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Axillary skin metastasis of renal cell carcinoma—Case report



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ABSTRACT

INTRODUCTION: Metastatic diseases are seen in approximately 25% of all cases with renal cell carcinoma and sometimes they can appear in unusual sites.

CASE PRESENTATION: We present a 35-year old patient with a painful left axillary mass which causes the functional impairment of the left arm. The axillary mass appeared 2 years after the nephrectomy performed for a left renal cell carcinoma. Numerous metastases have been identified through CT scans during the postoperative evolution of the disease for which the patient underwent adjuvant therapy with tyrosine-kinase inhibitors.

DISCUSSIONS: Particular to our case is not just the rare metastatic site but also the fact that the tumor appeared despite the adjuvant therapy with tyrosine-kinase inhibitors. Unfortunately, the prognosis of metastatic RCC with skin metastasis is in most cases unfavorable.

CONCLUSIONS: We believe that our case could add more information to subsequent measures, complete the frame of rare oncologic cases and consolidate the data published on the topic so far.

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1. Introduction

Renal cell carcinoma (RCC) accounts for approximately 2–3% of cancers, with a worldwide increasing incidence of about 2% per year. 90% of all cases of renal cell carcinoma are represented by clear cell carcinoma, which has a 91% chance of 5-year cancer specific survival rate for T1 RCC, which decreases to 32% for T4 RCC [1]. Metastatic diseases are seen in about 25% of cases of renal cell carcinoma and sometimes occur as first manifestations of the disease. The most common sites for metastasis after RCC are as follows: lungs, lymph nodes, bones, liver, brain and the adrenal glands [2,3]. Skin metastases of renal cell carcinoma are very rarely seen (1–3.3%) and they usually occur as a late manifestation of the disease [2,4]. The usual sites for skin metastases quoted in the medical literature are the head (scalp), the neck and the trunk [4]. We report the case of a male patient with axillary skin metastasis of clear RCC which appeared 2 years after nephrectomy.

2. Case presentation

We present a 35-year old patient hospitalized for left axillary pain and functional impotence of the left arm, due to a red protrusive

skin tumor of 4/3 cm. The patient is known in our clinic for a left kidney tumor (clear cell carcinoma – T3aN0M0) with a thrombus in the left renal vein diagnosed two years before. At that time, the patient underwent left radical nephrectomy, performed through a peritoneal approach. The patient was closely monitored postoperative and one year later, a CT scan revealed multiple left pulmonary lumps located in the vicinity of the pleura, ranging from 5 to 17 mm in size. The patient's case was classified in the intermediate-risk group according to the Memorial Sloan-Kettering Cancer Center (MSKCC) Risk Group [1] and immediately benefited of tyrosine-kinase inhibitors (Sunitinib – Sutent). He was closely re-assessed through clinical and imaging examinations every 6 months.

From a clinical point of view, the tumor is described as brown-reddish with a firm consistency, mobile to the deep tissues and with a normal temperature at surface. The axillary ultrasound reveals a left tumor of 44/35/29 mm, with solid consistency and many vascular branches noticed by means of Doppler module (Figs. 1 and 2).

The current chest CT scan reveals multiple lung nodules located in the left inferior lobe, with significant progression (34/44 mm compared to 25/20 mm in the last examination – six months earlier), atelectasis of the anterior inferior pulmonary segment and multiple mediastinal lymph nodes, also with significant dimensional progression. Multiple lymph nodes located laterally to the aorta with dimensions of approximately 34/33 mm are revealed in the abdominopelvic cavity, along with an enlarged right hepatic

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Fig. 1. Axillary metastasis – macroscopic inspection.

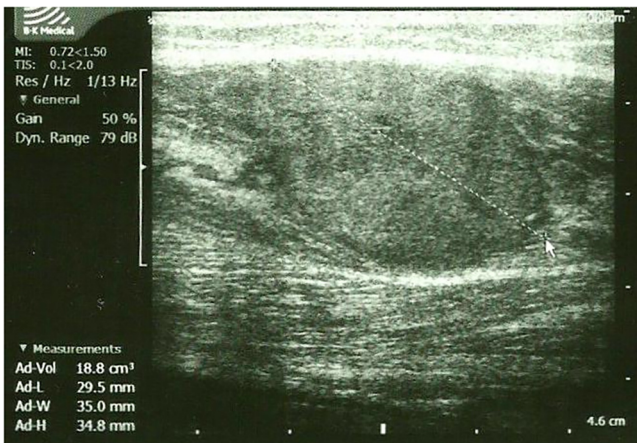


Fig. 2. Axillary metastasis – ultrasound.

lobe and a thin lamina of ascites fluid in the Douglas space. The other abdominal organs appear normal.

We performed the surgical excision of the tumor that had numerous blood vessels with radial development. Macroscopically, the histopathological result reveals a tumor of about 4/3/2 cm in size covered by skin, which displays small white lumps in several portions of it. Microscopically are detected neoplastic cells that had similar characteristics to Fuhrman grade III clear cell carcinoma, which correlates with the histopathological result of the left kidney tumor resected 2 years before. In conclusion, the histopathological outcome revealed that the axillary tumor was a distant metastasis to the kidney tumor (Figs. 3 and 4).

Although the patient's evolution is favorable with rapid postoperative wound healing and full functional recovery of the left arm, at a clinical re-assessment made 2 weeks after the operation, the patient complains about the occurrence of a tumor mass located on the right lower limb which created an asymmetry between the two legs. An ultrasound scan reveals a tumor of about 35/39 mm, developed in the mass of the right gastrocnemius muscle, with solid consistency and similar characteristics to the axillary tumor.

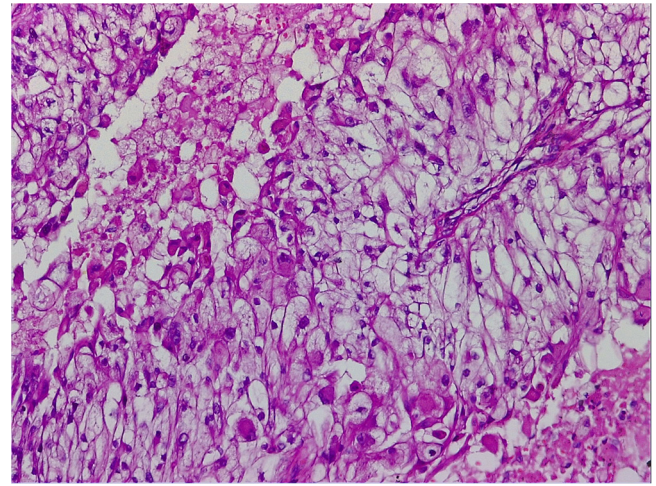


Fig. 3. Left renal cell carcinoma – microscopy.

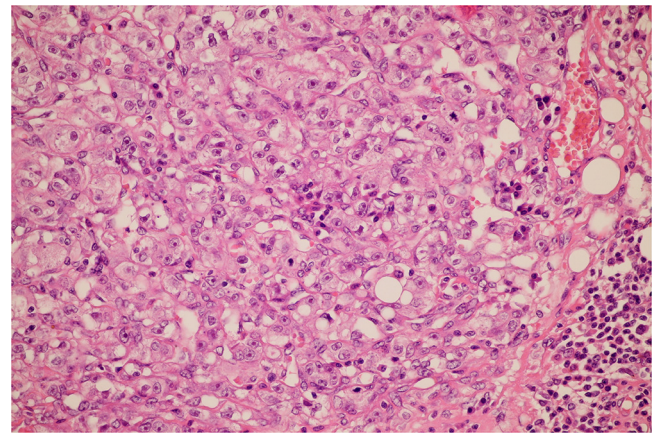


Fig. 4. Axillary metastasis – microscopy.

3. Discussions

Clear renal cell carcinoma is well known for the aggressiveness and the insidious evolution to the metastatic disease. The most common pathway for distant dissemination of the tumor cells is through the lymphatic vessels to the proximal lymph nodes (para-caval/paraortic/interaortocaval lymph nodes) and then ascending through the thoracic duct to the head and neck region [4,5]. One alternative way of dissemination is the hematogenous path through the paraspinous venous plexus (Batson's plexus) which drains the blood from the multiple arteriovenous fistulae formed during the process of neoplastic angiogenesis [2,4–6]. These two pathways of dissemination could account for the unusual metastatic site occurrence especially in the head, neck and trunk [2,6].

Cutaneous metastases are seen in approximately 3–3.4% of RCC [2–4,7] in which case they are considered very rare compared to other primary tumor sites: breast, lung, colon, stomach, ovary and malignant melanomas [2,7–9]. Particular to skin metastasis in RCC is their common occurrence in male patients [2,4] and their onset is usually after 5 years from the diagnosis of RCC and nephrectomy [4,7,10] although in other quoted cases it occurred after 6 months [3]. They are associated with poor prognosis, most patients having synchronous lymph node and visceral metastasis [2–4,7]. The life expectancy of these patients is approximately 6 months [2–4]. In our patient's case, the skin metastasis appeared 2 years after diagnosis and surgery. In the first year of evaluation, the patient was diagnosed with pulmonary metastasis and he was classified

in the intermediate-risk group according to MSKCC risk group. The metastatic disease evolved although he underwent kinase inhibitor therapy with Sunitinib and he was closely monitored after nephrectomy. At this point, the patient receives a second-line treatment with Axitinib (a selective second-generation inhibitor of VEGFR-1, -2, and -3), which offered better results than Sorafenib in previous studies [1,11].

The macroscopic characteristics of the skin tumor seen by us were similar to other results published in the medical literature: solitary skin lesion with solid consistency and a red-purple color due to the accumulation of hemosiderin [2,7]. The usual sites of skin metastases in RCC are the head, the neck, the trunk and especially the thorax on the same side as the primary tumor. In our case, the metastasis had an unusual location in the left axilla, which was the same side of the primary tumor. Specific to our patient were the symptoms generated by the presence of metastasis, usually these secondary tumors which are asymptomatic and discovered by chance. We also took into consideration the differential diagnosis of the tumor with hemangioma, pyogenic granuloma, Kaposi sarcoma, skin abscess, infected skin cyst and skin lymphoma, [2,4,7–9] but the histopathological result of the skin tumor matched the previous result of left renal cell carcinoma, sustaining the diagnosis of distant metastasis. An additional investigation to confirm the same neoplastic origin is the immunohistochemical examination, which is highly sensitive to cytokeratins, epithelial membrane antigens (EMA), carcinoembryonic antigen (CEA) and vimentin positive stains [2,7,8,10]. In our case the diagnosis was obvious considering the clinical history of the patient and the current context of the metastatic disease.

The treatment recommendation in case of skin metastases of RCC is surgery, if the tumor is symptomatic, completed by tyrosine-kinase inhibitor treatment (Sunitinib, Sorafenib), which we have performed in our patient's case [2,3,7,12]. Some authors suggest that radiotherapy followed by chemotherapy could have good results in the treatment of solitary skin metastasis [2], but in our case the multitude of visceral metastases and the aggressiveness of the metastatic progression made us decide that surgery was the best therapeutic approach.

Unfortunately, the prognosis of our patient is extremely poor considering the rapid progression of the metastatic disease under tyrosine-kinase inhibitor treatment and the development of unusual metastases: axilla and lower limb muscles. At this moment, approximately 10–13% of all cases have a 5-year survival rate in metastatic renal cell carcinoma after the surgical treatment of RCC solitary metastasis [2,5,13]. In case of skin metastasis, the survival rates are even lower: 6–12 months [2].

4. Conclusions

After the initial diagnosis and treatment of renal cell carcinoma there is always the risk of metastatic disease development. Although rare, skin metastases can occur in patients with RCC as a late manifestation of the disease. Particular to our patient's case were the unusual occurrence of the axillary skin metastasis, the symptoms generated by metastasis and the fulminating progression of the metastatic disease. Unfortunately, the prognosis of the metastatic RCC with skin metastases is, in most cases, unfavorable. The contribution of our case report resides in the fact that it completes the frame of rare oncologic situations and it consolidates the data published on the topic so far.

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Conflicts of interest

We have no conflict of interest regarding the publication of the article.

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Ethical approval

Our article is a case report and did not require any experimental treatments for our patient.

Consent

The patient was informed about the publication of the case in a surgery journal and he signed a written consent regarding the publication of its case.

Author contributions

Each author contributed in an equal measure in the process of editing the article.

Guarantor

The guarantor for our article is Dr Badiu Cristinel Dumitru (first author).

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