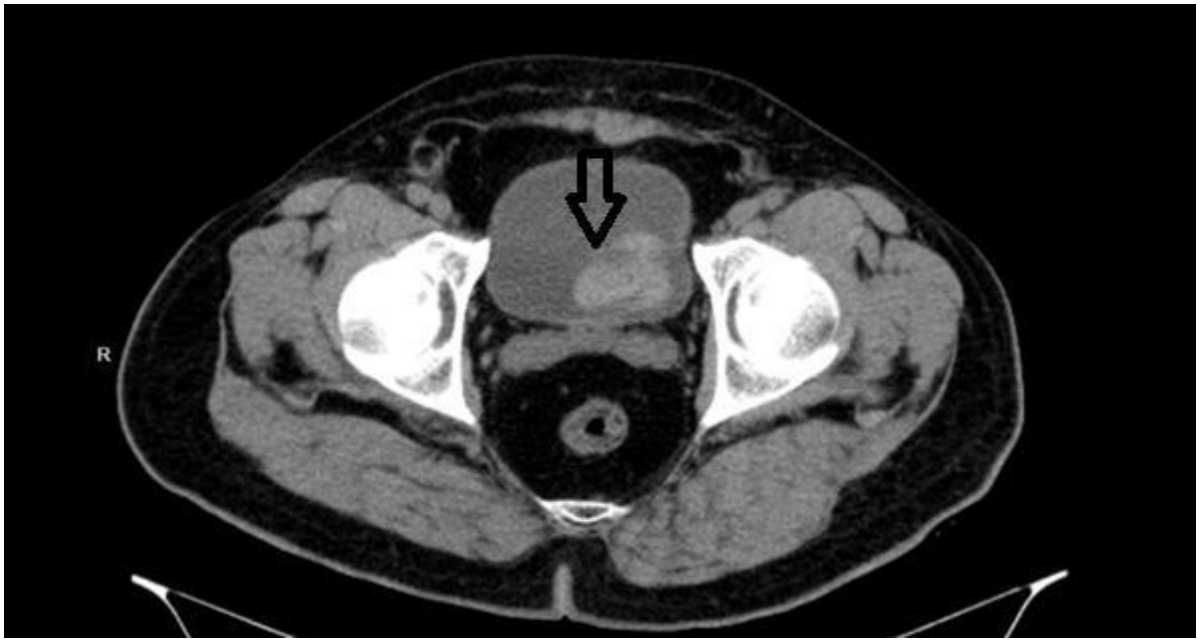

Figure 2: Computed tomography image of metachronous metastasis shown with the arrow.

Discussion

Metastasis of RCC to the urinary bladder is an extremely rare condition. Urinary bladder metastasis is seen in less than 1% of solid tumors (5), which can be synchronous or metachronous. In literature review, synchronous bladder metastases are less common and have a worse prognosis in comparison to metachronous bladder metastases. Of the RCC types, the clear cell carcinoma type is determined to metastasize more to the urinary bladder (3).

In general, probability of metastasis is lower and the prognosis is better in papillary renal cell carcinoma with respect to clear cell carcinoma (6). However, papillary RCC behaves more aggressively than metastatic clear cell RCC, in case metastasis develops (7). The reason for this could not be fully understood. The pathological mechanism underlying the spread of RCC to the urinary bladder is not exactly known. However, various possible mechanisms were observed, including hematogenous metastasis through the circulatory system, retrograde spread of the tumor mainly from the left renal vein or through the periureteral veins or lymphatics connecting the renal hilar lymphatics to the pelvic organs, and direct migration of tumor cells through the lumen (8). RCCs usually metastasize by hematogenous route, and this may cause observing different metastasis sites at the time at diagnosis. Conversely, urinary spread may be suspected if the primary tumor invades renal pelvis or collecting duct. In addition, lymphogenous metastases should also be kept in mind. Another metastasis route is the superficial antegrade spread of tumor, as drop metastases. And sometimes it can also be anticipated that several spread routes may be involved. However, none of these spread routes has been clarified so far. We consider that further studies are needed to shed light on the issue. In the literature, urinary bladder metastasis of clear cell type of RCC was reported more common with respect to the other RCC types (6). And in both of our cases, in consistency with the literature, RCC type metastasizing to the urinary bladder was determined to be clear cell subtype.

It was reported in the literature that, urinary bladder metastases of clear cell subtype of RCC usually manifested with macroscopic hematuria and lower urinary tract symptoms (9). Our cases also presented with macroscopic hematuria, in accordance with the literature. There is no consensus on the treatment of clear cell carcinoma because their metastases to the urinary bladder are not seen very often. Among the treatment options in the literature, systemic treatments including IL2 immunostimulant, tyrosine kinase were also seen, in addition to surgical treatment of multiple distant metastases (4). Shiraishi et al. recommended additional systemic therapy against metastasis in most cases (10). They suggested that the progression of another metastasis can be managed in combination with surgical resection and immunostimulatory therapy used in an outpatient setting, and long-term survival was possible (11). In their study, Gallmetzer et al. elaborated the long-term survival achieved after resection along with immunotherapy, and emphasized that surgical resection should not be considered as the only therapeutic tool against bladder metastasis of RCC. A combined treatment should also be considered in the treatment of solitary synchronous metastases of RCC (12). Nakanishi et al. reported a solitary metastatic

bladder tumor caused by RCC in a 48-year-old female patient (13). Maruo et al. reported two cases of bladder metastasis from RCC during molecular targeted therapy with pazopanib (14).

Gajasinghe et al. administered interleukin-2 or tyrosine kinase inhibitors along with resection, considering that systemic metastasis is likely to occur in such patients (4). Our cases were metachronous urinary bladder metastasis following a primary clear cell carcinoma surgery, consistent with the literature. Bladder metastasis was observed 9 years after -nephrectomy in our second case, and TUR-B was performed. No metastasis was determined in the systemic scanning of this patient with clear cell carcinoma. No recurrence or systemic metastasis was determined in the 1st year cystoscopy and imaging studies, is kept under monitoring with no systemic treatment. Urinary bladder metastasis was observed approximately two years after nephrectomy and TUR-B was performed in our first case. Tyrosine kinase was planned to be administered as a systemic treatment in this patient, due to the recurrence determined in the urinary bladder for the second time.

As a result, urinary bladder is one of the sites that should be kept in mind during routine control testing of the patients and should be investigated for metastasis, given that metastasis of RCC to the urinary bladder is not common. The fact that there is no consensus on the treatment procedure in case of metastasis of RCC to the urinary bladder, further complicates the management of such cases.

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