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Multi-Organ Distant Metastases in Follicular Thyroid Cancer- Rare Case Report

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Abstract: ***Follicular thyroid carcinoma (FTC) usually behaves in an indolent manner with blood borne metastatic potential. The major sites of distant metastases are the lung and bone. Metastases to the liver, Lung, bone and skin together are rare or relatively rare. These metastases have almost always appeared in patients with advanced disease and are often associated with poor prognosis but overlooked in clinical practice. Recognizing them has a significant impact on clinical decision-making and prognosis of the patients. Here, we are reporting the clinical details of an elderly lady who presented with a swelling in the skull of 2 month duration, left iliac bone swelling since 3 months. She had an otherwise asymptomatic thyroid swelling of 30 years duration also. Radiology revealed a lytic lesion on the iliac bone, vertebrae, ribs and liver and lung metastasis. Cytological confirmation was done to diagnose follicular cancer of thyroid with scalp and iliac bone metastasis. Surgical resection is still the first choice for the primary and followed by radioiodine therapy for metastatic sites.***

Keywords: follicuar thyroid cancer, thyroidectomy, metastasis,

1. Introduction

Follicular thyroid carcinoma (FTC) is the second most common cancer of thyroid gland after papillary carcinoma. Common appearing cancer in a long standing goitre. These are usually slow growing tumours and have a high propensity for blood borne metastasis. Distant spread may occur to bones, lungs, brain, skin and sometimes kidneys and adrenal glands. Reported incidence of distant metastasis is between 11 to 25%. A review of the literature revealed that only ten cases of all liver metastases from DTC have been documented, with a rate of 0.5% or less. Among the factors responsible for distant metastases and increased mortality in DTC patients are age over 45 years and the involvement of multiple organs, both of which are independently associated with cancer mortality. In this paper, we describe a patient with FTC who initially presented with a long standing goitre with left iliac mass, which on further investigation revealed spread to multiple areas of scalp, lung, bone and liver.

2. Case Presentation

Elderly female patient presented with 30 years history of thyroid swelling along with lump in the left illac region since 3months and scalp swelling since 2months. Since she did not have any symptom associated with the swelling, she had not undergone any evaluation for the same and was not under any medication for the same. Also, she had not noticed any recent increase in the size of the neck swelling. Apart from these, the patient had no symptoms suggestive of pressure on neck structures, no features of toxicity.

On examination, the patient was found to have a spherical shaped, well circumscribed swelling in the left frontal region of skull, of about 5x6 cm size and with smooth surface. The swelling was found to be hard, immobile and fixed to underlying bone. There were no appreciable pulsations or cough impulse over the swelling. On examining the neck, a 15 x 12cm sized goiter was found. The gland was multinodular in morphology and there was a discrete area measuring 5x5 cm on the left side which was hard in consistency. There was no sign of any retrosternal extension. There were no palpable regional lymph nodes. The trachea was found shifted to the right side. There were no features of carotid compression. On examination of abdomen there was mass arising from left iliac bone 12x10 cm, hard in consistency and immobile. All the other systems including the respiratory and central nervous systems were found to be normal.

The patient underwent thyroid function test which revealed normal values and euthyroid status. An X-ray of the skull was done and revealed a discrete osteolytic lesion in the frontal bone on the left side. CT scan revealed no dural defects or intracranial lesions. Lateral view x-ray of the neck showed tracheal shift to the right side. An ultrasound of the neck was done and the report was given as ‘Multi-nodular goiter involving both lobes of the thyroid gland, with a hypo-echoic area suspicious area of differentiated thyroid malignancy in the left lobe. X-ray spine showed the osteolytic lesion in the body of cervical vertebrae and D4 vertebrae.

Non-iodinated contrast CT scan of neck and thorax revealed heterodense mass in 10x9x7 cm in midline of neck more on left side features s/o malignancy with indentation of trachea and abutment of Left IJV and multiple enlarged lymph nodes and there was multiple lung parenchymal and rib metastasis. Ultrasound abdomen revealed hypoechoic lesion in segment 7 and 8 of liver s/o metastasis and ilac bone metastasis.

A Fine Needle Aspiration Cytology (FNAC) of the thyroid was requested and was reported with a diagnosis of Follicular neoplasm. FNAC of the skull lesion and iliac region suggested a possibility of metastases from follicular thyroid neoplasm. Final diagnosis was stage IV carcinoma

of thyroid. On this admission, the patient refused any therapeutic approaches.

3. Discussion

FTC comprises approximately 5% of the thyroid cancers. But its prevalence increases up to 25 to 45% in iodine deficient areas. This carcinoma is generally seen in elderly females, primarily having longstanding non-toxic multi-nodular goitre (50.2%), solitary thyroid nodule (44.2%) and rarely in patients with endemic goitre. This type of neoplasm is probably induced by chronically elevated Thyroid-Stimulating Hormone (TSH) levels.

Follicular cancers are slow growing tumours. FTC has marked propensity for vascular invasion and commonly metastasizes to lungs, bones, brain, and liver. True lymph node metastasis is exceedingly rare. Incidence of bone metastasis in well-differentiated FTC range from 7% to 28%, Vertebrae is the commonest site followed by ribs, pelvic bones, and skull.

Liver metastases from differentiated thyroid cancer are quite rare, with a reported frequency of 0.5%. The incidence of scalp metastasis of FTC is reported as 2.5- 5.8%. Metastatic tumors to the scalp are usually observed in elderly patients and most often from lung, breast, prostate Malignancies, and rarely from thyroid cancers.

In our case we had encountered the both scalp and liver metastasis which has reported were rare in literature, and patient also had lung and bone metastasis which are more common site of metastasis in FTC. In our case bone metastasis was involving the axial skeleton i.e vertebrae, ribs and pelvic bones which is common site of metastasis according to the literature but iliac bone metastasis presenting as a hard mass is being a rare presentation as in our case. We found that liver metastases in our case was asymptomatic and discovered incidentally.

Cytologic diagnosis of metastatic FTC has been rarely reported which happened in our case. Metastasis may exhibit a better differentiated appearance than that of the primary tumor to the point of simulating normal thyroid as an expression of terminal differentiation which was seen in our case

Metastatic tumors are often multiple and have impact on prognosis. Rarely patients with FTC initially present to the clinicians with distant metastasis. The incidence of presentation with distant metastatic disease increases in patients over 45 years of age. It is of note that our patient was 62 years of age, supporting that observation.

The aggressiveness of FTC varies widely and metastatic disease is the primary cause of death. FTC also carries a high mortality rate in patients over the age of 45 years and in those with tumors with the greatest diameter >2.5 cm at the time of diagnosis. Bone metastases uncommonly respond to radioactive iodine therapy and are associated with poor prognosis.

FTC is thought to have the most optimistic prognosis even with metastases to the lymph nodes and lung. However, when combined with distant, especially widespread, metastases, the quality of life is compromised and the overall survival rate significantly decreases.

In recent years, the therapeutic approaches to patients presenting with distant metastasis are essentially well defined. These include total thyroidectomy if the primary thyroid tumor can easily be resected, followed by radioactive iodine (RI) therapy and suppressive treatment with L-thyroxine. In our case, the patient refused any form of definitive therapy such as Total thyroidectomy, RI therapy and chemotherapy at her first admission.

4. Conclusion

FTC, which ordinarily behaves in an indolent manner, can have unusual metastatic presentations and patterns. Bone and lung are the common sites of metastasis from FTC but involvement of scalp, liver and iliac bone mass is unusual. So it advisable for complete radiological evaluation for patient with elderly and long standing follicular carcinoma of thyroid to look for multi-organ metastasis. However, with appropriate initial evaluation and management, good disease free survival rate is possible but overall prognosis remains uncertain. Rare metastases from DTC may be not as rare as we once thought. Collecting more data to establish algorithms for treatment of such rare metastatic cancers may be able to aid physicians to better utilize diagnostic tests, surveillance and ultimately to provide more definitive care for those who suffer from rare multi-organ metastatic diseases.

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Photos

Figure 1: showing multinodular goitre.

Figure 2: showing scalp metastasis

Figure 3: mass arising from illac crest.

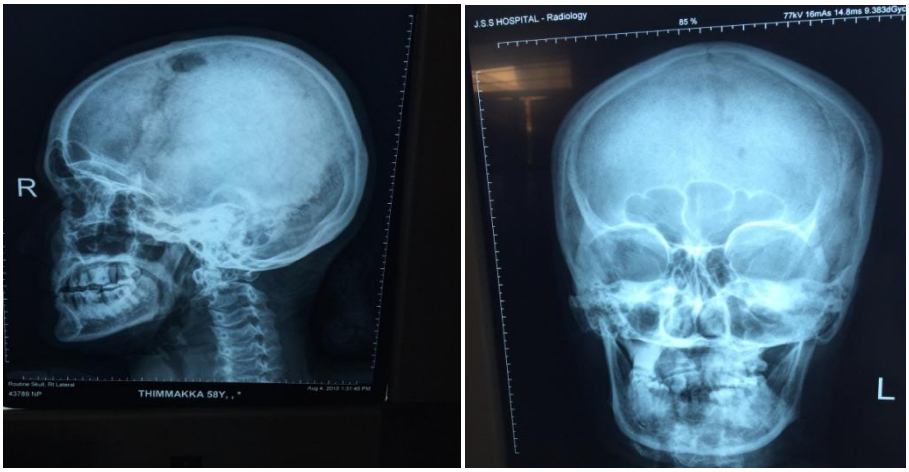

Figure 4: showing osteolytic lesion on skull x-ray.

Figure 5: showing lytic changes in illac bone on x-ray.

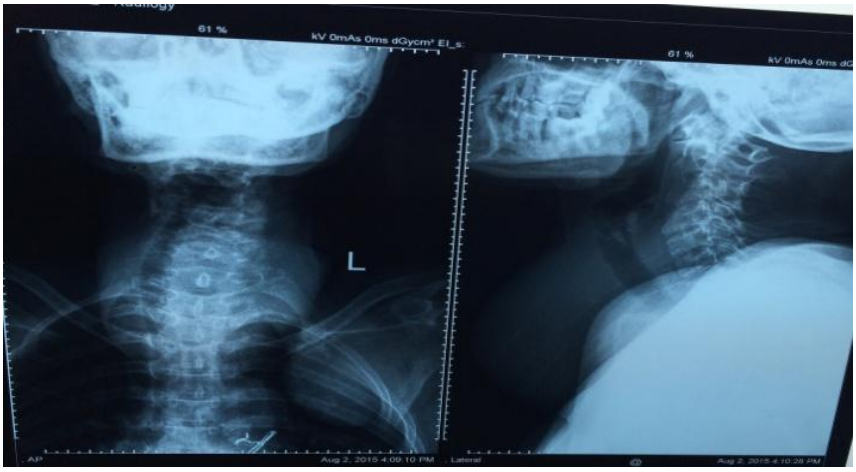

Figure 6: x-ray neck- thyroid region showing calcification and tracheal shift.

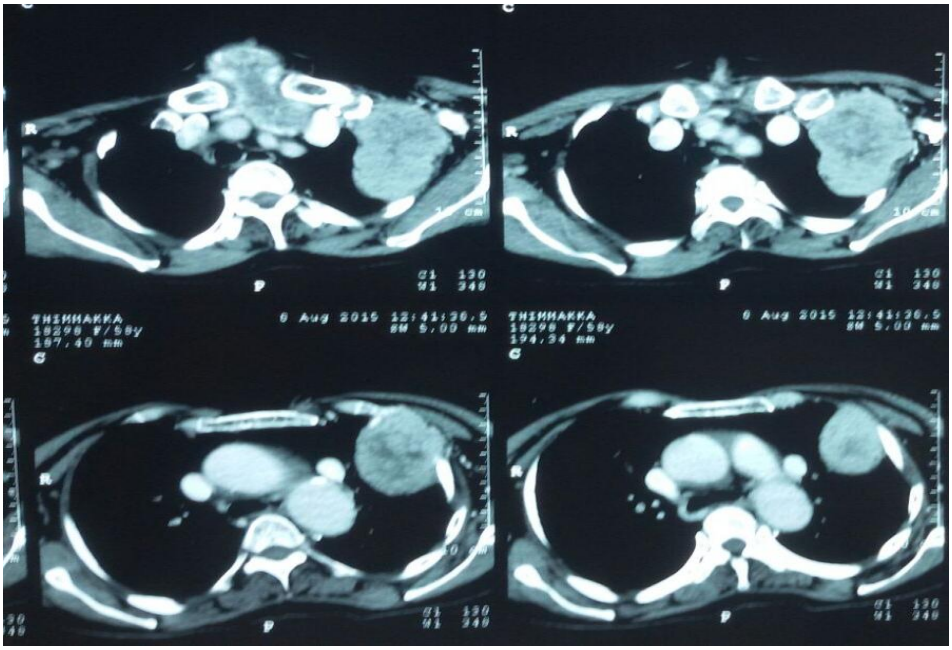

Figure 7: CT scan picture showing multiple lung metastasis and rib metastasis.

Figure 8: CT neck showing goitre with tracheal indentation and vertebral metastasis.

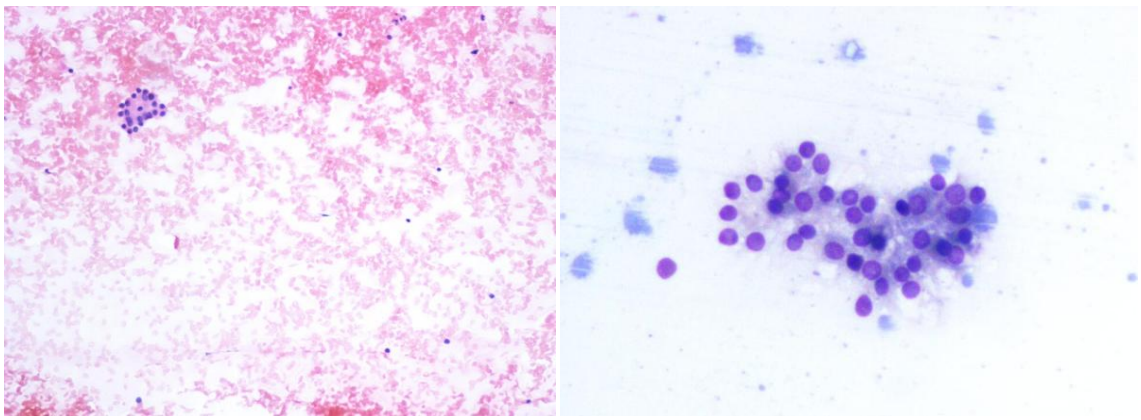

Figure 9: FNAC from thyroid with follicular epithelial cells (a) and iliac region shows areas of haemorrhage and microfollicles (b)