Nodular Lesions on the Upper Trunk: An Uncommon Anatomical Site of Renal Tumor Metastases

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Abstract

Renal cell carcinoma (RCC) is the most frequent cancer of the kidney and it accounts for 3% of all solid malignancies. Although rare, cutaneous metastases can be an important manifestation of RCC. We present a case of a 56-year-old male with a history of RCC, followed by the development of cutaneous metastases 4 years later with an uncommon clinical presentation. RCC is the most common genitourinary cancer to metastasize to the skin and accounts for 6.8% of cutaneous metastases. These patients have a poor prognosis. It is essential for these patients to perform a complete periodic dermatologic examination for proper restaging and treatment.

Key Words: Cutaneous manifestations, renal cell carcinoma, uncommon anatomical site

Introduction

Cutaneous metastasis is considered as a rare condition, but nevertheless, it represents an important entity as it usually indicates a poor prognosis. Moreover, cutaneous metastasis poses a diagnostic challenge to the dermatologists because of the fact that its clinical manifestations may be imitators of benign skin disorders.[1] Excluding malignant melanoma, the most common primary tumors to metastasize to the skin include breast, lung, colon, and ovaries.[2] The percentages of cutaneous metastases vary between 0.3% and 9%.[3]

Renal cell carcinoma (RCC) is the most frequent cancer of the kidney and it accounts for 3% of all solid malignancies.[4] Metastases are present at the time of diagnosis at approximately 25%–30% of patients with RCC.[5] Metastases develop more commonly at lungs, regional lymph nodes, bone, liver, and contralateral kidney, while skin metastases are unusual.[4] The median survival time in patients with metastatic disease is about 10 months;[1] therefore, a high index of suspicion that will aid the early diagnosis could have a significant impact on patients’ management.

We present a case report of cutaneous metastases allocated in the upper trunk of a man suffering from RCC.

Case Report

A 56-year-old Caucasian male presented with pink, well-defined, irregular, nodular lesions extending from the left supraclavicular fossa to the lower third of the anterior chest wall [Figure 1]. He had a 4-year history of RCC, followed by nephrectomy. Approximately 1 year earlier, he had been diagnosed with abdominal and supraclavicular lymph node metastases and had been receiving pazopanib therapy since then.

Computerized tomography scan revealed disease progression with enlarged mediastinal, axillary, cervical, and para-aortic lymph node metastases. Excision biopsy of a single subcutaneous nodule showed a tumoral lesion localized predominantly in the dermis and the subcutaneous tissue. Confluent aggregates of tumor cells with pale-appearing cytoplasm arranged in small clusters and tubular, gland-like structures were present. Infiltration of adnexal structures and necrosis was noticed. The median survival time is about 10 months;[1] therefore, a high index of suspicion that will aid the early diagnosis could have a significant impact on patients’ management.

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epidermis was not involved and was unremarkable [Figure 2]. Pleomorphisms in the tumor cell nuclei were apparent. The mitotic activity in the tumor cells was high. Immunohistochemistry (IHC) staining for pancytokeratin, vimentin, CD10, and epithelial membrane antigen (EMA) were positive [Figure 3]. Combining the above morphological and immunophenotypic characters with the patient’s history, the diagnosis of cutaneous metastasis of RCC was made.

The patient was started on treatment with sunitinib 50 mg once a day for 2 consecutive weeks, followed by 1-week rest period. On a follow-up visit 15 days after initiation of chemotherapy, the patient’s skin lesions were clinically improved. Despite that, after 1 month, he was admitted to a hospital feeling unwell with muscle weakness, fever, dyspnea, urine retention, lethargy, and progressive skin lesions. Laboratory tests revealed neutropenia and severe renal impairment. Despite all measures, the patient developed sepsis, acute respiratory, and renal failure on a ground of advanced RCC and died.

**Discussion**

The skin is a relatively uncommon site for metastasis of internal malignancies, and the most common primary sites are breast, lung, gastrointestinal system, and oral mucosa. Cutaneous metastases form 2.8%–4.4% of skin malignant carcinomas. RCC is the most common genitourinary cancer to metastasize to the skin and accounts for 6.8% of cutaneous metastases. They are more commonly found in men. Regarding the cutaneous metastasis of RCC described in the literature, the most common site was the scalp and neck, followed by the abdominal region, but in our case, the lesions were located on the upper anterior chest wall and left shoulder. Mostly, the development of skin metastases takes places within 6 months to 5 years of the initial diagnosis and after nephrectomy.

Various mechanisms are described for cutaneous metastasis of visceral malignancies. The most frequent is the direct invasion of the skin tissue covering the malignant mass. The rich vascular structure of RCC facilitates hematogenous extension and the development of distant metastases. The most important hematogenous extension route in RCC is the vena cava system, which leads to the lung. Arteriovenous and systemic shunts are thought to facilitate the tumor cell path to the head and neck region. The clinical appearance of cutaneous metastases from RCC has been described as painless or painful nodules, plaques, or pulsatile masses, ranging from flesh colored to violaceous. Clinically, they may mimic epidermoid cysts, fibromas, papillomas, lipomas, or neurofibromas. Vascular endothelial growth factor plays a substantial role in RCC growth; hence, primary tumors as well as metastases tend to be extremely vascular.
In our case, the clinical appearance of the lesions was pink-colored, well-defined, irregular, nodular lesions. The differential diagnoses of cutaneous RCC metastatic lesions are sebaceous carcinoma, sweat gland tumor, and melanoma.\(^{[15]}\) RCC cutaneous metastasis is known to have a vascular appearance and should be differentiated from pyogenic granuloma, Kaposi sarcoma, angiosarcoma, and other vascular tumors by histopathology.\(^{[16]}\)

Cutaneous metastases can be diagnosed on excisional biopsy or by fine-needle biopsy.\(^{[17]}\) Because of the tendency of these lesions to imitate other dermatological diseases, a histopathological survey of biopsied samples containing sufficient dermal tissue is essential for diagnosis. They may have a similar appearance to the primary lesion; however, they are frequently poorly differentiated. The cells tend to be clear, pale staining filled with intracytoplasmic lipid and glycogen embedded in a fibrous and highly vascular stroma.\(^{[18]}\) Some protein antigens are evidenced by the use of IHC, such as the EMA, vimentin, keratin, and carcinoembryonic antigen (CEA). The positive results with vimentin, EMA, and keratin are high-probability indicators of RCC.\(^{[18]}\) and EMA, CEA, CD10, and RCC-MA are all markers that suggest skin metastases of renal origin.\(^{[19]}\) The RCC marker antigen, a monoclonal antibody directed against a normal proximal renal tubule antigen, is a relatively specific marker for cutaneous metastases of RCC.\(^{[20]}\)

The development of cutaneous metastasis in RCC is associated with poor prognosis, and most patients die within 6 months of metastasis detection.\(^{[21]}\) The mean 5-year survival rate of patients with a cutaneous metastasis is from 13% to 50% if there is one lesion present and 0% to 8% in patients with multiple lesions.\(^{[22]}\) Therefore, in the later cases, the treatment options are limited and mostly palliative.

In patients with previous history of malignancy, it is essential for a complete dermatologic examination to be periodically performed, which should include the scalp, as well as a biopsy of any recently appearing cutaneous lesion.\(^{[23]}\)

The anatomical site and the allocation of the metastases in our case are rather uncommon as indicated by the bibliography. Nevertheless, it is important to consider RCC metastases in the differential diagnosis of new-onset skin lesions in a patient with a past medical history of renal tumor.

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Conflicts of interest
There are no conflicts of interest.

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