



Metastasis of Follicular Thyroid Carcinoma to the Vertebra: A Case Report

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Abstract

We report a un usual case of 45-year-old man was admitted to the neurosurgery clinic with the complaint of back pain for 5 months. A tumor was detected at the corpus of L2 vertebra by the lumbar MRG and the lumbar BT. The histopathological result was compatible to the metastasis of follicular thyoid carcinoma. The patient underwent total thyroidectomy and the pathological result was verified as FTC. These attempts were followed by ablation with 150 mCi radioactive iodine (131I).

Keywords: Follicular thyroid carcinoma; Metastasis; Vertebrae

Introduction

Thyroid nodules are a common clinical problem, and differentiated thyroid cancer is becoming increasingly prevalent [1]. Thyroid carcinoma includes 5 histological subtypes: papillary thyroid carcinoma, follicular thyroid carcinoma (FTC), medullary thyroid carcinoma, undifferentiated carcinoma and poorly differentiated carcinoma. Papillary thyroid carcinoma is a major differentiated subtype that has slow growing characteristics and a good prognosis. Follicular thyroid carcinoma is another differentiated subtype that compared to papillary thyroid carcinoma has a greater tendency to distant metastasis to such organs as lung and bone.

Follicular thyroid carcinoma (FTC) accounts for 10–20 % of differentiated thyroid carcinomas (DTCs), and it is the second most common malignant tumor originating from the follicular cells of the thyroid [2,3]. In iodine-deficient areas, the relative rate of FTC tends to be higher, up to 40 % of all cases of DTC [4]. Female to male ratio is 3/1. The incidence increases with age 50 and over. When FTC is diagnosed, 25% of them show the extra-thyroidal invasion, 5-10% of them show the metastasis of locally lymph nodes, and 10-20% of show distant metastasis such as lung and bone.

According to the World Health Organization (WHO) classification of thyroid tumors, FTC is defined by the presence of capsular and/or vascular invasion and by the absence of nuclear features typical of papillary thyroid carcinoma (PTC) [5]. FTC is more likely to metastasize to distant organs rather than to regional lymph nodes because of its tendency to invade blood vessels thus resulting in hematogenous dissemination [6].

Metastatic disease is the primary cause of cancer mortality for most solid tumors including thyroid cancer [7].

Distant metastatic disease is present at presentation in only 3-15% of patients with thyroid cancer, but develops later in 6-20% of patients [8]. Distant metastasis is relatively uncommon in thyroid cancer and when it occurs, long-term stable disease is the typical clinical course. Metastatic tumors are the most common tumors of the spine, accounting for 98% of all spine lesions.

Spinal cord compression as the initial presentation of metastatic occult follicular carcinoma without any thyroid enlargement is unusual and relatively rare. Because of this rarity, we aimed to present this case.

Case Presentation

A 45-year-old man was admitted to the neurosurgery clinic with the complaint of back pain for 5 months. Neurological examination was unremarkable. Routine blood tests and thyroid

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Received Date: 11 Jul 2016

Accepted Date: 16 Aug 2016

Published Date: 30 Aug 2016

Citation:

Kuşaslan R, Vartanoğlu T, Hepgül G, Altinel Y, Yigitbas H, Öncü M, et al. Metastasis of Follicular Thyroid Carcinoma to the Vertebra: A Case Report. *Ann Clin Case Rep.* 2016; 1: 1114.

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Figure 1: A magnetic resonance imaging scan, the metastasis is seen at L2 corpus.

function tests were also within normal limits. The patient's bladder and bowel habit was normal, with no known co-morbidities. The patient had no history of hypertension, diabetes mellitus, bronchial asthma, tuberculosis, jaundice or any neck swelling. The patient had no history of smoking or alcohol intake. A tumor was detected at the corpus of L2 vertebra by the lumbar MRG and the lumbar BT. There was no motor deficiency. Lasegue's sign was negative. There were hypoesthesia at the left side of L1-2. True-cut biopsy was done from L2 (Figure 1) and the histopathological result was the metastasis of carcinoma. Tumoral excision was done by the neurosurgeons. Expandable cage was used for L2 total corpectomy and stabilization. The histopathological result was compatible to the metastasis of follicular thyroid carcinoma. In blood test, the patient was euthyroid and before thyroidectomy, thyroglobulin level was >500 IU/mL, like after the thyroidectomy operation. The patient underwent an operation of total thyroidectomy 20 days later and the pathological result was verified as FTC. These attempts were followed by ablation with 150 mCi radioactive iodine (¹³¹I). External beam irradiation or targeted therapy were not applied. Patient made an uneventful recovery. The patient has still received the radioiodine therapy.

Discussion

Follicular thyroid carcinomas (FTC) are subtypes of thyroid cancers which are slow growing tumors and are associated with a favorable prognosis except when they present with distant metastasis [9]. Lung and bone are the two most favored sites of metastases [10]. Bone metastases from FTC tend to be multiple and more often to the ribs, vertebra and sternum [11].

While the 10-year survival rate is 80-95% for patient with differentiated thyroid carcinoma, survival rate decreases approximately 40% for patients with distant metastasis. In the 25% of FTC patient over the age 40, distant tumoral metastasis is detected. The treatment algorithm for primary thyroid carcinomas includes nearly total or total thyroidectomy, followed by oral administration of ¹³¹I and TSH suppression [9]. Combined use of current multi-disciplinary treatment option is expected to provide the better prognosis even in the distant metastasis of thyroid carcinomas. Early diagnosis and initiation of the treatment should promise a good prognosis for a

patient with metastatic vertebra. But, vertebral metastasis of occult follicular carcinoma without any thyroid enlargement or without any thyroid related symptoms is unusual and relatively rare metastasis to the bone, specifically to the vertebral column, may present as bone pain, pathological fracture, or cord compression and is frequently a surgical issue. The literature review showed most of the metastatic follicular carcinoma had obvious thyroid swelling and many cases had previous thyroid surgery.

Conclusion

In conclusion, metastatic thyroid carcinoma should be considered in the differential diagnosis of every patient with new onset spinal cord compression.

Acknowledgement

Present case was presented in 20th National Surgery Congress, Antalya 2016. (poster presentation).

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