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Title: Contralateral Testicular Metastasis of Renal Cell Carcinoma: A Case Report

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Abstract

Testicular metastasis of renal cell carcinoma (RCC) is a very rare condition in the literature. In this case report, a 56-year-old man with RCC in the right kidney, and with a metastasis of RCC in the left testicle detected 12 months after the nephrectomy was discussed in the context of literature information.

Keywords: metastasis; renal cell carcinoma; testis

Introduction:

Renal cell carcinoma (RCC), which accounts for approximately 3% of the tumors seen in adulthood, is the most mortal urological malignant [1]. The lungs, bones, liver and the brain are the most metastatic organs of RCC [2]. However RCC metastasis pathways have not been fully resolved and its metastases rarely can appear in very different localizations. According to current literature, testicular metastasis of RCC is a very rare condition. A 56-year-old male patient who underwent right radical nephrectomy with localized renal tumor and RCC metastasis in the contralateral testis 12 months after the operation was discussed in this case report.

Case Presentation:

A 56-year-old male patient was admitted to the our urology clinic with complaints of hematuria and right flank pain ongoing for 20 days. It was learned that the patient had 30 pack-year history of smoking in his medical history. He had no history of previous surgery or chronic illness. Urinary ultrasonography revealed a solid mass in 6.7 cm diameter in the right kidney. Magnetic resonance imaging of the abdomen revealed a 7 cm mass in the lower pole of the right kidney (Figure

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1). No evidence of metastatic disease was observed. On February 2017, the patient underwent right radical nephrectomy. No complications occurred during the operation and postoperatively and the patient was discharged on the 3rd postoperative day. The gross pathological examination showed an expansile tumoral growth in medulla near the inferior pole of kidney. Tumor was 8x6x5 cm with distinct sharp borders and classified into stage 2. After the histopathological examination, tumor was diagnosed as “renal cell carcinoma, Fuhrman grade 2, clear cell variant, with no microvascular invasion and necrosis and invasion of the collecting system” (Figure 2 and 3). The patient was evaluated at postoperative 1st and 6th months. No pathological findings were found in the chest X-ray and in the all abdominal ultrasound imaging at 6th month visit. On February 2018, the patient presented with a left testicular pain ongoing for three days. In the genitourinary system examination, a hard mass of approximately 2 cm in size was palpated deep in the left testis. Alpha fetoprotein (AFP), beta subunit of human chorionic gonadotropin (β -hCG) and Lactate dehydrogenase (LDH) levels were within normal limits. In the scrotal ultrasonography, a 2 cm sized mass was observed in the lower part of the left testis. The patient underwent left high inguinal orchiectomy. The pathological examination of the testis revealed that, the tumor detected in testis basically was composed of malignant cells similar with those seen in kidney. The tumor in the testis was also diagnosed as “consistent with clear cell variant renal cell carcinoma metastasis” (Figure 4 and 5). The patient's postoperative contrast-enhanced computer tomography of abdomen and thorax revealed no other metastase. The patient was referred to the oncology clinic and treatment with sunitinib initiated at a dose of 50 mg/day for four weeks followed by 2 weeks off (4/2 schedule). After 5 month of sunitinib treatment he had no evidence of disease progression.

This "case report" was written after patient consent was obtained.

Discussion:

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The scrotum has a relatively low temperature and this creates an unfavorable environment for the development of metastatic tumors [3,4]. The presence of blood-testis barrier formed by sertoli cells plays an indirect role in preventing testicular metastasis [5]. In the series of Pienkos and Jablokow including 24000 autopsies, the incidence of secondary testicular tumors was found 0.06%. In the same study, it was reported that the most common cancer types that metastasizes to the testis are prostate (43.3%) and lung (15.5%) cancers [6]. In another study, Dutt et al. [7] evaluated 13500 autopsy series, 641 testis biopsies and orchiectomy; they observed that seconder testicular neoplasms are 4.6% in the autopsy series and 1.6% in the surgical specimens. In addition, they observed that the most common cancer type that metastasizes to the testis is prostate cancer and the most common pathology in tissue samples is adenocarcinoma. The first testicular metastasis of RCC was reported by Bandler and Roen in 1946 [8]. Ulrich and Young clinicopathological analysed 26 nonincidental metastatic testis tumors cases in 2008. They found that 15.3% of the cases have renal cell carcinoma metastasis. In the 75% of these patients, the pathologic subgroup is clear cell carcinoma [9]. Testis metastasis of the RCC usually occurs ipsilateral and is frequently affected on the left side. This can be explained by the retrograde migration of tumor cells through the left testicular vein. On the other hand, cases in the literature have been described in the previous years, with extremely rare contralateral testicular spread. It is thought that tumor cells participating in blood circulation spread to the contralateral testis via Batson's venous complex [10].

In conclusion, although testicular metastasis is rarely seen in patients undergoing radical nephrectomy due to renal tumors, we believe that the clinicians should be careful in terms of testicular metastases during clinical follow-up.

Competing interests:

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Figure Legends

Figure 1: Magnetic resonance imaging of the abdomen revealed a tumor mass with a diameter of 7 cm in the right kidney.

Figure 2: Infiltration of tumor cells consisting of clear cytoplasm in the medulla of kidney (black arrows). intravascular tumor cell groups next to distal and collecting ducts (white arrows) Magnification x4).

Figure 3: Detailed view of tumor in kidney. Tumor consists of pleomorphic cells with irregular nuclei and a large pale cytoplasm with indistinct cell borders, organised in nested growth pattern (Magnification x40).

Figure 4: Low power view of tumor detected in testis (black arrows). Tumor infiltrates testis parenchyma by pushing the seminiferous ducts (Magnification x4).

Figure 5: Tumor seen in testis, has a similar appearance to that detected in kidney; tumor cells with variable small irregular nuclei and large pale cytoplasm organised in nests and trabecules (Magnification x4).

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