

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

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**Cite this article as:** Kolukcu E, Kilic S, Parlaktas BS, et al. Contralateral Testicular Metastasis of Renal Cell Carcinoma: A Case Report. Eurasian J Med 2019; 51(3): 310-2.

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Received: September 24, 2018

Accepted: November 15, 2018

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DOI 10.5152/eurasianjmed.2018.18357



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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 metastasis of RCC to the left testis detected 12 months after nephrectomy was assessed and discussed in the context of literature information.

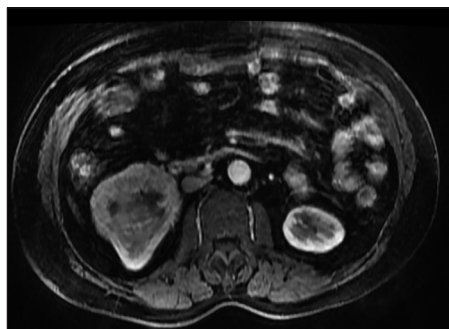
**Keywords:** Metastasis, renal cell carcinoma, testis

### Introduction

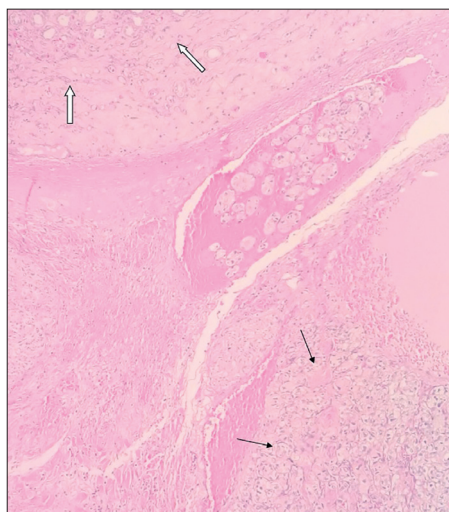
Renal cell carcinoma (RCC), which accounts for approximately 3% of tumors observed during adulthood, is the most mortal urological malignancy [1]. The lungs, bones, liver, and brain are the most metastatic organs of RCC [2]. However, the pathways of RCC metastasis have not been fully resolved and its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

### Case Presentation

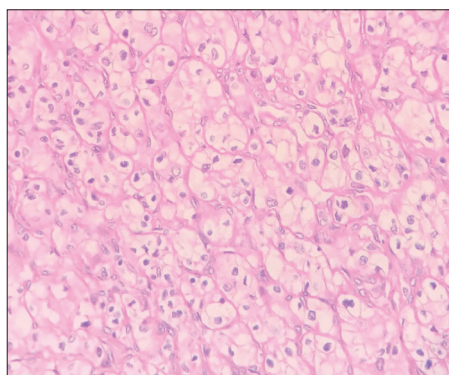
A 56-year-old man was admitted to our urology clinic with complaints of hematuria and right flank pain that was ongoing for 20 days. The patient had a 30 pack-year history of smoking. He had no history of previous surgery or chronic illness. Urinary ultrasonography revealed a solid mass with a diameter of 6.7 cm in the right kidney. Magnetic resonance imaging of the abdomen revealed a 7-cm mass in the lower pole of the right kidney (Figure 1). No evidence of metastatic disease was observed. In February 2017, the patient underwent right radical nephrectomy. No complications occurred intraoperatively and postoperatively, and the patient was discharged on the 3<sup>rd</sup> postoperative day. The gross pathological examination revealed an expansile tumor growth in the medulla near the inferior pole of the kidney. The tumor was 8×6×5 cm in size with distinct sharp borders and was classified as stage 2. After the histopathological examination, the 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” (Figures 2 and 3). The patient was evaluated at postoperative 1<sup>st</sup> and 6<sup>th</sup> months. No pathological findings were found in chest X-ray and in abdominal ultrasound imaging at the 6-month follow-up. In February 2018, the patient presented with a left testicular pain that was ongoing for 3 days. A genitourinary system examination revealed a hard mass approximately 2 cm in size that 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. Scrotal ultrasonography revealed a 2-cm sized mass in the lower part of the left testis. The patient underwent left high inguinal orchiectomy. Pathological examination of the testis revealed that the tumor detected in the testis was basically composed of malignant cells similar with those detected in the kidney. The tumor in the testis was diagnosed as “consistent with clear cell variant renal cell carcinoma metastasis” (Figures 4 and 5). The patient's postoperative contrast-enhanced computer tomography of the abdomen and thorax revealed no other metastasis. He was referred to the oncology clinic, and treatment with sunitinib was initiated at a dose of 50 mg/day for 4 weeks followed by 2 weeks without sunitinib treatment (4/2 schedule). After 5 months of sunitinib treatment, he exhibited no evidence of disease progression.



**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 the kidney (black arrows). Intravascular tumor cell groups next to the distal and collecting ducts (white arrows), (magnification x4).

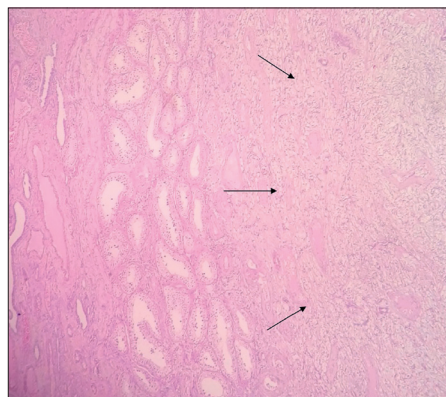


**Figure 3.** Detailed view of the tumor in the kidney. The tumor consisted of pleomorphic cells with irregular nuclei and large pale cytoplasm with indistinct cell borders organized in a nested growth pattern (Magnification x40).

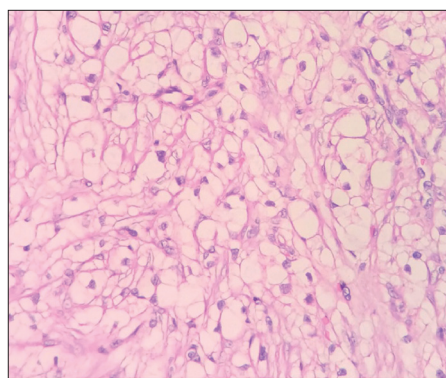
This case report was written after patient consent was obtained.

## Discussion

The scrotum has a relatively low temperature, which creates an unfavorable environment for



**Figure 4.** Low power view of the tumor detected in the testis (black arrows). The tumor infiltrated the testis parenchyma by pushing the seminiferous ducts (Magnification x4).



**Figure 5.** The tumor seen in the testis had a similar appearance to that detected in the kidney; tumor cells with variable small irregular nuclei and large pale cytoplasm organized in nests and trabeculae (Magnification x4).

the development of metastatic tumors [3, 4]. The presence of a blood–testis barrier formed by Sertoli cells plays an indirect role in preventing testicular metastasis [5]. In the series of Pienkos and Jablonski, which included 24,000 autopsies, the incidence of secondary testicular tumors was found to be 0.06%. In the same study, it was reported that the most common cancer types that metastasize to the testes are prostate (43.3%) and lung (15.5%) cancers [6]. In another study, Dutt et al. [7] evaluated 13,500 autopsies, 641 testis biopsies and orchiectomy; they observed that the incidence of secondary testicular neoplasms was 4.6% in the autopsy series and 1.6% in the surgical specimens. Additionally, they observed that the most common cancer type that metastasized to the testes was prostate cancer and the most common pathology in tissue samples was adenocarcinoma. The first testicular metastasis of RCC was reported by Bandler and Roen in 1946 [8]. Ulrich and Young clinicopathologically analyzed 26 nonincidental metastatic testis tumor cases in 2008. They found that 15.3% of the cases had renal cell carcinoma metastasis. In 75% of these patients, the pathologic subgroup

was clear cell carcinoma [9]. Testis metastasis of the RCC typically occurs ipsilateral and frequently affects 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 reported that contralateral testicular spread is extremely rare. It is believed 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 suggest that clinicians should be careful in terms of testicular metastases during clinical follow-up.

**Informed Consent:** Written informed consent was obtained from patient who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept – E.K., D.A., S.K., F.A.D.; Design – E.K., S.K., Ö.G., N.U.; Supervision – E.K., B.S.P., D.A., Ö.G.; Resources – E.K., D.A., B.S.P.; Materials – E.K., F.A.D., D.A.; Data Collection and/or Processing – D.A., B.S.P.; Analysis and/or Interpretation – E.K., B.S.P., F.A.D.; Literature Search – E.K., S.K.; Writing Manuscript – E.K., D.A., Ö.G., F.A.D., N.U.; Critical Review – E.K., D.A., S.K., N.U.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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