Cutaneous metastasis: An unusual presenting feature of silent renal cell carcinoma

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ABSTRACT

Renal cell carcinoma (RCC) is a potentially lethal cancer with aggressive behavior and propensity for metastatic spread. However, it is very rare for RCC to present as metastasis to skin and it is virtually a sign of poor prognosis. Skin metastases have been reported to occur in around 3% of RCC. The most common site for cutaneous metastasis from RCC is the scalp and face, followed by the chest and the abdomen. Herein, we are reporting a case of RCC in a 60-year-old man who presented to us with multiple skin nodules in thorax and abdomen as the sole complaint. Fine-needle aspiration cytology from these nodules revealed metastatic deposits of RCC though the patient had no urologic symptoms. Computed tomography and ultrasonography of abdomen revealed right RCC with multiple secondaries in liver, spleen, lungs, chest wall, abdominal wall with retroperitoneal lymphadenopathy, and inferior vena cava thrombus. This case highlights the ubiquity of RCC metastasis and emphasizes the importance of keeping RCC as differential in patients who present with cutaneous metastases.

KEY WORDS: Metastasis; Prognosis; Renal Cell Carcinoma; Skin

INTRODUCTION

Renal cell carcinoma (RCC) accounts for 3% of all adult malignancy. RCC is well known for its tendency to metastasize occurring in approximately 1/3 of patients at the time of diagnosis.[1]

However, metastasis from RCC to the skin is very rare occurring in 1-3.3% of cases,[2,3] and it is even rarer to present with skin nodule as the primary symptoms and is virtually a sign of poor prognosis. The most common site for cutaneous metastasis from RCC is the scalp and face, followed by the chest and the abdomen. To the best of our knowledge, only one case of RCC has been reported from India by Ahmad et al. (2008) in a 65-year-old male presenting primarily as cutaneous metastasis to the chest in the form of a single skin nodule.[4]

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CASE REPORT

A 60-year-old male patient presented to the Dermatology Department with multiple skin nodules (Figure 1) on lower chest and abdomen which was present for more than 6 months and was largely ignored by the patient until these became cosmetically significant. These nodules are painless, skin- colored, soft to firm in consistency, nonulcerating, and nonpulsatile. The patient had a history of loss of weight, appetite, and generalized weakness. General physical examination revealed a thin-built male with pallor. Systemic examination was within normal limits. There was no neurological or urological involvement. He was a chronic tobacco chewer. There was no family history of malignancy.

Fine-needle aspiration cytology of the cutaneous nodules revealed a heterogeneous, clear cell population arranged in loose clusters and singles showing cytoplasmic vacuolation, high nuclear-cytoplasmic ratio. A tentative diagnosis of metastatic deposits of clear cell carcinoma, most probably renal in origin was made. He was referred to our department for ultrasonography of abdomen and pelvis which confirmed right renal mass with metastasis in liver, spleen with retroperitoneal lymphadenopathy (Figure 2).

Computed tomography well depicted the renal mass with secondaries in liver, spleen, chest wall, abdominal wall, and bilateral lungs with tumor thrombus in inferior vena cava (Figure 3).

Figure 1: Multiple cutaneous nodules in lower chest and abdomen

In correlation with imaging findings, a diagnosis of RCC - clear cell type of the right kidney with multiple sites of metastasis including skin was made.

Since the patient presented with advanced stage (Stage IV), palliative chemotherapy was planned. However, he denied any treatment and left against medical advice.

DISCUSSION

RCC has been well described for its high tendency to metastasis, occurring in approximately one-third of the patients at the time of diagnosis. However, it is very unusual for RCC to metastasize to the skin as the more usual sites being the lung, lymph nodes, and bone. A study by Hale NG of 6577 autopsies found 54 cases of unrecognized RCC and documented that skin was the 7th most common site of metastasis.[5]

Metastasis of RCC to the skin is very rare accounting for 1-3% of all metastases of RCC. Most these cases have been reported in patients with recurrent disease or other metastases.[3,6,7]

Tobacco is the most predisposing risk factor; other risk factors include cystic disease, tuberous sclerosis, von Hippel-Lindau syndrome, etc. In our case, the patient was a chronic tobacco chewer. Clear cells type account for 60% of the cases.[6] Chromophobe cell carcinoma accounts for only 3-5% of all RCCs and carries a better prognosis than clear cell RCC.[2]

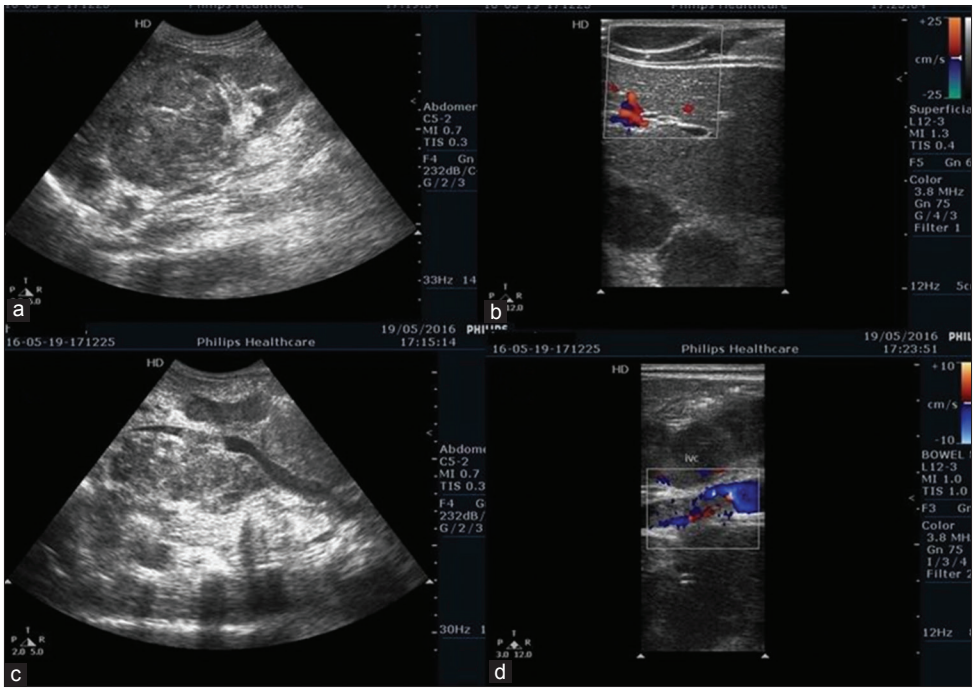

Figure 2: Ultrasonography showing a right renal mass arising from upper and mid pole (a), subcutaneous nodule (b) and tumor thrombus in inferior vena cava (c and d)

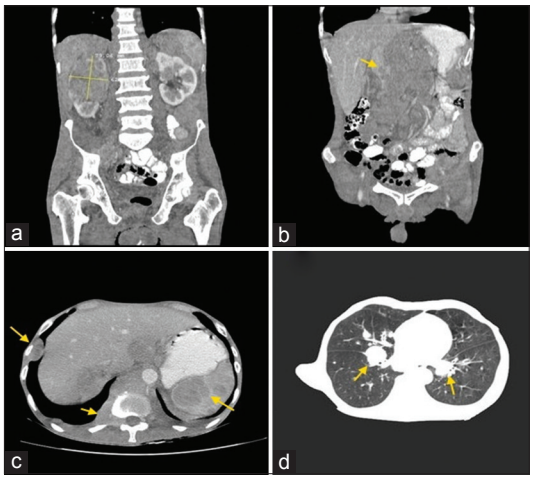

Figure 3: Contrast-enhanced computed tomography showing a heterogeneous mass of approximate size 8 cm × 6 cm arising from upper and mid pole of right kidney (a), tumor thrombus in inferior vena cava (arrow in b), chest wall, pleural and splenic metastasis (arrows in c) and bilateral lung metastasis (arrows in d)

The classic triad of RCC includes costovertebral pain, palpable mass, and hematuria which is present only in 10% of cases.[2,8] Hence, this classical triad is more of the exception rather than the rule. Most present with only one of the above symptoms or as an incidental diagnosis as a result of radiological imaging for another reason. Other symptoms include persistent fever, weakness and iron deficiency anemia, varicocele in males due to enlargement of the pampiniform plexus of vein draining the testis, hypertension due to secretion of renin by the tumor, hypercalcemia, sleep disturbances, and night sweats.

Approximately one-third of patients present with metastasis and 40% of the other two-thirds eventually will develop distant metastasis. The most common sites for metastasis are lungs, bones, regional lymph nodes, liver, adrenal gland, and the opposite kidney. Rare metastatic sites of renal cell cancer are head and neck, orbit, parotid gland, nasal and paranasal cavities, tongue and tonsils, thyroid gland, heart, skin, ovaries-uterus-testis, muscle, and joints.[2]

The most common site for cutaneous metastasis from RCC is the scalp and face, followed by the chest and the abdomen. In a large study of 306 cases, over a 12-year period by Dorairajan et al., the incidence of cutaneous metastasis was only 3.3% (10 patients), half of whom presented with skin metastases during follow-up after nephrectomy. However, only one of the patients had cutaneous deposits as the sole presenting feature.[9]

Mostly, cutaneous metastasis generally indicates toward an underlying malignancy. Of all the malignancies, nearly 0.7-9% of tumors show skin metastases. In females, breast carcinoma is the most common carcinoma having cutaneous metastases, followed by lung carcinoma. In males, lung carcinoma is the most common, followed by colorectal carcinoma, renal carcinoma, and bladder carcinoma. One study shows that metastasis of RCC to skin accounts for 6% of all cutaneous metastasis in males and 0.5% in females.[10]

Various mechanisms have been postulated to describe the mode of cutaneous metastasis of visceral malignancies. The most common mode being the direct invasion of the skin overlying the malignant mass.[8] The rich vascularity of RCC facilitates the hematogenous spread and is responsible for distant metastases. The most important vascular route for RCC invasion is the vena cava system, which leads to invasion of the lung.

Histopathologically, most RCCs are clear cell types and cutaneous metastases from RCC show trabecular, papillary, tubulopapillary, and cystic patterns with a prominent vascular component and deposition of hemosiderin in the stroma.[11]

Immunohistochemically, RCC is marked by epithelial membrane antigen, vimentin, keratin, and carcinoembryonic antigen. RCC-MA is positive in 60% of all RCC skin lesions.[7,12-14]

The clinical appearance of skin metastases can be of three types - nodular (majority), inflammatory, and fibrotic. Cutaneous lesions may be flesh-colored but often ranges from erythematous red to violaceous hues. They are often multiple but may also present as solitary metastases.[9]

Differential diagnosis of cutaneous RCC metastatic lesions includes sebaceous carcinoma, sweat gland tumor, and melanoma. Furthermore, the high vascular nature of RCC cutaneous needs to be differentiated from other vascular tumors such as pyogenic granuloma, Kaposi sarcoma, and angiosarcoma by the histopathologic study.[6,15]

Type of treatment depends on multiple factors and the individual, some of which include the stage of RCC, type of carcinoma, preexisting or comorbid conditions, and overall health and age of the person. Treatment options include surgery or adjuvant chemotherapy or radio ablative procedures depending on the previously mentioned factors. In patients with a single cutaneous deposit and no evidence of systemic spread, nephrectomy and excision of the metastatic lesion are the treatment of choice. Cases with multiple nodules or systemic involvement warrant palliative chemotherapy. The prognosis of patients with metastatic RCC is worse. The average interval from the appearance of skin lesions to death is reported to be 12.7 months.[9,16-18]

CONCLUSION

Cutaneous metastases from RCC are unusual and are usually considered late manifestations of the disease, bearing a poor prognosis that is associated with synchronous visceral

metastases in up to 90% of cases. Clinicians should have a high index of suspicion in evaluating a patient presenting with cutaneous metastasis which can indicate a primary internal organ malignancy.

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