

A Case of Occult Follicular Carcinoma of Thyroid with Metastasis to the Vertebra: Role of FNAC in the Diagnosis

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Case Report

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Abstract: Carcinoma of thyroid is not very common. Bony metastasis of thyroid carcinoma is even rarer. We present a case of follicular carcinoma of thyroid coming with initial presentation of pain in the lower back. Radiological imaging showed a SOL in the vertebra. On Clinical examination, a thyroid swelling was also noted. FNAC of both the SOL in the vertebra and thyroid swelling was done, which revealed feature suggested of follicular neoplasm of thyroid. Subsequent Histopathological examination further confirmed the diagnosis. We conclude that metastatic thyroid carcinoma should be considered in the differential diagnosis of patient coming with lump in the vertebra or patient coming with signs and symptoms of spinal compression.

Keywords: Metastasis, Follicular carcinoma of thyroid, Vertebra, FNAC

INTRODUCTION

Carcinoma of thyroid is not very common. It accounts for approximately 1% of all new malignant disease and about 0.5% of cancers in men and 1.5% in women [1]. Thyroid carcinoma includes 5 histological subtypes: papillary thyroid carcinoma, follicular thyroid carcinoma (FTC), medullary thyroid carcinoma, undifferentiated carcinoma and poorly differentiated carcinoma. Thyroid carcinoma is more prevalent in the middle-aged or old and in females. On the other hand papillary malignancy typically occurs in young females and also sometimes in children, while follicular malignancy most commonly affects middle-aged females. Anaplastic thyroid cancer is most commonly seen in the elderly [2, 3].

In about 90% of cases, thyroid carcinoma present as thyroid nodules. Rarely, it can present as cervical lymphadenopathy, or distant metastasis in the lungs, bone, liver or brain [4-6]. Only 3-15% of patients with thyroid cancer come with distant metastasis at the time of presentation. In about 6-20% of patients, distant metastasis occurs later [7].

Thyroid carcinoma metastasises preferentially to lung followed by bony metastasis. Bony metastasis occurs in approximately 2-13% of cases. They are more prevalent in follicular cancer (7-28%) than in papillary cancer (1.4-7%)[4]. Follicular carcinoma of thyroid, because of its tendency to invade blood vessels, is more likely to metastasize to distant organs rather than to regional lymph nodes. The great majority of bone metastasis occurs in regions where blood flow is high, such as the axial skeleton red marrow in vertebrae, ribs and hips. The spinal lesions are mostly osteolytic. Spinal metastasis typically affect the thoracic (60-

80%), lumbar (15-30%) and cervical spine (<10%) with the preferred route of metastasis to the spine being via the arterial or venous -Batson's venous plexus - vessels resulting in multifocal lesions [1]. Spinal metastasis are particularly debilitating as they often cause pain, fractures, spinal cord compressions and affect mobility and quality of life. The remission rate in bony metastasis is 7-20% [8].

Patients with differentiated thyroid carcinoma have a 10-year survival rate of 80-95%. However in cases of distant metastases, the overall 10-year survival rate decreases and is about 40%. On the other hand, in cases where bony metastases are present, the 10-year survival rate was reported to range from 13 to 21%[9,4].

The diagnostic modalities in spinal metastasis include FNAC of the both the primary and the metastasis site along with histopathological correlation.

Radiological imaging is also useful tools in the diagnosis. CT and MRI scans are useful in providing high resolution imaging of the spine. Bone scintigraphy and other nuclear studies, such as FDG-PET and SPECT, are also used for localisation of lesions and have high sensitivity and specificity. In this article, we would like to highlight the role of FNAC in the diagnosis of follicular carcinoma of thyroid with metastasis to the vertebra.

CASE REPORT

A 38 year old female came to the OPD with the chief complain of pain in the lower back for the last 3-4 months. She also complained of tingling and numbness in both her lower limbs. MRI was done which revealed lobulated SOL involving posterior elements of L1 vertebra with relative sparing of the left pedicle and transverse process extending into the spinal canal and causing moderate canal stenosis, with features suggestive of metastatic lesion. USG whole abdomen and chest X ray did not reveal any abnormalities. Routine blood examination was unremarkable.

Patient also had swelling of the thyroid gland for the last 15-20 years. The swelling was approx. 2cm

X 1.5 cm, moved with deglutition, non-tender, firm and the overlying skin had burnt scar which was from a previous history of burn. She had no difficulty in swallowing and had no history of change in voice. No significant family history was noted. USG of the thyroid gland showed features suggestive of multinodular goiter.

FNAC was advised. CT guided FNAC of the vertebral swelling revealed features suggestive of metastatic deposits of follicular neoplasm of thyroid. FNAC of the thyroid swelling was also done and it was diagnosed as a case of follicular neoplasm.

Subsequently, tumoural excision was done and the mass was sent for histopathological examination. Histopathological findings were consistent with carcinoma, with features of metastatic follicular carcinoma of thyroid. The patient also underwent total thyroidectomy 45 days later, and the histopathological result was verified as follicular carcinoma of thyroid. The patient made an uneventful recovery and on further follow-up she was doing fine.



Fig-1: MRI showing a SOL in the L1 vertebra



Fig-2: Thyroid swelling in the patient

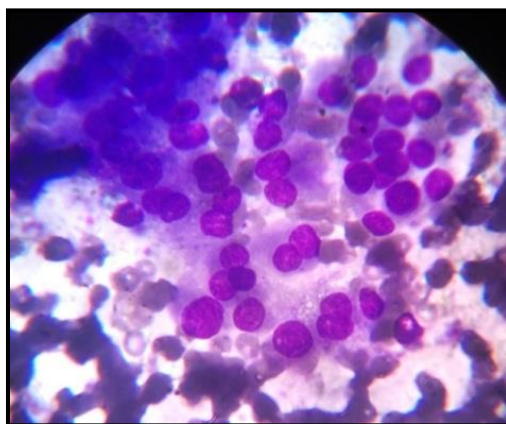


Fig-3: CT guided FNAC of the vertebral mass showing deposits of malignant thyroid follicular cells in a background of colloid and haemorrhage

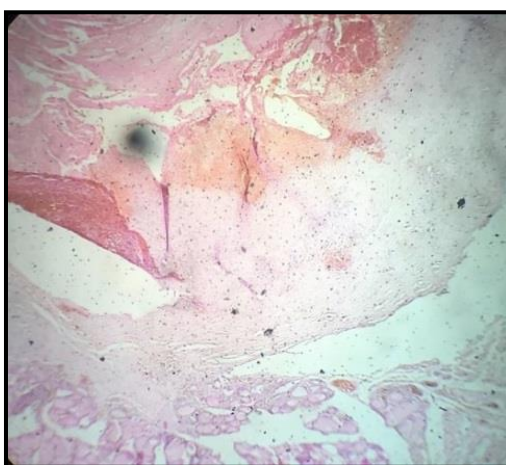


Fig-4: Histological picture of follicular carcinoma of thyroid

DISCUSSION

In humans, about 1% of cancer is thyroid in origin[10]. Among the thyroid carcinomas, follicular carcinoma is the second most common differentiated thyroid malignancy and accounts for 10% to 20% of differentiated thyroid carcinomas[9]. It is usually seen in elderly females, most commonly in those with a history of long-standing nontoxic multinodular goiter. Follicular carcinomas of thyroid are associated with a favorable prognosis except when they present with distant metastasis[11]. Lung and bone are the two most favored sites of metastases[12]. Bone metastases from follicular carcinoma tend to be multiple and more often to the ribs, vertebra and sternum[13].

Solan reported that about 25% of patients with follicular carcinoma have distant metastasis[14]. Harkness *et al* reported the incidence of distant metastatic spread from angioinvasive follicular carcinoma as 10% to 50%[15]. The incidence of presentation with distant metastasis increases among patients over 45 year of age, and the age at presentation is a very important prognostic factor in metastatic

thyroid carcinomas. Nam *et al* reported that 75% of patients with distant metastasis from thyroid carcinomas die within five years of diagnosis[16]. McCormack stated that the reported incidence of distant metastasis of thyroid malignancy to bone ranged from less than 1% to more than 40%[17]. Baron *et al* reported that in 127 autopsy specimens with spinal neoplasms, only three cases of metastasis of the thyroid carcinoma to the thoracolumbar spine were found[18]. Although there are few reports regarding initial presentation of a patient with distant metastasis leading to the diagnosis of follicular thyroid carcinoma, metastasis of thyroid carcinoma presenting as a distal spinal cord compression is extremely rare. Shaha *et al.* reported the incidence of distant metastasis as 11% in 1038 patients with thyroid cancer, in which 4% presented initially with distant metastatic carcinoma[19]. Folliküler T *et al.* reported a case of metastasis of follicular carcinoma of thyroid to the lumbar vertebrae resulting in spinal compression[14].

Multi-disciplinary approach is necessary for the treatment and for to better prognosis even in cases

of distant metastasis of thyroid carcinomas. Early diagnosis and initiation of the treatment also play a role in better prognosis. FNAC because of its simplicity, reliability, rapidity and accuracy can prove to be a valuable tool in early diagnosis. As seen in our case, it can provide a clue in diagnosis of metastasis of occult thyroid carcinomas.

CONCLUSION

In conclusion, metastatic thyroid carcinoma should be considered in the differential diagnosis of patient coming with spinal metastasis and resulting in spinal cord compression. Also FNAC can provide valuable preoperative diagnostic informations in such cases and provide early diagnosis and better prognosis.

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