

## **Cytodiagnosis of Metastatic Renal Cell Carcinoma Presenting As a Solitary Nodule on Arm: A Case Report and Review of Literature**

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**Abstract:** Renal cell carcinoma (RCC) contributes in being only 3% of all the solid organ tumors. Skin metastasis occurs in only 3-5% of the RCCs. Cytodiagnosis of the cutaneous metastasis of RCC may be difficult owing to its presentation like a benign growth. We report here a case of cytodiagnosis of cutaneous metastasis of RCC in a 61 year old male who presented with a solitary right arm nodule after eight years of right sided radical nephrectomy for stage I renal cell carcinoma.

**Keywords:** cutaneous metastasis, renal cell carcinoma.

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### **INTRODUCTION**

Cutaneous metastasis may sometimes be the initial presentation of a carcinoma but its occurrence invariably offers a grave prognosis indicating an advanced stage of disease. Primaries showing skin metastasis in a decreasing order are- lungs (28.6%), metastatic melanoma (18.2%) and gastrointestinal tract (14.2%). Genitourinary tract primaries contribute 10% of the cutaneous secondaries [1] with renal cell carcinoma taking the blame in only 3% of the cases [2].

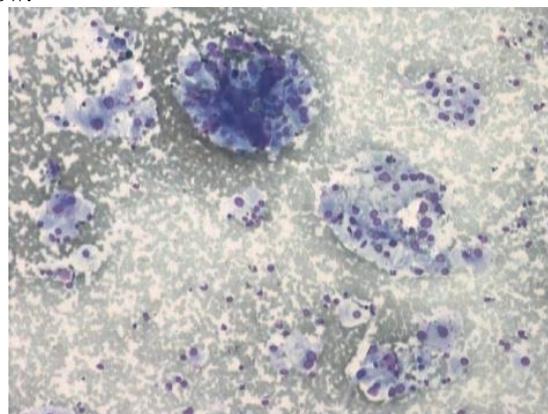
Considering the rarity and a mere handful reports available in the literature, we present a case of solitary cutaneous lesion diagnosed as secondaries from renal cell carcinoma on fine needle aspiration cytology.

### **CASE REPORT**

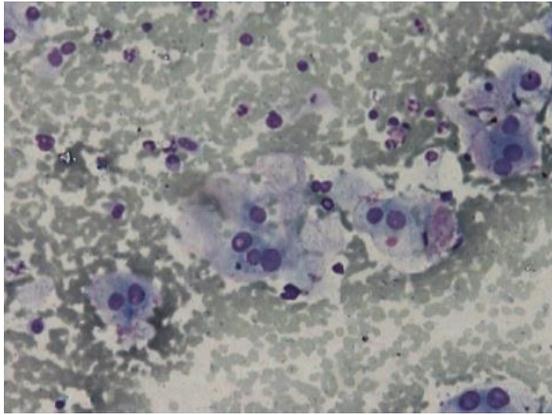
A 61 year male presented with the history of a painful nodule on right arm since three months. There were no other clinical complaints but patient gave a history of right sided radical nephrectomy eight years back for renal cell carcinoma diagnosed as a 6cm growth limited to right kidney. The patient had an uneventful post-operative period with no complaints of hematuria, flank or abdominal pain and fever.

General physical examination was unremarkable. All the vitals were within normal limits. Local examination revealed a 2cms x 2cms firm, cystic nodule, bluish in colour and extremely tender to touch suggesting a clinical diagnosis of abscess for which patient had been prescribed antibiotic course with no regression of symptoms. All the other routine investigations were within normal limits except for mild anaemia. Chest X-ray revealed normal lung

parenchyma and soft-tissue and bony structures. CT scan abdomen was normal. Fine needle aspiration using 23-G needle yielded few drops of blood mixed aspirate. Smears were prepared and stained with May-Grünwald-Giemsa and Papanicolaou stains. Light microscopic examination revealed cellular smears with tumor cells dispersed singly and in small groups having pleomorphic nuclei, prominent nucleoli and moderate to abundant amount of pale cytoplasm with few cells showing cytoplasmic vacuolations alongwith few bi- to multinucleated forms with intranuclear inclusions against a hemorrhagic background. The cytological features suggested a diagnosis of metastatic renal cell carcinoma. The lesion was locally excised and the patient is on interferon therapy since one month as for now.



**Fig-1: MGG stained smear showing binucleation, vacuolated cytoplasm and capillary transverse. (MGG, 100X)**



**Fig-2: MGG stained smear showing cells in clusters with intranuclear inclusions and abundant amount of cytoplasm. (MGG, 200X)**

## DISCUSSION

Cutaneous metastasis occur in only 0.3- 0.7% of cancer patients [3]. They occur involving trunk (40%), head and neck (28%), and the extremities (18%), in that order [1]. Diagnosing the cutaneous spread of renal cell carcinoma is often difficult owing to a low index of clinical suspicion and its presentation simulating other dermatological lesions like hemangioma, dermoid cyst, neurofibroma, angiosarcoma, kaposi sarcoma and pyogenic granuloma [4,5,6,7].

A large study published in 1943 discovered 54 cases of renal cell carcinoma out of the 6577 autopsies recognising skin as the seventh most common site of metastasis [8]. The most common site for distant metastasis for this primary is lung followed by liver, bone, ipsilateral lymph nodes, adrenal gland and contralateral kidney [9]. Also, many studies reveal a synchronous visceral metastasis in nearly 90% of the cases at the time of presentation with cutaneous metastasis [2,5,7,10,11,12]. However, our patient had no other metastatic sites at the time of presentation with cutaneous metastasis.

In a retrospective Indian study done over 12 years period, out of 306 cases of primary renal adenocarcinoma, only 10 (3.3%) showed cutaneous metastasis with the male:female ratio of 9:1 and an average age of 45 years. The average time to skin metastasis was 51 months for patients in stage I and 13 months in stage IIIb [13]. Our patient was a male in his early sixties presenting with cutaneous metastasis eight years after being operated for stage I (T<sub>1</sub>N<sub>0</sub>M<sub>0</sub>) renal cell carcinoma.

Koga et al[12] reviewed 75 cases from Japanese literature and concluded the poor prognosis of patients developing metastatic skin lesions with an average survival period of 23.8 months of developing skin secondaries. A handful of other case reports which appeared in the literature between 1990 to 2014 put

forward about 25 such cases with 12 involving the skin in head and neck region ( Scalp-6, Face-7, Neck-1 ), 6 in trunk, 4 in extremities and 1 in scrotal region. This is goes against the study of Dorairajan et al [13] who found scalp to be the most common skin metastatic site of renal cell carcinoma followed by chest, abdomen, elbow and palm. Out of these 23 cases, only two were females, hence, representing a high male preponderance.

Almost all the cases of renal cell carcinoma reported so far in the literature with cutaneous metastasis show clear cell histologic variant. Only one case of its papillary variant has been reported to recur with cutaneous secondaries [14]. Also, most of the cases reported have other simultaneous sites of metastasis alongwith cutaneous metastasis. The decision of treatment is based on the sites of these various secondaries and also on the number of cutaneous metastatic nodules. Local surgical excision has been considered curative, although theoretically, in patients with solitary metastatic cutaneous nodule [13]. Adjuvant therapy with multikinase inhibitors (sunitinib or sorafenib) have shown markedly increased possibilities of survival [10]. However, the overall prognosis of these patients is dismal offering a short survival period of 3 to 15 months [13].

## CONCLUSION

Cutaneous metastasis of renal cell carcinoma is a rare entity requiring a high index of clinical suspicion. A differential diagnosis of renal cell carcinoma secondaries should be kept in mind by the clinicians and pathologists in skin lesions showing clear cell morphology. Many patients present with synchronous metastasis at other sites offering a grave prognosis. Hence, urologists should be vigilant for any cutaneous lesions developing in renal carcinoma patients in post-operative period due to their tendency to mimic benign skin lesions.

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