Case Report:
Thyroid in the Thigh – A rare presentation of Follicular Carcinoma

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Abstract: Follicular carcinoma is the second commonest thyroid malignancy. Blood borne metastasis is common with spread to the lungs and bones. However, metastasis to the skeletal muscles is an extremely rare manifestation. Skeletal muscle metastasis is most commonly associated with papillary thyroid carcinoma and rarely with follicular carcinoma. Follicular carcinomas usually remain asymptomatic and are associated with poor prognosis. Here we present a case of 55 year old female with large neck and thigh swelling. Ultrasound guided fine needle aspiration cytology (FNAC) revealed it as follicular neoplasm with thigh metastasis.

Key Words: Thyroid, Follicular carcinoma, Fine needle aspiration cytology, Ultrasonography, Metastasis.

Introduction:
Thyroid carcinoma is the commonest endocrine malignancy. The incidence is as high as 23,500 and 19,000 new cases per year in the United States and the European Union, respectively.[1] Thyroid tumors can be divided based upon tumors exhibiting follicular cell differentiation or C-cell differentiation or both.[2]

Follicular thyroid carcinoma is the follicular cell derived thyroid neoplasm and is the second most common thyroid cancer after papillary carcinoma. It is mostly seen in patients over 40 years of age with female predominance and accounts for 10–20% of all thyroid malignancies.[3] It typically presents as an asymptomatic solitary thyroid nodule. These neoplasms tend to metastasize hematogenously, most commonly to the lungs and bones. However, metastasis to the skeletal muscles is extremely rare.[3–4]

Fine needle aspiration (FNA) remains the gold standard for evaluating a thyroid nodule. It is highly sensitive and plays a major role as a screening test for follicular carcinomas.[5] Current guidelines from the National Comprehensive Cancer Network (NCCN) recommend that patients with thyroid nodules undergo measurement of thyroid-stimulating hormone (TSH) and ultrasound of the thyroid and central neck. Computed Tomography (CT) can be done to assess its extent and metastasis.[6] Surgery is found to be the most optimum treatment with most of the patients responding well to total thyroidectomy, radioiodine-131 ablation and levothyroxine suppression treatment.[3] The prognosis usually depends upon the prognostic factors and is mostly poor with median survival from 6–26 months.[1]

To the best of our knowledge, we believe that there have been only few cases of follicular thyroid carcinoma with soft tissue metastasis reported in the literature.

Case Report
A 55 year old female came with the complaint of swelling over the neck since 30 years and a swelling over right side groin since 15 days. The patient gave history of trauma few days back. No other relevant complaints were noted. Local examination revealed a swelling of 30x25cm noted in the anterior part of neck and another swelling of size 8x6cm noted over right medial aspect of thigh.

Ultrasonography (USG) of neck showed a very large mass seen in the right side of neck measuring 30x25cm which appears predominantly hyperechoic with multiple cystic components suggestive of necrosis. Impression was given as neurofibroma. USG of right thigh showed an ill-defined, heterogenous, predominantly hyperechoic collection measuring 7.9x7.7x7.5cm noted in the medial aspect of thigh with increased vascularity. Impression was given as hematoma.

Ultrasound guided fine needle aspiration was done. The smears from thyroid were highly cellular and showed numerous medium sized follicles, papilliform clusters of follicular cells with mild nuclear anisokaryosis and moderate amount of cytoplasm. Many of the follicular cells exhibited Hurthle cell changes and few follicles showed scanty colloid. Background showed scattered naked nuclei (Figure. 1). The smears from the right thigh swelling also showed similar cytological features (Figure. 2). Thus a diagnosis of follicular neoplasm with thigh metastasis was made.

Patient was not willing for surgery following which she was discharged on request. She was lost to follow up.
Discussion

Follicular carcinoma is the second most prevalent malignancy of the thyroid after papillary thyroid carcinoma representing approximately 15% of all thyroid carcinomas. They can be minimally invasive or widely invasive. Mostly they are minimally invasive and are categorized as well differentiated tumors that have an excellent prognosis. Some are widely invasive carcinomas with a much more aggressive clinical course.[5]

Peak onset of follicular thyroid cancer is between 40-60 years with female preponderance. Female to male ratio is 3:1. It is rarely associated with radiation exposure.[7] Hematogenous spread is common to lung, bone and other solid organs. Only less than 10% of follicular carcinoma presents with the evidence of lymphatic involvement. Invasion into vascular structures within the thyroid gland is common.[3] Metastasis can also be seen to kidney and skin. The skeletal metastases are usually multicentric but have a predilection for the shoulder girdle, sternum, skull and iliac bone.[2] However, metastasis to the skeletal muscles is extremely rare.[4] The most frequent metastatic muscles, as reported in the literature, are the gluteus, sternocleidomastoid and thigh.[7] The incidence of distant metastasis in follicular cancer has been reported as 6–20%.[8]

Follicular carcinomas that are well circumscribed isolated and minimally invasive may be treated with hemi-thyroidectomy and isthmusectomy. Widely invasive lesions should be treated with total thyroidectomy and radioactive iodine-131 ablation.[9] The prognosis of follicular carcinoma largely depends upon few prognostic factors. The commonly used prognostic factors include age over 45 years, size of tumor greater than 4cm, presence of extra thyroidal extension and distant metastasis.[5]

A high serum thyroglobulin level that had previously been low following total thyroidectomy, especially if gradually increased with thyroid stimulating hormone (TSH) stimulation, is indicative of recurrence. Levels greater than 10 ng/ml is often associated with recurrence even if an iodine scan is negative.[10] Patients with differentiated thyroid carcinoma have a 10-year survival rate of 80–95%. However, when distant metastases are present, the overall 10-year survival rate is only 40%.[3]

Conclusion

This case of follicular thyroid carcinoma with soft tissue metastasis is reported for its clinical rarity and also to highlight the utility of Fine needle aspiration as a screening tool for the diagnosis of follicular lesions of thyroid. However, surgical excision is required in all these cases for histopathological examination for further management of the patient.

References