

Metastasis to the scalp as the first finding of Clear Cell Carcinoma of the Kidney: Case Report and Review of the Literature

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Abstract

The case of a 70-year-old man, with no previous pathological history, who consulted for post-traumatic injury to the scalp; it was managed as a benign lesion and it was taken to surgical resection with a histopathology and immunohistochemistry study compatible with clear cell neoplasia of metastatic renal origin. Extension studies were performed with findings of pulmonary nodules that suggested metastatic disease and with a finding of right renal mass. Radical nephrectomy is performed confirming the diagnosis of renal cell carcinoma subtype clear cells.

A review of the literature was carried out, which shows that a skin lesion may be the first symptom of an internal neoplasm, with breast cancer being the most frequent one reported in the literature in cutaneous metastases. The finding of a post-traumatic injury to the scalp as the first sign of a clear cell carcinoma of renal origin is very rare. The diagnosis of skin metastases requires a histopathology and immunohistochemistry study, which must be timely because it may be the first link in the research chain to detect an occult neoplasm. In conclusion, the surgeon who faces a soft tissue tumor on the scalp must consider the characteristics of the lesion, the patient's risk factors in an articulated way that allows him to suspect malignancy in a skin lesion and that allows him to diagnose a previously unknown and asymptomatic neoplasm.

Introduction

Renal cell carcinoma (RCC) covers 2-3% of solid malignant tumors in adults, it is in the third order of frequency of genitourinary cancer, with prostate cancer being the first place followed by cancer of the bladder [1,2]. Within the RCC, the clear cell subtype represents more than half of the cases. Although RCC metastasizes in 25-30% at the time of diagnosis, skin metastases are rare, and even more so as the first finding of RCC. Scalp injuries require medical attention, as they may be the first sign of an internal malignancy [1].

We present the case of a 60-year-old male patient, with no previous pathological history, who debuted with a post-traumatic nodular lesion on the scalp, which was initially managed as a hematoma and later as a pyogenic granuloma.

He is taken by the General Surgery service to resection of the lesion, with a pathology report that suggests clear cell neoplasia of metastatic renal origin. Imaging studies confirm renal neoplasia and associated lung metastasis. Radical nephrectomy is performed confirming the diagnosis.

Case Presentation

This is a 60-year-old man, of Colombian origin, who arrives at the General Surgery service, referred for a nodular lesion that appears

after a blunt trauma of one month's evolution, on the left coronal region of the scalp. It was initially managed as a post-traumatic hematoma and later as a pyogenic granuloma. It was drained by General Medicine on two occasions. However, it reappears in time within a month. Upon review by systems, he denied symptoms. He had no pathological history he had previously undergone a right axillary lipoma resection. Exposure to cigarette with 6 packs per year. Family history, in his mother of non Hodgkin lymphoma, father with high blood pressure and brother with cerebral aneurysm. On physical examination, he was overweight. On the scalp, raised, nodular, violaceous, fixed and irregular lesion with a fleshy appearance, 2x2cm in diameter, which contained a hematic substance inside. Without any other positive finding. He is taken to ambulatory surgery for resection and primary closure under local anesthesia. The pathology report shows skin in the dermis of which a neoplasm consisting of trabeculae of cells with a large clear cytoplasm is identified, on a prominent vascular web. Immunohistochemical studies show reactivity in the PAX8, EMA tumor population. There is no reactivity with CD10N or RCC. Findings suggesting clear cell neoplasia of metastatic renal origin.

In the extension studies, contrast CT of the abdomen that shows a right renal mass of 104x 99x 120 mm stands out, heterogeneous that involves the parenchyma of the upper pole that shows enhancement

with the contrast and presents a necrotic component central. On the other hand, contrast CT of the chest shows lung nodules bilateral multiples with soft tissue density and partial or complete calcifications suggesting metastatic disease. Total Body Bone Gammagraphy and skull tomography were negative for metastasis. It was valued by a multidisciplinary team that includes oncology, dermatology, urology, oncological plastic surgery. He is thus led to radical nephrectomy whose pathology confirms clear cell carcinoma. Six months after diagnosis, the patient is in follow-up, with new lesions on the scalp and the presence of a chronic cough.

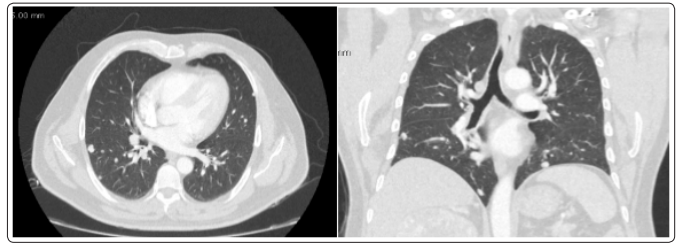


Figure No 3A

Figure No 3B

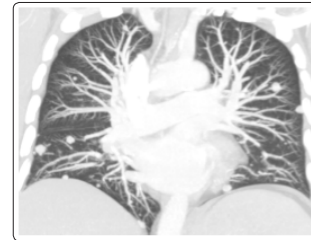


Figure No 3C

Figure No 3: Contrasting chest CT. Nodular lung lesions

A. Axial section, B. Coronal reconstruction, C. Projection at maximum signal intensity (MIP). Evidence of multiple randomly distributed solid lung nodules with metastatic characteristics.



Figure 1A

Figure 1B

Figure No 1: scalp skin

A. Recurrent lesion on the scalp before radical nephrectomy, with similar characteristics to the initial injury. Nodular, 1.5 cm in diameter, violet, hard, fixed and painless, fast growing that increased to 4 cm in 4 weeks. Located on the scalp, mastoid portion of the right temporal bone. B. Resection scar from initial lesion on the scalp, sunken, pearly 2cm in diameter over the coronal region of the scalp.

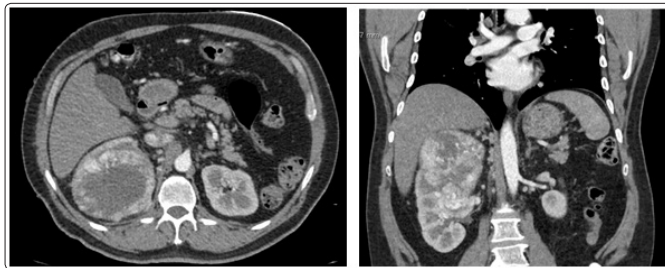


Figure No 2A

Figure No 2B

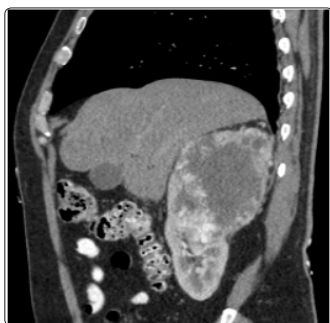


Figure No 2C

Figure No 2: Abdominal CT

A. Axial section B. Coronal section C. Sagittal section. There is evidence of a 104x 99x1 20mm right renal mass, heterogeneous that involves the parenchyma of the upper pole, showing contrast enhancement and presenting a necrotic component central.

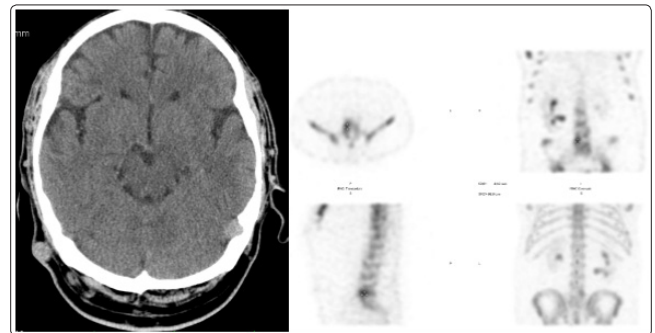


Figure No 4A

Figure No 4A

Figure No 4: Other extension studies

A. Brain CT: 1 cm metastatic lesion is observed in the subcutaneous tissue, superficial to mastoid, without intraaxial lesions in the brain parenchyma. B. Total Body Bone Gammagraphy: negative for metastatic disease, with a finding in L5-S1 that suggests Spondyloarthrosis.

Discussion

RCC is the third genitourinary cancer in order of frequency, it has a higher prevalence in men than in women, with an increased incidence at 50-70 years of age [1,2]. It presents subtypes such as papillary cancer, oncocytic chromophobe and clear cell cancer, the latter representing the majority in 60% [1]. The risk factors associated with this pathology are: smoking, obesity, cystic kidney disease, tuberous sclerosis [1]. In the exposed case, the patient meets the demographic characteristics described in the literature, with factors such as overweight and previous cigarette exposure.

RCC patients develop metastases in approximately 30% of cases [3]. In a review of skin biopsies in Mexico, the metastatic skin lesions are located mainly on the trunk and represent, in the first place, a primary breast tumor in 17.5% and in 7.5% primary renal tumors [1]. These data are close to that reported in the literature, where RCC is the primary tumor of 6-6.8% of cutaneous metastases. However, head and neck metastases are rare (1-3%), with no data specifically indicating the scalp [1]. These lesions may be a sign of recurrence or become the first clinical manifestation of RCC. In our case, the patient had no urinary or abdominal symptoms, nor symptoms of synchronous metastasis to the lung, leaving the skin lesion as the first sign of renal tumor disease [1].

Its clinical characteristics are versatile, frequently erythematous, nodular, firm and painless lesions, initially unique, that require a high degree of suspicion, especially if it has a rapid growth pattern and does not respond to conventional treatment, since it is documented up to 10% of skin metastases can be diagnosed without prior knowledge of the disease [1]. Initially, the diagnoses seem to coincide in being a hemangioma, as well as pyogenic granuloma and Kaposi's sarcoma, it must also be differentiated from benign primary cutaneous tumors such as epidermal cysts or dermatofibromas, as well as malignant ones such as melanoma, angiosarcoma, BCC (basal cell carcinoma), among others [1]. The surgeon faces suspicion of metastatic lesions of organs such as the rectum, breast, lung, uterus, prostate, testicles, bladder, and kidney [2].

The skin metastasizes due to hematic, lymphatic and contiguous dissemination, reviewing the literature coincides that RCC is highly vascularized and its main route of dissemination is hematogenous [4]. In order of frequency, it spreads to 50% lung, 33% bone, 11% skin and lymph nodes, 8% liver, and 3% adrenal and brain [1].

In the context of our patient, he presents cutaneous metastases to the scalp with clinical characteristics of nodular, fleshy-violet lesions that coincide with those described in the literature. However, it was initially considered to be a benign post-traumatic injury that led to surgery without suspicion of malignancy.

That is why, before a patient who comes to surgery for resection of the mass in the scalp, the surgeon must consider variables such as its evolution time (rapidly progressive), clinical characteristics such as: location, morphology, consistency, limits, as well as what risk factors and other associated symptoms. The surgeon must biopsy this lesion when suspicion of malignancy is found, the histopathological and immunohistochemical diagnosis must be established promptly, since they may represent a first sign of internal neoplasia.

Clear cell carcinoma has histological characteristics including: apparent vacuolization, clear cytoplasm, slight lymphocytic infiltrate, high vascularity, and trabecular areas [5]. In pathological anatomy, the trabecular pattern is also found in hepatocellular carcinoma (3). On the other hand, immunohistochemistry is 60% positive for Vimentin, EMA, CEA, CD 10, RCC [2]. Indicating a high probability of RCC, additionally positive for PAX 8 which is present in thyroid, urogenital and placental cancer [6]. Given that metastatic nodular carcinoma of the breast is the most frequent clinical presentation before cutaneous metastases, the CK7 and CK 20 populations are used, which are positive for the first population and negative for the corresponding second in breast carcinoma [4].

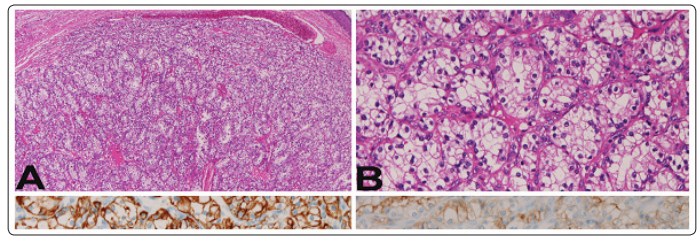


Figure 5A

Figure 5B

Figure No 5: Pathological findings in skin. Figure taken from Terada, T (3)

A. Low power view B. High power view.

Apparent vacuolization, clear cytoplasm, mild nuclear atypia, mild lymphocytic infiltrate, high vascularity, and trabecular areas with a pseudoglandular pattern.

In our case, the histological characteristics for a clear cell carcinoma coincide, in the immunoreactivity it was positive in the PAX8 and EMA population, which leads to a high probability of metastatic clear cell renal cancer [2]. However, it is noteworthy that there was no reactivity for CD 10, this because this marker is not considered kidney specific, it is positive in melanomas and digestive tumors [3], therefore, positivity should not be expected in all cases of RCC. The tumor marker Protein S100 and HMB4S is also of diagnostic utility to differentiate melanoma [3]. It is concluded that cytokeratin markers, such as the positive EMA of our patient, show the epithelial nature of the tumor and allow the identification of cutaneous metastases. Vascular tumors are not positive for cytokeratin markers [3].

In general, the prognosis of metastatic RCC is poorer than that of non-metastatic, a survival duration has been considered in patients with skin metastases of 12 months after diagnosis, but survival of up to 72 months has been reported [7]. The treatment of cutaneous metastases depends on the extension, as well as if you have synchronous metastases in other sites, such as in our case scalp and lung.

So they can benefit from systemic treatment plus resection of the piece [7]. The use of anti-angiogenic agents or multi-kinase inhibitors are used according to the literature to decrease the size of metastases. Thus, Pazopanib is the first line or Nivolumab and Ipilimumab as an alternative [7].

Conclusion

RCC patients develop metastases in approximately 30% of cases. Skin metastases are rare and may be the debut sign of previously unknown RCC. Knowledge of this type of clinical case presentation allows doctors to be alert to an apparently benign skin lesion. Although most skin metastases manifest in the trunk and are primarily of primary breast origin. The scalp has been reported as a site of metastasis from renal cell carcinoma, therefore the study of histology and immunocytochemistry of these lesions is crucial.

In this context, the findings obtained by the pathological study initiate the chain of investigation of a hidden internal malignancy. There is not enough published information on metastasis to the scalp of CRC, therefore it is necessary to be alert and report it in the literature.

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