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Case Report

Follicular Carcinoma of Thyroid Presented with Soft Tissue Metastasis: An Uncommon Fine Needle Aspiration Diagnosis

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Abstract

A-60-year-old elderly female presented with long standing swelling over the right shoulder. Thyroid was enlarged on examination and along with the routine work-up of patient, serum thyroid function test; Ultrasonography and Chest X-ray were performed. FNAC was performed from both the swellings i.e., thyroid gland and shoulder, and a provisional diagnosis of metastatic follicular carcinoma of thyroid was made A combination of proper history, along with serological markers, and fine needle aspiration cytology findings are necessary to make a provisional diagnosis of thyroid neoplasms. Also, a long term follow up is necessary to knock down the impact of metastases in previously diagnosed follicular thyroid carcinomas.

Keywords: Follicular thyroid carcinoma; Metastases; Cytology

Introduction

Follicular carcinoma accounts for 10–20% of all thyroid cancers. They are more common in women, with a peak incidence in their 40s and 50s of follicular carcinoma is increased in areas of dietary iodine deficiency, suggesting that nodular goitre may predispose to the development of the neoplasm [1]. Subcutaneous and bone metastases of follicular carcinoma are one of the unusual presentations [2,3].

Herein we present a rare case of metastatic lesion from follicular thyroid carcinoma in a patient that presented with clinical complaints of thyroid swelling with accompanying subcutaneous swelling over the right shoulder, mostly due to hematogenous route.

Case Report

A 60-year-old female patient presented to the orthopaedic outpatient department with complaints of pain and swelling in the right shoulder for 3 years. The patient complained that the swelling was gradually increasing in size, causing pain and distress. On taking a detailed history, she also had midline swelling in her neck, which had been present for the last 18 years. The patient had no complaints of dysphasia or change in voice, any loss of appetite, gain or loss of weight, palpitations, heat or cold intolerance. He had no medical history or family.

Local examination of the right shoulder swelling demonstrated a well circumscribed oval to round mass measuring 15x15 cm in size with smooth borders. The swelling was multinodular, soft to firm in consistency, slightly mobile, and non-tender. Midline neck swelling was soft, mobile, and non-tender and showed multiple nodules, with the largest nodule measuring 5 x 5 cm in size and was firm to hard in consistency (Figure 1). There were no signs of retrosternal extension, tracheal shifting, or carotid compression. Regional lymph nodes were not palpable. The rest of the systemic examinations were normal. Routine blood tests and thyroid function tests were within the normal limit. Ultrasonography (USG) of the thyroid gland showed multiple hypoecohic lesions. A larger nodule was measured at 4.5x5cm on the right side-lobe with marked vascularity and calcifications, suggesting a multinodular goitre involving both the lobes. USG of the shoulder showed a hyperechoic lesion with marked vascularity. An X-ray of the shoulder joint showed a homogenous soft tissue lesion with peripheral thin calcifications. The lymph nodes involved were not found at the time of investigation or physical examination. USG guided fine needle aspiration cytology was performed directly on the swelling with a 22-gauge needle. The aspirate smear was air dried or fixed in alcohol and stained with MGG, hematoxylin-eosin, or Papanicolaou stain, respectively. FNAC of the thyroid nodule showed moderate cellularity. Uniformly sized epithelial cells were arranged into predominantly microfollicles, rosettes, and clusters in a repetitive manner. Syncytial aggregation, nuclear crowding, and overlapping were seen frequently. The background was bloody and devoid of colloid. No papillary structure or nuclear pesudoinclusion was observed, and a diagnosis of follicular neoplasm (TBSC- IV) was offered. FNAC of the shoulder also showed similar morphology of cells, suggesting a possibility of metastasis from the thyroid (Figure 3). Surgical excision was advised. The patient didn't show up for treatment and we lost follow-up.

Discussion

The prevalence of thyroid carcinoma is higher among females as compared to males, with the female to male ratio being 1.6:1. Follicular carcinoma is the second most common differentiated thyroid malignancy after papillary carcinoma [3]. In contrast with papillary thyroid carcinomas, follicular carcinomas are slow growing and occur in elderly patients. The major route of metastasis is preferably hematogenous rather than lymphatic. It is an aggressive tumour with an inclination to distant metastases at the time of presentation [4]. Although the lungs and bones are the most commonly involved sites, there is evidence that thyroid cancers may also affect the brain, skin, liver, adrenal glands, and even the mediastinum [3].

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Figure 1 a&b: Shows shoulder swelling and midline neck mass with marked cutaneous vascularity.
Figure 1.c X-ray imaging of shoulder joint shows homogenous soft tissue lesion with peripheral thin calcifications.

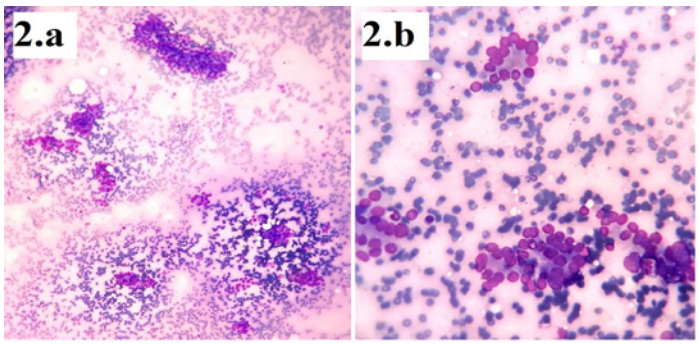

Figure 2.a: FNAC shows cytosmear from thyroid and shoulder mass arranged in microfollicles, clusters and syncytial pattern (low power). **Figure 2.b:** Follicles are composed of predominantly uniform follicular epithelial cells with nuclear enlargement in colloid free background (40X).

In our case, the metastatic site was the soft tissue between the skin and the suprascapular region with destruction of the acromion process and lateral end of the clavicle, along with a well-defined radio opaque nodule in the right upper zone at the level of the right 6th rib. Similar findings were seen by Wang et al. and Fan et al [5,6].

Kelessis et al. described a case of painless supraorbital swelling in a 72-year-old woman with underlying bone destruction that proved to be metastasis from a well-differentiated thyroid carcinoma [7]. Bone metastases are often clinically silent but can present with pain. The presence of vague clinical features like back pain, bone pain, and weakness does not raise suspicion for this cause, making it tough to diagnose [8]. In the current study, ultrasound of the metastatic nodules showed solid hypoechoic regions with irregular margins, hyper-vascularity, and heterogeneous enhancement. However, there are no fixed criteria for the diagnosis of follicular carcinoma on ultrasonography alone. Wang et al. also mentioned similar findings in their study [5].

The cell of origin of the metastatic lesion can be confirmed by immune histochemistry and markers that are specific for Follicular Thyroid Carcinoma (FTC), i.e., thyroglobulin and TTF-1, which can be detected in over 95 and 100% of FTC cases, respectively [9]. Serum thyroglobulin is the most important serological marker available for monitoring of recurrence and metastasis [10].

It should be noted that in this patient, these tests were not performed and we had to rely on clinical presentation, microscopic examination, USG, and X-ray findings to come to a provisional diagnosis.

Subcutaneous and bone metastases are one of the unexpected presentations of metastatic follicular carcinoma. A combination of clinical and USG findings, microscopy, serology, and immunohistochemistry are required for making a diagnosis. Since

metastases can have a significant impact on the management of follicular carcinoma, the treating physician should warn and educate the patient about thyroid swelling for essential standard long-term follow-up.

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