



CASE REPORT

Synchronous Renal Cell Carcinoma Metastasis Masquerading as Subcutaneous and Thyroid Swellings, Diagnosed on FNAC- A Case Report

Subhash Bhardwaj, Sabina Syed

Abstract

Renal cell carcinoma (RCC) is one of the most aggressive genitourinary cancers accounting for about 3% of adult malignancies. The most common symptoms at the time of presentation are hematuria, lion pain and/or an abdominal mass. However, about a quarter of patients with RCC present with metastatic disease; with lungs, lymph nodes and bone as prototypical metastatic sites. RCC notoriously may metastasize to bizarre locations like subcutaneous tissue and thyroid. We report a case of simultaneous subcutaneous and thyroid synchronous metastasis of RCC in an 80year old female diagnosed on FNAC.

Key Words

Renal cell carcinoma, Thyroid metastasis, Subcutaneous metastasis.

Introduction

The classic diagnostic triad of hematuria, lion pain and abdominal mass in RCC is found only in about 10% cases (1). About 18% of patients are found to have metastasis at diagnosis- synchronous metastasis (2). RCC is peculiar for metastasis to bizarre locations like the subcutis or the thyroid. Skin and subcutaneous metastasis occurs in 2.8 to 6.8% of RCCs (3). Thyroid gland metastasis is very rare but chances of metastasis increase in altered thyroid gland (preexisting goiter or neoplasm) (4). FNAC is a propitious technique in the diagnosis of subcutaneous and thyroid swellings which could be embodying cryptic visceral metastatic malignancies.

Case Report

An 80-year-old female presented with gradual loss of vision in her left eye for the past 4-5 months in the Ophthalmology, OPD. For the same duration, the patient

had noticed development of left sided frontal subcutaneous swelling which was gradually increasing in size. The patient was a known case of hypothyroidism (on Tab. Thyronorm 25 mcg) for the past 20 years and had a nodular goiter for as long as she could remember. However the thyroid swelling had been increasing in size over the past six months. NCCT Head showed a large hypodense mass lesion measuring 5.2 x 3.5cm in left fronto-temporo-orbital region causing osteolysis of roof of left orbit. Routine ultrasonography of abdomen which revealed a heterogenous mass arising from lower pole of left kidney measuring 6.7 x 4.8cm. The patient subsequently was advised FNAC of both the left frontal region swelling and the thyroid swelling.

On examination, the left frontal region swelling measured 3 x 3cm and was diacritically pulsatile. The

Postgraduate Department of Pathology, Government Medical College and Hospital, Jammu, Jammu and Kashmir, India

Correspondence to : Dr. Sabina Syed, House No. 167/A, Bakshi Nagar, Jammu (J&K)

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Figure 1: (A) Thyroid swelling, red arrow indicating persistent midline swelling since adolescence and green arrow indicative of new extension over last six months. (B) Left frontal subcutaneous swelling.

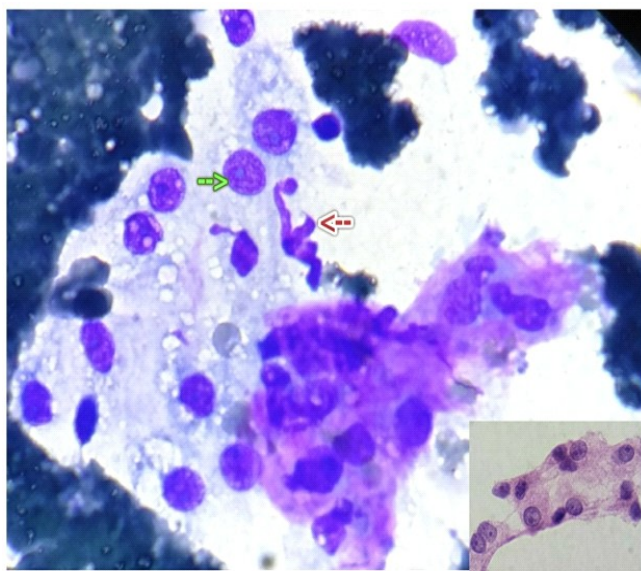


Figure 2: MGG stained sections from left frontal swelling depicting poorly cohesive cells with abundant fragile vacuolated cytoplasm, indistinct cell borders, moderate nuclear enlargement and mild anisokaryosis. Few endothelial cells (red arrow), prominent fibrillary magenta coloured basement membrane material and macronucleoli (green arrow) are appreciated. Insert shows PAP stained smear of same aspirate- optically clear web like vacuolated cytoplasm and marked nucleolar prominence.

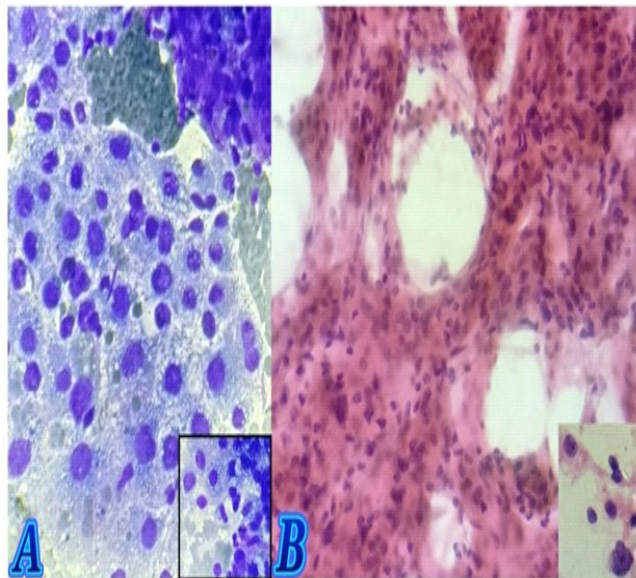


Figure 3: (A) MGG stained smears from right lobe thyroid swelling showing clusters of large polygonal cells with abundant vacuolated cytoplasm and indistinct cell borders in a hemorrhagic background. (B) PAP stained smear showing thin walled capillaries arborising the tumor cells. Insert shows typical cell morphology of RCC (oil immersion).

thyroid was multi-nodular, measuring 4 x 3cm, with midline nodule being present for about past 40 years while the right lobe extension of swelling was relatively recent (Figure 1). FNA was done from two sites in thyroid-mid-line nodule and the right extension separately. Smears from FNA of left frontal swelling and two separate aspirates from thyroid swelling were stained with May Grunwald Giemsa (MGG) and Papanicolaou (PAP) stains.

Smears from mid-line nodule of thyroid showed features of nodular goiter. The smears from the left frontal region swelling and right lobe of thyroid showed similar material. The smears were hemorrhagic and showed large atypical cells in clusters as well as scattered singly. The tumor cells had a polygonal shape with vesicular nuclei, moderate degree of pleomorphism and some having prominent macronucleoli. Cytoplasm was abundant and vacuolated. The cell clusters showed rich delicate transgressing capillaries and tumor cells adhering to strands of hyaline/ fibrillary basement membrane



material. No abnormal mitosis was appreciated (Figure 2 & 3). Based on these prototypical cytomorphological features and aided by ultrasonographic detection of mass lesion in left kidney, a likely possibility of metastatic Renal Cell Carcinoma was given.

Discussion

RCC (Grawitz tumor/ Hypernephroma) is a primary tumor of the kidney which has a peak incidence in the sixth and seventh decade of life and male to female preponderance (M/F/ 2/1) (5). However, our patient is an 80year old female. Most common histological type of RCC is clear cell type (5) which is the type we found in our case. Cigarette smoking is the most important environmental factor which doubles the risk of RCC (5). Our patient was also consuming naswar (powdered tobacco) for about 40 years.

RCC presents with typical symptoms of hematuria, lion pain and abdominal mass but has a high propensity to metastasis. About 15% of patients present with synchronous metastasis at time of diagnosis, that is, patients are diagnosed with a primary kidney tumor and metastases simultaneously (6). Incidence of subcutaneous metastases in RCC is 2.8 to 6.8% (3). Clinically cutaneous metastases of RCC present as painless pulsatile masses. The common primary tumors that cause subcutaneous metastases are lung, malignant melanoma and GIT (7). Metastatic neoplasms to thyroid gland are rare in clinical practice (only 2 to 3% of all thyroid malignancies). Thyroid gland is more susceptible to metastasis when affected by goiter, neoplasm or thyroiditis due to metabolic changes that consist of decrement in the oxygen and iodine content (4). Clear cell renal carcinoma is the most frequent site of origin of thyroid metastasis (8). Other sites of primary tumors with metastases to the thyroid are lung, breast and various head and neck tumors. Our atypical case of silent RCC presented with synchronous metastases to both subcutaneous and a long-standing nodular goiter. Immunocytochemistry can play an essential role in differentiation of the malignant cells in metastatic RCC from other clear cell carcinomas. Markers such as CD10, EMA, PAX8 and RCCma suggest renal origin. However due to socioeconomic reasons of the patient, we could not go for ICC markers.

In our case, diagnosis was aided by radiological imaging (USG W/A) which showed a mass lesion in

lower pole of left kidney that helped us pinpoint towards the primary with much conviction reinforcing the importance of radiological investigations in giving an opinion on FNAC (9).

Conclusion

Subcutaneous swellings and even thyroid swellings can be a sign of undiagnosed metastatic tumor. Thus, in patients presenting with subcutaneous masses at unusual sites or new thyroid growth in pre-existing goiters, metastatic renal cell carcinoma should always be an important differential diagnosis.

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Conflicts of Interest

There are no conflicts of interest.

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