

Paratesticular Metastasis of a Clear-Cell Renal-Cell Carcinoma With Renal Vein Thrombus Mimicking Primary Testicular Cancer

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Clinical Practice Points

- Paratesticular metastasis invading the spermatic vessels, but without testicular or epididymal invasion through a retrograde venous spread of tumor cells from a primary renal-cell carcinoma (RCC) with venous involvement, is an absolute rarity, with only 2 published cases in the literature.
- We present the unusual case of a 53-year-old asymptomatic man who was referred to our urologic department with primary suspicion of left testicular cancer.
- Primary left clear-cell RCC with renal vein thrombus, liver and pulmonary metastases, and a paratesticular, spermatic vessels—infiltrating metastasis was confirmed.
- We performed left orchiectomy, tumor nephrectomy with cavotomy, and thrombectomy.
- Adjuvant systemic treatment with sunitinib was initiated.
- Although RCC occurrence within the testicles or scrotum is rare, it should be considered during primary staging or oncologic follow-up, particularly in RCC patients with left renal vein or inferior vena cava thrombus.

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Introduction

Renal-cell carcinoma (RCC) represents 2% to 3% of all cancers and is the third most common urologic malignancy.¹ The incidence of RCC is steadily increasing, especially in developed countries, with 84,400 new cases of RCC and 34,700 cancer-specific deaths in the European Union.² Thirty percent of RCC metastasize in the lung, lymph nodes, bones, liver, adrenal gland, and brain, whereas metastases in the testicles are rarely identified.³ To date, only 33 cases of testicular metastases from RCC have been described in the

literature.⁴ The mechanism of tumor spread of RCC to the testis is unclear and may be explained through a retrograde venous spread via the spermatic vein, promoted by the simultaneous presence of renal vein thrombosis or inferior vena cava (IVC) thrombus.^{3,5}

To our knowledge, this is the third case described in the literature of a pathologically proven ipsilateral paratesticular metastasis from metastatic RCC with renal vein thrombus infiltrating spermatic vessels but without epididymal or testicular invasion.

Case Presentation

A 53-year-old man was referred from a general practitioner to the urologic department with the primary suspicion of a testicular cancer on the left side. Written informed consent was obtained from the patient for publication of this case report and any accompanying images. The patient presented as completely asymptomatic with a good performance status (Eastern Cooperative Oncology Group performance status 0), without fever, sweating, or weight loss in the past. Medical history revealed no preexisting conditions or previous surgery. Interestingly, high-resolution testicular ultrasound revealed normal testicles bilaterally, but standardized A- and B-mode

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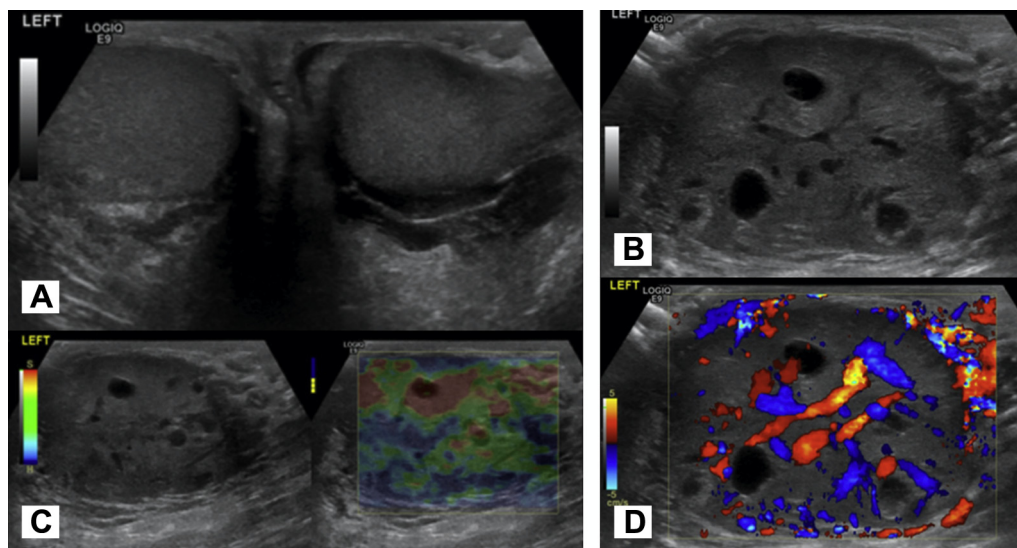
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Paratesticular Metastasis of RCC

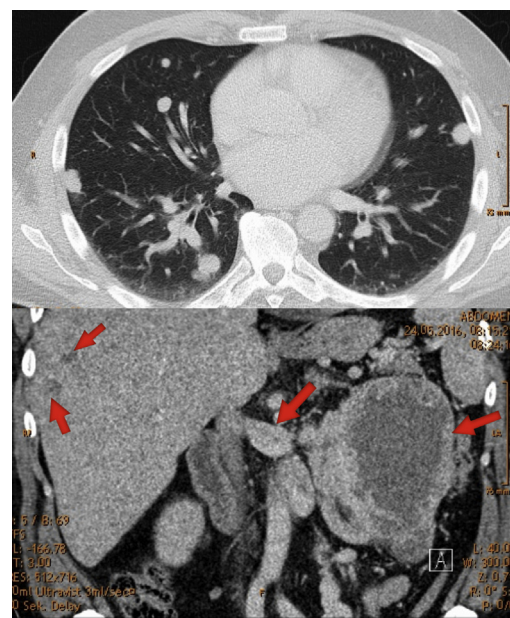
Figure 1 B-Mode Testicular Sonography. Normal Testicles Imaged Bilaterally (A), With Left Paratesticular Lesion of $4.5 \times 4.0 \times 3.5$ cm (B). Real-Time Elastography Revealed Unclear Lesion With Confirmed Reduced Elasticity With Hardened Areas (C). Color and Power Doppler Testicular Ultrasound Were Performed; Hypervascular Intralesional Signals Could Be Reproduced (D)



sonography indicated a left homoechogenic, paratesticular lesion of $4.5 \times 4.0 \times 3.5$ cm with septate cystic inclusions and no evidence of testicular invasion. Hypervascular signs within the unclear mass on baseline color and power Doppler sonography were reproducible. Moreover, the lesion confirmed reduced elasticity with hardened areas during real-time elastography (Figure 1). Preoperative testicular tumor markers (α -fetoprotein $1.8 \mu\text{g/L}$, lactate dehydrogenase 150 U/L , β -human chorionic gonadotropin $< 0.6 \text{ IU/L}$) were within the normal range. Abdominopelvic and chest computed tomography (CT) revealed multiple bilateral lung metastases up to 3 cm, 2 liver metastases on liver segment VIII, and a left septate, central necrotic, marginal contrast agent-absorbing renal mass of $15 \times 11 \times 14$ cm with an IVC thrombus (ending beneath the hepatic veins) (Figure 2).

In view of these findings, we formed a clinical suspicion of an ipsilateral, intrascrotal metastasis from a RCC or urothelial carcinoma of the upper urinary tract. Histologic examination of the left inguinal orchiectomy confirmed our clinically suspected diagnosis: metastasis from a clear-cell renal-cell carcinoma (ccRCC), with no involvement to the testis, tunica, or spermatic cord. However, the tumor was intravaginal and connected directly with the spermatic vein and artery (Figure 3). Subsequently, the patient was treated with an open transabdominal tumor nephrectomy (anterior subcostal chevron incision) with cavotomy and thrombectomy. Intraoperatively, we noticed that the superior extent of tumor thrombus was limited within the renal vein (Figure 4). The operating time was 150 minutes. Blood loss was 450 mL during surgery. An uneventful intra- and postoperative course was observed. Final pathology confirmed ccRCC, pT3b, Fuhrmann nuclear grade III, L0, Nx, V1, Pn0, R1. After wound healing was completed, systemic treatment with an oral tyrosine kinase inhibitor (sunitinib 50 mg daily dose using the 4/2 schedule) was started. According to the Metastatic

Figure 2 Abdominal and Chest CT Scan Showing Multiple Lung Metastases. CT Scan Revealed Multiple Lung Metastases Bilateral, 2 Liver Metastases on Segment VIII, and $15 \times 11 \times 14$ cm Renal Mass With Inferior Vena Cava Thrombus Ending Beneath Hepatic Veins (Arrows)



Abbreviation: CT = computed tomography.

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