Renal cell carcinoma with cutaneous metastasis: case report

Abstract
Renal cell carcinoma or hypernephroma is the third most common neoplasia of the genitourinary tract. Its most common type, representing 60% of the cases, is the clear cell carcinoma, with an incidence peak between 50 and 70 years. Metastases are present at the time of diagnosis in approximately 30% of the patients, the major sites being lungs, bones, skin, liver, and brain. We report the case of a male patient with renal cell carcinoma, whose age, clinical findings, and tumor histological type matched with the most common ones for that pathology. Nevertheless, he already had distant metastasis in an uncommon site at the time of diagnosis. The patient died without undergoing specific treatment for renal cell carcinoma.

Keywords: renal carcinoma, cutaneous metastasis.

Introduction
Carcinoma of the kidney, also known as renal adenocarcinoma, renal cell carcinoma, or hypernephroma, accounts for approximately 2% of the cancers in adults, and affects more men than women (1.5:1).4,5,9,10 Renal clear cell carcinoma is its most frequent type.9 It is the third most common neoplasia of the genitourinary tract, after prostate and urinary bladder tumors. At diagnosis, one third of the patients usually have distant metastases. The most common sites are lungs (50%), bones (33%), skin (11%), liver (8%), and brain (3%).4,6,7 We report the case of a male patient with renal cell carcinoma, whose age, clinical findings, and tumor histological type matched with the most common ones for that pathology. Nevertheless, he already had distant metastasis in an uncommon site at the time of diagnosis.

Clinical Case
The patient was a 61-year-old retired metallurgist male living in the city of São Paulo, who had diabetes mellitus and congestive heart failure. He was admitted to the emergency department of the Hospital Ipiranga complaining of pain in the right flank, which had started five months before and was accompanied by weight loss of 10 kg and appearance of tumors in the scalp, dorsum, and face. On physical examination, several nodules of varied sizes, purplish color and fibroelastic consistency were observed in the regions cited above. The patient reported that, at symptom onset, he sought medical care, when ultrasound of the abdomen, kidneys and urinary tract showed a nodule in the right kidney. Then, a computerized tomography of the abdomen and pelvis showed an expanding process in the right kidney, with irregular outline and inner calcification, measuring 6.0 x 4.0 x 5.0 cm, and significantly evidenced upon contrast injection. In addition, a pleural nodule in the base of the left lung and an adjacent retroperitoneal nodule were observed. The patient was referred to the Urology department of the same hospital, and total right nephrectomy was programmed. The patient was hospitalized for elective surgery, which was suspended due to atrial fibrillation that caused heart failure decompensation. Then, the scalp nodule was excised and sent to pathology. The biopsy showed histology compatible with metastasis of...
Renal cell carcinoma. After two months, the patient sought the Hospital Ipiranga again, complaining of severe dyspnea, inappetence and lower limb edema. The chest radiography showed a significant pleural effusion to the right and multiple pulmonary nodules. The patient was admitted due to a picture of decompensation, and diagnostic thoracocentesis with pleural biopsy was performed. The effusion was hemorrhagic, but was characterized as transudate. The pleural biopsy showed only an inflammatory pattern. Despite all measures, the patient developed acute respiratory failure and died, without undergoing specific treatment for renal cell carcinoma.

**Discussion**

Renal cell carcinoma has its incidence peak between 50 and 70 years of age (mean age, approximately 66 years) and prevails in the male sex (2:1). In the past 25-30 years, its incidence increased considerably partially due to the improvement in imaging diagnosis, being currently around 2 to 10 cases/100,000 inhabitants/year. Its major etiologies are as follows: tobacco, cystic disease, tuberous sclerosis, and von Hippel-Lindau syndrome. The major type of renal cell carcinoma is that of clear cells, representing 60% of the cases. The initial clinical findings comprise hematuria (60%), lumbar pain (40%), and palpable flank mass (30-40%). In addition, the following may be found: fever, weight loss, anemia, varicocele, and paraneoplastic syndromes (5%) characterized by erythrocytosis, hypercalcemia, liver dysfunction, and amyloidosis. The classic triad comprising abdominal mass, hematuria, and pain is present in only 10% of the cases, and usually in more advanced stages with poor prognosis. The diagnosis is established through image tests, such as ultrasound and computed tomography of the abdomen, with diagnosis sensitivity of 79% and 94%, respectively, in addition to chest X-rays, urinalysis and urinary cytology. Magnetic resonance imaging is indicated when involvement of the vena cava or its invasion by a thrombus is suspected. The most common sites of metastases are as follows: lungs (50%), bones (33%), regional lymph nodes and skin (11%), liver (8%), adrenal gland and brain (3%).

Regarding the cutaneous metastasis of renal cell carcinoma described in the literature, the most common site was the scalp, followed by the abdominal region. The scalp is a frequent site of cutaneous metastasis of distant primary tumors. It is the major or sole site of metastases originating from several organs, such as rectum, breast, lung, uterus, prostate, testis, urinary bladder, and kidney. In men, the primary tumor of a scalp metastasis is frequently located in the lung or kidney, as in the clinical case reported. In women, the primary tumor of a scalp metastasis is frequently located in the breast. Krumerman & Garret may have explained this fact by stating that highly angioinvasive tumors, such as lung and renal cancers, tend to originate unlimited, early metastases, with an unpredictable pattern of location, usually far away from the primary tumor. The most frequent clinical appearance of cutaneous metastases is that of intra- or subcutaneous, round or oval, nodular masses, of firm or elastic consistency, and highly varied color, ranging from normal skin color, bluish red or purplish, similar to that of our patient, to dark brown.

Regarding the histopathology of renal clear cell carcinoma, the tumor cells are polyedric with abundant cytoplasm, atypical nucleus, and evident nucleolus. In the metastatic dermal lesion, the nodular tumor is covered by atrophic epidermis, with tumor cells of vacuolar appearance, clear cytoplasm, mild lymphocytic inflammatory infiltrate, abundant capillary formation, and some trabecular areas. A small epidermal invagination delimits the lesion from the normal dermis.

Some protein antigens are evidenced by use of immunohistochemistry, such as the epithelial membrane antigen (EMA), vimentin, keratin, and carcinoembryonic antigen (CEA). The positive results with vimentin, EMA, and keratin are high-probability indicators of renal cell carcinoma.

The differential diagnoses of renal lesions are as follows: angiomylipoma; transitional cell carcinoma of the renal pelvis; adrenal gland tumor; and renal abscess. Regarding the cutaneous lesion, the differential diagnoses are as follows: sebaceous carcinoma; sweat gland tumor; and melanoma. In the absence of metastases, surgical removal of the affected kidney and lymph nodes provides a good probability of cure. When the tumor has already invaded the renal vein or the vena cava, but has not produced distant metastases, surgery may provide a chance of cure. However, renal cancer has a tendency to early dissemination, especially to the lungs. When renal cancer has already produced metastases, its prognosis is poor, because it can be cured with neither radiation therapy, nor traditional antineoplastic drugs (chemotherapy), nor hormones. Our patient died without undergoing specific treatment for renal tumor.
REFERENCES