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(CASE REPORT)

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CUTANEOUS METASTASES AS THE FIRST PRESENTATION OF POORLY DIFFERENTIATED RENAL CELL CARCINOMA: A CASE REPORT

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ABSTRACT

Renal cell carcinoma (RCC) exhibits a propensity for unusual and widespread metastasis. Cutaneous metastasis from RCC is a rare and poorly recognized clinical entity. We present a case of scalp and abdominal cutaneous metastases initially mimicking benign cutaneous lesions as the first clinical presentation of poorly differentiated RCC in a 74-year-old male patient.

The patient presented with a painless ulceroproliferative scalp mass evolving for six months, associated with a painless left flank abdominal mass evolving for three months. Apart from these lesions, no other significant clinical findings were noted. Because of their isolated cutaneous presentation and the patient's preserved general condition, the lesions were initially suspected to be benign. An excisional biopsy of the scalp lesion and a biopsy of the abdominal lesion were therefore performed before radiological assessment and before the diagnosis of the renal tumor. Histopathological examination unexpectedly revealed a poorly differentiated carcinomatous process with clear cell features. Subsequent computed tomography showed a large heterogeneous necrotic right renal mass measuring approximately 10.0 × 7.0 × 18.0 cm, associated with pulmonary, lymph nodal, osseous, subcutaneous, and probable peritoneal metastatic disease. Immunohistochemistry showed diffuse CK AE1/AE3 expression and moderate diffuse CD10 expression in about 50% of tumor cells, favoring renal origin when correlated with radiological findings. No treatment had been initiated at the time of writing, and the patient was referred to a multidisciplinary tumor board for therapeutic decision.

Cutaneous metastasis may be the first sign of disseminated RCC and may initially mimic benign skin lesions. Any atypical, progressive, ulcerated, or multiple cutaneous lesions should raise suspicion of metastatic disease.

Keywords: Renal cell carcinoma (RCC), Poorly differentiated carcinoma, Cutaneous metastasis, Case report

1 INTRODUCTION

Cutaneous metastasis of renal cell carcinoma (RCC) is a rare clinical entity mostly presented in case reports. RCC is known for its heterogeneous behavior and its ability to metastasize to unusual sites. The most common metastatic sites include the lungs, bones, lymph nodes, liver, adrenal glands, and brain.

Skin metastases may occur during the course of a known RCC, but they can also be the first clinical manifestation of an occult renal malignancy. Their clinical presentation is variable and may include subcutaneous nodules, ulcerated masses, inflammatory lesions, or rapidly growing vascular tumors. Because of their rarity and nonspecific appearance, they may initially be misdiagnosed as benign cutaneous or subcutaneous lesions.

Herein, we present a case of scalp and abdominal cutaneous metastases initially suspected to be benign lesions, revealing a widely metastatic poorly differentiated RCC in a 74-year-old male patient.

2 CASE PRESENTATION

A 74-year-old male patient, with a medical history of type 2 diabetes mellitus treated with oral antidiabetic drugs and hypertension treated with monotherapy, presented with two cutaneous lesions: an ulceroproliferative scalp mass and a left flank abdominal mass.

The history of the disease dated back to six months before presentation, with the progressive appearance of a painless ulceroproliferative lesion of the scalp, located in the left parietal region. Three months later, the patient noticed a second lesion in the left flank region, progressively increasing in size.

Physical examination showed a patient in good general condition. The scalp examination revealed a painless ulceroproliferative mass of the left parietal region. Abdominal examination revealed a painless left flank mass measuring approximately 3 cm in its largest diameter. The lesion was mobile relative to both the overlying skin and deep planes, with overlying inflammatory skin changes. No other clinical signs associated with the cutaneous lesions were found. No laboratory workup was performed at the time of evaluation.

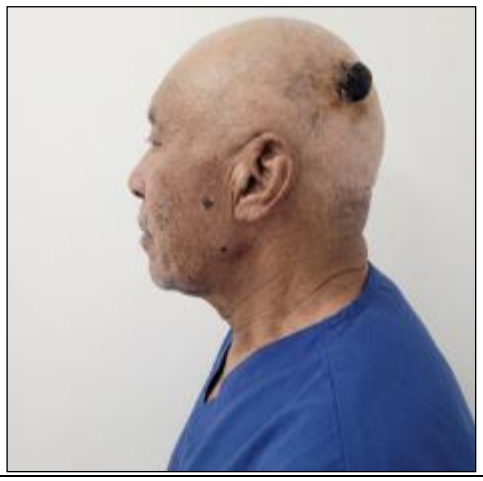

Figure 1: Ulceroproliferative scalp lesion of the left parietal region.

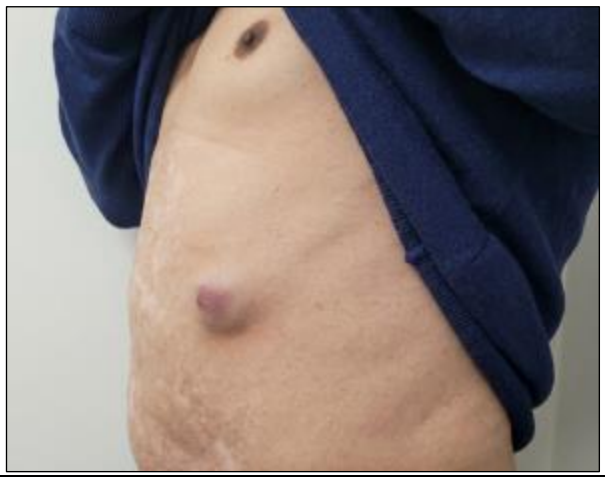

Figure 2: Left flank abdominal cutaneous mass

Because of the isolated cutaneous presentation and the patient's preserved general condition, the lesions were initially thought to be benign cutaneous or subcutaneous lesions. An excisional biopsy of the scalp mass and a biopsy of the abdominal mass were therefore performed before radiological assessment and before the diagnosis of the renal tumor.

Histologically, the scalp lesion showed a cutaneous tissue in which the hypodermis was infiltrated by a tumor proliferation arranged in trabeculae, nests, and cords. The tumor cells were medium-sized and atypical, with irregular hyperchromatic mitotic nuclei and abundant clear cytoplasm. Some mitotic figures were observed. The stroma was delicate and vascular. Foci of tumor necrosis were present.

The abdominal biopsy showed the same tumor proliferation as described in the scalp lesion.

Immunohistochemical examination showed intense and diffuse expression of CK AE1/AE3. CD10 expression was moderate and diffuse, involving approximately 50% of tumor cells. The tumor cells were negative for CK7, CK20, CK5/6, PS100, chromogranin, synaptophysin, CDX2, PAX8, and TTF1.

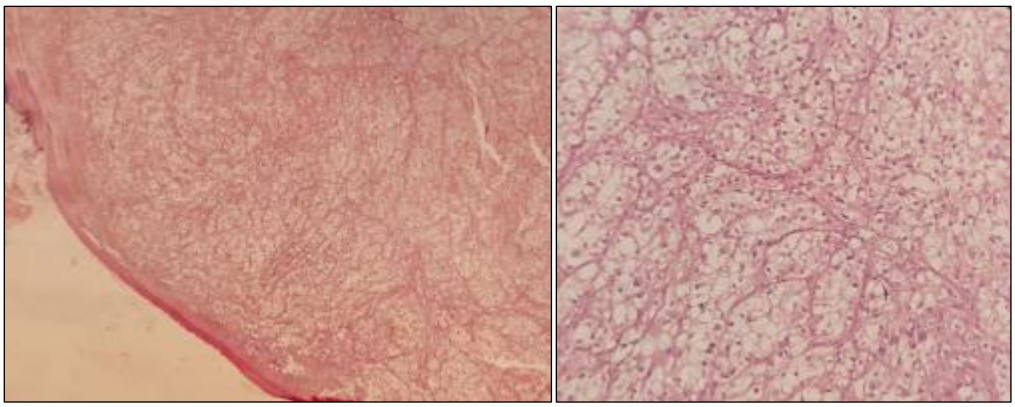

Figure 3: Histological examination showing cutaneous infiltration by a poorly differentiated clear cell carcinoma

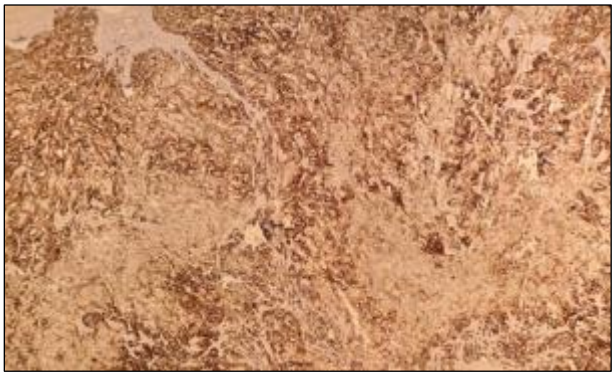

Figure 4: Immunohistochemical staining showing diffuse CK AE1/AE3 expression.

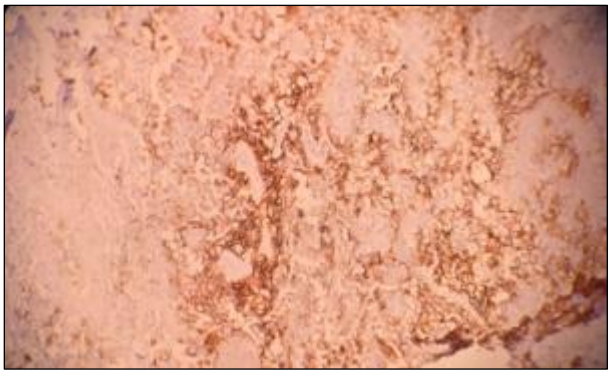

Figure 5: Immunohistochemical staining showing moderate diffuse CD10 expression.

The conclusion was consistent with cutaneous localizations of a poorly differentiated carcinomatous process involving the scalp and abdominal lesion.

This unexpected diagnosis of a malignant epithelial tumor prompted further radiological assessment to identify the primary tumor and evaluate disease extension.

Computed tomography of the brain, neck, chest, abdomen, and pelvis was performed for staging. It revealed a large right renal tissue mass, ill-defined, irregular, lobulated, and heterogeneously enhanced after contrast injection, containing central necrotic areas. The mass measured approximately 10.0 × 7.0 × 18.0 cm. The tumor had close contact with adjacent structures, including the right colic angle, duodenum, right colon, right psoas muscle, and latissimus dorsi muscle, with loss of the fat cleavage plane in some areas. Mesenteric fat infiltration was also noted.

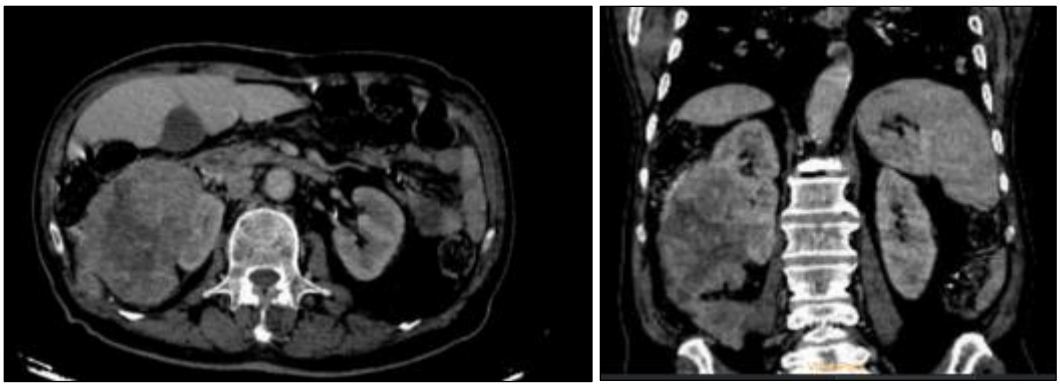

Figure 6: CT scan showing the large heterogeneous right renal mass.

Thoracic CT showed multiple bilateral pulmonary nodules and micronodules, some with irregular contours, producing a cannonball-like metastatic pattern. The largest lesion was located in the left upper lobe and measured approximately 4.0 × 3.8 cm. Multiple mediastinal lymph nodes were also observed, the largest being located in the Barety space and measuring 2.8 cm in short axis.

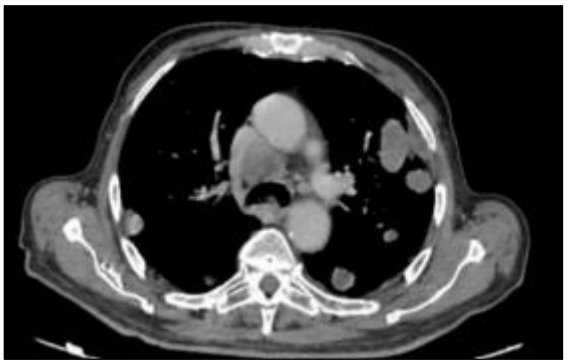

Figure 7: CT scan showing multiple pulmonary metastatic nodules.

The abdominal and pelvic CT showed multiple deep lymphadenopathies, including interaortocaval, retroperitoneal, paraaortic, celiac-mesenteric, and inguinal lymph nodes. Nodular thickening of the right peritoneal leaflets and a right retroperitoneal nodule were also noted, suggestive of probable peritoneal metastatic involvement.

A well-defined enhancing subcutaneous mass of the left anterolateral soft tissues was identified, measuring approximately 1.9 × 3.6 cm. This lesion corresponded to the clinically palpable left flank mass.

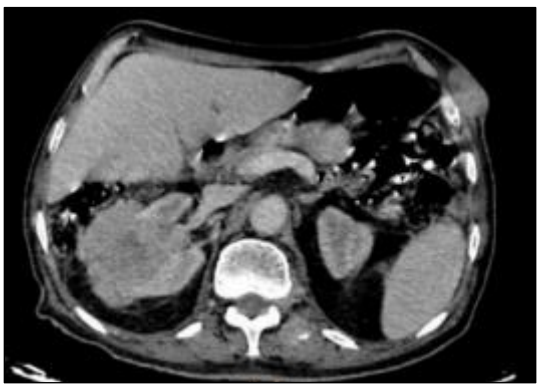

Figure 8: CT scan showing the left flank subcutaneous metastatic lesion.

Bone window analysis revealed multiple osteolytic lesions, including a right frontal bone lesion, dorsal spine lesions at T2-T3, a T12 vertebral body lesion, spinous process lesions of L3 and L5, and a right pubic bone lesion. The T2-T3 and T12 lesions were associated with endocanal extension.

The radiological conclusion was consistent with a large right renal tumor associated with lymph nodal, pulmonary, osseous, subcutaneous, and probable peritoneal metastases, radiologically classified as T2bN1M1.

The overall morphological and immunohistochemical findings were consistent with cutaneous localizations of a poorly differentiated clear cell carcinoma. Although PAX8 was negative, the association of clear cell morphology, CD10 positivity, and the presence of a large metastatic right renal tumor on CT favored a renal origin.

No systemic treatment, radiotherapy, or surgery for the renal tumor had been initiated at the time of writing. The patient was referred to a multidisciplinary tumor board for therapeutic decision.

3 DISCUSSION

Metastatic RCC constitutes a significant proportion of newly diagnosed renal cancers [1]. RCC is characterized by unpredictable metastatic behavior and may involve unusual sites. Bianchi et al. reported the most common sites of metastasis for RCC to be the lungs, followed by bone, lymph nodes, liver, adrenal glands, and brain [2]. Cutaneous metastasis of RCC remains a rarely diagnosed clinical entity, with most available data limited to isolated case reports and small series [3, 4].

Cutaneous metastases from RCC may present as painless subcutaneous nodules, rapidly growing masses, ulcerated lesions, inflammatory lesions, or hemorrhagic tumors [5]. Their clinical appearance is not specific and may mimic benign cutaneous or subcutaneous lesions such as lipomas, cysts, abscesses, hematomas, or primary skin tumors. This nonspecific presentation can delay the diagnosis, especially when the patient has no known history of malignancy.

In our case, the diagnostic sequence was unusual. The scalp and abdominal lesions were initially considered benign cutaneous or subcutaneous lesions because the patient was in good general condition and had no other significant clinical findings. Therefore, an excisional biopsy of the scalp lesion and a biopsy of the abdominal lesion were performed before any radiological assessment and before the diagnosis of the renal tumor. Histopathological examination unexpectedly revealed a poorly differentiated carcinomatous process with clear cell features. This result prompted staging CT, which then revealed the large right renal tumor and disseminated metastatic disease. This sequence highlights the importance of histological examination even when a cutaneous lesion appears clinically benign or isolated.

The scalp is one of the reported sites of cutaneous metastasis from RCC, probably because of its rich vascular supply [3, 5]. Abdominal and flank cutaneous localizations have also been reported. In the present case, the patient had two cutaneous lesions: a painless ulceroproliferative scalp mass evolving for six months and a painless left flank abdominal mass evolving for three months. These lesions were the first clinical manifestation of the underlying disseminated malignancy [6].

Radiological assessment played a key role in identifying the primary tumor and evaluating disease extension. The CT scan demonstrated a large necrotic right renal mass associated with pulmonary, lymph nodal, osseous, subcutaneous, and probable peritoneal metastatic disease. The left flank subcutaneous mass seen on CT corresponded to the clinically palpable abdominal lesion, supporting its metastatic nature.

Histopathology remains essential for diagnosis. In our case, both the scalp and abdominal lesions showed a poorly differentiated clear cell carcinoma arranged in trabeculae, nests, and cords, with tumor necrosis. Immunohistochemistry showed diffuse CK AE1/AE3 expression, confirming the epithelial nature of the tumor, and CD10 positivity, which supported renal origin in the appropriate clinical and radiological context. CK7, CK20, CK5/6, PS100, chromogranin, synaptophysin, CDX2, and TTF1 were negative, making squamous, melanocytic, neuroendocrine, digestive, and pulmonary origins less likely.

PAX8 is a useful marker for renal origin; however, it was negative in this case. Therefore, the diagnosis should be interpreted with caution. Nevertheless, the presence of a large metastatic right renal tumor, the clear cell morphology, and CD10 positivity favored a diagnosis of cutaneous metastases from probable poorly differentiated RCC.

Management of metastatic RCC depends on the patient's performance status, tumor burden, histological subtype, prognostic risk group, and available therapeutic options. Treatment may include systemic therapy, immunotherapy, targeted therapy, radiotherapy for symptomatic or threatening bone lesions, surgical procedures in selected cases, and supportive care. In our case, no treatment had yet been initiated, and the patient was scheduled for discussion in a multidisciplinary tumor board.

4 CONCLUSION

In this report, we present a rare case of scalp and abdominal cutaneous metastases initially mimicking benign lesions as the first clinical presentation of probable poorly differentiated RCC.

Cutaneous metastasis from RCC is uncommon and is usually associated with advanced metastatic disease. This case is notable because the diagnosis of malignancy was first suggested by histopathological examination of cutaneous lesions before radiological identification of the renal tumor. Any atypical, progressive, ulcerated, or multiple cutaneous lesions should therefore be biopsied, even in the absence of systemic deterioration or known malignancy.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of informed consent

Written informed consent was obtained from the patient and his family for publication of this case report and its associated clinical, radiological, and histopathological images.

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