

## Late Cutaneous Metastasis of Renal Cell Carcinoma: A Case Report

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### Abstract

**Introduction:** Renal cell carcinoma accounts for approximately 80% of all tumors that affect the kidney. Most cases of renal cell carcinoma show evidence of metastasis at the time of diagnosis, with variation among populations. The most common sites of distant metastasis, in descending order, are the lungs, bones, skin, liver, and brain. We report the case of a young patient with a history of renal cell carcinoma who developed late skin and lung metastases.

**Case Report:** The case occurred in a 45-year-old male. Contrast-enhanced abdominal and pelvic computed tomography revealed a tumor affecting a large portion of the right kidney. Staging was performed and no sign of a secondary implant was observed. The patient underwent video laparoscopic right radical nephrectomy without complication. No adjuvant treatment was administered. Histopathological analysis showed that the tumor was Fuhrman grade 3 clear-type renal cell carcinoma. No indication of extrarenal involvement was observed. Four years after surgery, the patient developed a 1-cm-diameter nodule on the right chin. An excisional biopsy was performed and revealed that the nodule was a cutaneous metastasis of the clear-cell renal carcinoma. After 3 months, the lesion on the chin recurred, presenting the same characteristics as previously. The patient was referred to the Oncology Service, where he began a focal radiotherapy protocol for the pulmonary nodules. He is currently in good general condition with no other sign or symptom.

**Discussion:** The cutaneous metastasis of renal tumors is rare and associated with a poor prognosis. When discovered years after the diagnosis and treatment of the primary tumor, it can be associated with other sites of metastasis, which makes treatment more challenging and the potential for a cure low. Early diagnosis of the primary tumor can help to reduce the development of metastasis and consequently improve patient survival.

### Introduction

Kidney cancer is the third most common cancer involving the genitourinary system, represents 3% of malignancies that affect adults, and affects twice as many men as women [1]. As the triad of symptoms that characterize this pathology (flank pain, hematuria, and palpable abdominal mass) is present in only up to 10% of patients, incidental diagnosis is quite common [2].

Renal cell carcinoma accounts for approximately 80% of all tumors that affect the kidney [1]. Most cases of renal cell carcinoma show evidence of metastasis at the time of diagnosis, with variation among populations. The most common sites of distant metastasis, in descending order, are the lungs, bones, skin, liver, and brain [3]

We report the case of a young patient with a history of renal cell carcinoma who developed late skin and lung metastases.

### Clinical case

The case occurred in a 45-year-old male resident of Rio de Janeiro, Brazil, with psoriasis managed with methotrexate.

In 2020, after an episode of low back pain associated with successive episodes of hematuria, the patient began to be monitored by us. Contrast-enhanced abdominal and pelvic computed tomography revealed a tumor affecting a large portion of the right kidney. No change was noted on physical examination. Staging was performed and no sign of a secondary implant was observed. The patient underwent videolaparoscopic right radical nephrectomy without complication. No adjuvant treatment was administered. Histopathological analysis showed that the tumor was Fuhrman grade 3 clear-type renal cell carcinoma. No indication of extrarenal involvement was observed

Four years after surgery, the patient developed a 1-cm-diameter nodule on the right chin (Figure 1). An excisional biopsy was performed and revealed that the nodule was a cutaneous metastasis of the clear-cell renal carcinoma. Immunohistochemical analysis yielded negative results for carcinoembryonic antigen (CEA) and melanoma antigen recognized by T cells (MELAN A) and positive results for epithelial membrane antigen antibody (EMA) and anti-cytokeratin antibodies AE1/AE3.



**Figure 1:** Cutaneous metastasis of clear-cell renal carcinoma on the right chin (1-cm-diameter).

Restaging was performed based on chest, abdominal, and pelvic contrast-enhanced computed tomography findings. Several scattered nodules with soft-tissue density, possibly corresponding to secondary lesions, were detected in both lungs (Figure 2).



**Figure 2:** Chest contrast-enhanced computed tomography demonstrating several scattered nodules with soft-tissue density, corresponding to secondary lesions, in both lungs.

After 3 months, the lesion on the chin recurred, presenting the same characteristics as previously. The patient was referred to the Oncology Service, where he began a focal radiotherapy protocol for the pulmonary nodules. He is currently in good general condition with no other sign or symptom.

### Discussion

Renal cell carcinoma has a peak incidence between the ages of 50 and 70 years and predominates in males (2:1 ratio) [1]. In recent decades, the evolution of diagnostic methods involving computed tomography and magnetic resonance imaging has led to increases in the numbers of cases diagnosed overall and in early stages of the disease [2]. Despite this improvement in diagnosis, only 65% of cases

present as localized disease; 10–45% of cases are metastatic at the time of diagnosis [3].

Cutaneous metastasis occurs with 11% of the most common kidney tumors, and pulmonary metastasis appears first in 50% of cases [2]. Cutaneous metastases occur due to hematogenous dissemination secondary to the embolization of the renal vein by the tumor [3]. In some patients, the lesions are synchronous with the primary tumor, appearing as the only sign of disease in the absence of urinary symptoms. In 80% of cases, the lesions are metachronous, appearing after radical nephrectomy, necessitating the search for other possible implant sites [4].

The most common site of cutaneous metastasis is the scalp, as with the dissemination of other solid tumors, such as those of the breast and rectum [4]. These tumors usually present as intra- or subcutaneous nodular masses with a firm or elastic consistency and variable coloration, including the brown color seen in the patient described here [3].

Antigens such as EMA detected by immunohistochemical analysis are indicators of a high probability of renal cell carcinoma.

Early surgical resection of skin lesions in patients with kidney cancer is recommended due to the lesions' high growth potential and the risk of bleeding [6]. However, resection tends to not be curative and adjuvant therapy for solitary lesions has no demonstrated benefit. Current guidelines recommend immunotherapy with nivolumab and ipilimumab for patients who have not received previous systemic treatment, as this approach has been shown to improve disease-free survival [7].

The prognosis of renal cell carcinoma is more unfavorable in the presence of a metastasis site in addition to the skin. As seen in the patient in the exposed clinical case, the duration of survival after the diagnosis of metastasis ranges from 3 to 15 months [8].

### Conclusion

The cutaneous metastasis of renal tumors is rare and associated with a poor prognosis. When discovered years after the diagnosis and treatment of the primary tumor, it can be associated with other sites of metastasis, which makes treatment more challenging and the potential for a cure low. Early diagnosis of the primary tumor can help to reduce the development of metastasis and consequently improve patient survival.

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### Conflict of Interests

None declared

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