Case Report

Cutaneous metastasis: An unusual presenting feature of urologic malignancies

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Abstract

Urological malignancies are well known for their ability to metastasize widely. The incidence of cutaneous metastasis from all urologic malignancies has been reported to be 0.73–1.3% with the primary most commonly being renal cell carcinoma followed by carcinoma bladder, adenocarcinoma prostate, and testicular germ cell tumor in decreasing order of frequency. Metastasis to the skin is unusual and has been predominantly reported as a late manifestation of the disease. We describe two patients with urologic malignancies who had cutaneous metastasis as their initial presenting feature.

Key Words: Carcinoma bladder, cutaneous metastasis, renal cell carcinoma, skin metastasis

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INTRODUCTION

The genitourinary system is frequently involved by cancer. Of the ten most prevalent malignancies, three have their origin in a urologic organ, i.e., prostate, kidney, and bladder.[1] Urological malignancies are well known for their ability to metastasize widely. The most commonly involved sites of metastasis include lymph nodes, lung, liver, and bone.[2] Metastasis to the skin is unusual and has been predominantly reported as a late manifestation of the disease. Skin metastasis as the initial manifestation of an occult urologic malignancy is rare and may easily be overlooked. We describe two such patients with urologic malignancies who had cutaneous metastasis as their initial presenting feature.

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CASE REPORTS

Case 1

A 65-year-old male chronic smoker presented with multiple painful swellings on his face, chest, and the left thigh that had developed over the duration of a month. On enquiry, he gave a history of an episode of gross painless hematuria with amorphous clots in the previous month that had not been evaluated. He had also suffered significant loss of weight. On examination, he was poorly nourished, pale and had multiple tender cutaneous nodules [Figure 1]. Abdominal examination was unremarkable; on rectal examination an irregular firm mass was palpable above the prostate. On evaluation, he was anemic

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with a hemoglobin 7 g/dl, other routine blood investigations were within normal limits. Urine analysis confirmed hematuria. A contrast enhanced computed tomography (CECT) of the abdomen revealed a well-defined heterogeneously enhancing growth measuring 4.9 cm × 4.1 cm × 3.9 cm in the left lateral wall of the bladder with extravesical extension. Multiple pelvic and para-aortic lymph node enlargement were evident on the CECT. A fine-needle aspiration of one of the cutaneous lesions was taken which showed plenty of scattered atypical cells in a background mixed with lymphocytes and apoptotic debris [Figure 2a and b]. The atypical cells had pleomorphic oval irregular nuclei with elongated cytoplasm having flattened ends, a typical morphology of "cercariform cells" suggesting a metastasis from urothelial carcinoma. We proceeded with a cystoscopic biopsy of the bladder growth that revealed a high-grade urothelial carcinoma that was positive for both cytokeratin (CK) and vimentin on immunohistochemistry (IHC) suggesting a diagnosis of sarcomatoid carcinoma [Figure 2c-f]. The patient was counseled regarding his disease, he refused active therapy, and was referred for palliative care. He died 6 weeks later.

Case 2

A 60-year-old gentleman presented with a history of multiple swellings all over his body [Figure 3]. They had insidiously developed over a month, first being noticed over his back and had progressively enlarged becoming increasingly painful. He had significant loss of weight. There was no history of abdominal pain, lower urinary tract symptoms, or hematuria. He also denied a history of a cough, jaundice, or bone pains. Examination revealed a poorly nourished male with multiple tender cutaneous nodules of varying size, largest being 3 cm × 3 cm, on his chest, back, and upper extremities. On abdominal examination, an 8 cm × 6 cm mass was palpable in the left hypochondrial region. It was bimanually palpable and ballotable. Rest of his physical examination was unremarkable. Routine blood investigations revealed hemoglobin of 7.9 g/dl. Serum biochemistry including renal and liver function tests was within normal limits. CECT of the abdomen showed a 10 cm × 8 cm heterogeneously enhancing solid mass with cystic areas in the left kidney. It also showed multiple enhancing lesions in the liver and the lung suggestive of metastasis. A core biopsy of one of the cutaneous lesions was performed which showed infiltrating sheets of malignant epithelial cells with highly pleomorphic nuclei, moderate to abundant eosinophilic cytoplasm separated by fibrous septae and areas of necrosis [Figure 4a-c]. On IHC, the tumor cells were strongly positive for CK, vimentin and weakly positive for CD10 suggesting a diagnosis of metastasis from renal cell carcinoma [Figure 4d-f]. The patient was counseled regarding his disease and the options for management including surgery and targeted therapy. He declined active therapy and decided on palliative care. He died of progressive disease 2 months later.

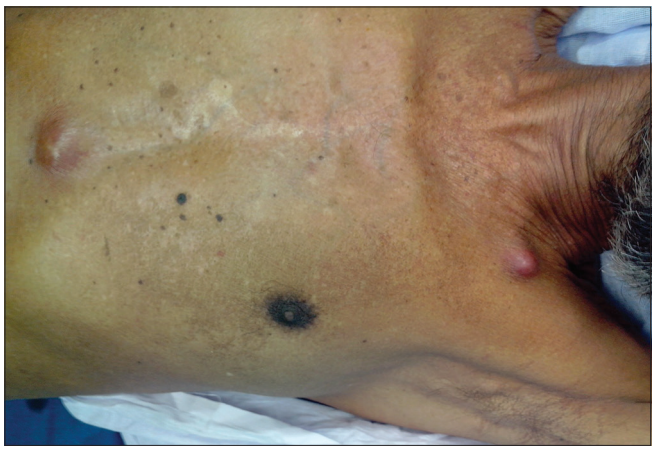

Figure 1: Photograph of the patient's chest and abdomen: Cutaneous metastatic nodules from carcinoma bladder

DISCUSSION

Skin metastasis from solid visceral malignancies is a rare phenomenon reported in 2.9–5.3% of cases. The primary is usually in the lung in males and the breast in females reflecting the

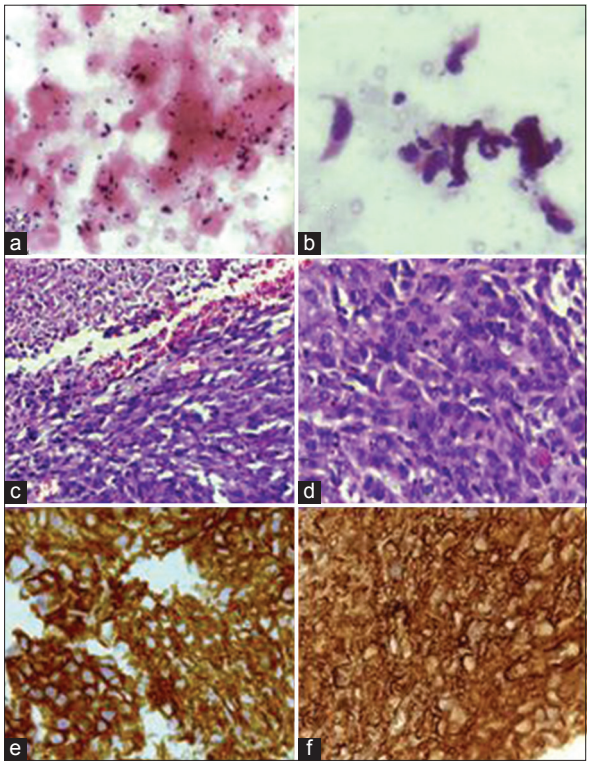

Figure 2: Histopathology: (a and b) Cytology smear of cutaneous lesion showing scattered pleomorphic cells with "cercariform" morphology (papanicolaou [a] ×4; [b] ×40). (c and d) Cystoscopic biopsy showing sheets of high-grade malignant epithelial cells with marked pleomorphism with focal spindle cell morphology and areas of necrosis (H and E, [c] ×10; [d] ×40). (e and f): Immunohistochemistry of cystoscopic biopsy showing tumor cells - positive for cytokeratin (e) and vimentin (f)

most frequently occurring malignancies in these populations.[3] The incidence of cutaneous metastasis from all urologic malignancies has been reported to be 0.73–1.3% with the primary most commonly being renal cell carcinoma followed by carcinoma bladder, adenocarcinoma prostate, and testicular germ cell tumor in decreasing order of frequency.[4,5] Cutaneous metastases from upper tract transitional cell carcinoma have also been reported.[6]

The rarity of metastasis to the skin and the soft tissue has been attributed to the relatively poor vascular supply that is influenced by temperature, pressure, and local metabolites. This is in contrast to the common sites of metastasis such as the liver and lung that have rich capillary networks with a constant blood flow.[7]

The clinical presentation of the skin metastasis varies widely. They may be single or multiple, localized, or widespread. The most commonly involved site has been variably reported to be the abdominal wall or the scalp and face.[4,5,7] The latter is involved particularly in cases of hematogenous spread by vascular, renal tumors. The skin is rarely the sole site of metastasis and is usually associated with widespread metastasis in other organs as well. Most present metachronously after treatment of the primary. This emphasizes the need to maintain a high degree of suspicion when confronted with a patient with a history of urologic malignancy presenting with new skin lesions on follow-up. In up to 22% of cases, cutaneous metastases can precede the diagnosis of primary malignancy. In these cases, the skin lesions may mimic common benign dermatological conditions leaving the primary malignancy undiagnosed leading to a delay in definitive therapy. Four patterns of skin metastasis have been described – nodular, inflammatory, sclerodermoid, and zosteriform. Nodular is the most common pattern reported.[8] Zosteriform type is rare and has been predominantly reported with metastatic bladder cancer. It is easily confused with herpes zoster lesions that may develop in a postchemotherapy immunocompromised patient.[9]

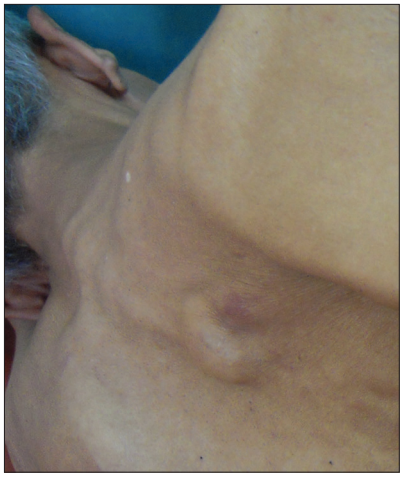

Figure 3: Photograph of the patient's back: Cutaneous metastatic nodules from renal cell carcinoma

The definitive diagnosis of skin metastasis is by biopsy, a core needle or excision biopsy is recommended. Histologically, skin metastases are usually reflective of their primary malignancy. However, a basic immunohistochemical panel is recommended, especially in cases of poorly differentiated tumors.

Once cutaneous metastases develop in urological malignancies the prognosis is generally poor, patient survival commonly being reported in months rather than years.[4,5] Due to the rarity of cutaneous metastasis, there are no established

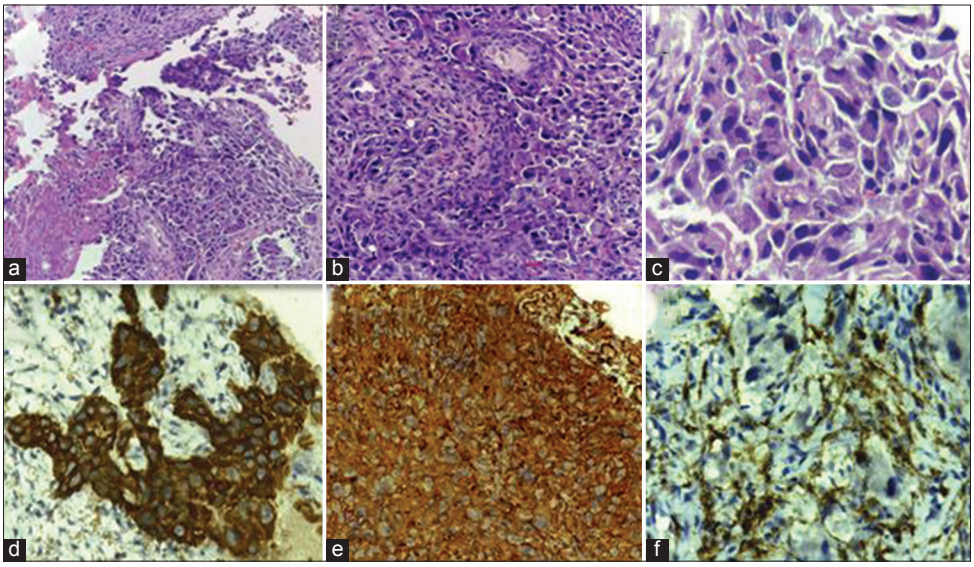

Figure 4: Histopathology: (a-c) Core biopsy showing infiltrating sheets of malignant epithelial cells with highly pleomorphic nuclei, moderate to abundant eosinophilic cytoplasm separated by fibrous septae and areas of necrosis: (H and E section [a] ×10; [b] ×20; [c] ×40); (d-f): Immunohistochemistry showing tumor cells positive for cytokeratin (d), vimentin (e) and CD10 (f)

treatment recommendations. As such in the majority of the cases treatment is directed at palliation.

In renal cell carcinoma metastatic to the skin, as with metastasis to other sites, treatment options include radical nephrectomy in combination with interferon therapy or targeted therapy with tyrosine kinase inhibitors.[10] Surgical excision of cutaneous metastasis has been advocated if it is the only site of metastasis. However, in all reported cases, in spite of active therapy prognosis has been uniformly bleak.

Reported treatment options in cutaneous metastasis of carcinoma bladder include either systemic therapy with cisplatin-based chemotherapy or localized therapy to the cutaneous metastasis with electrochemotherapy using bleomycin or localized radiation therapy.[11]

In summary, the skin, the largest organ in the body should not be overlooked as a possible site for metastasis of urologic malignancies. The evaluation of patients with urological malignancies should include an examination of the skin, and suspicious lesions should be evaluated aggressively to rule out cutaneous metastasis.

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Conflicts of interest

There are no conflicts of interest.

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