ORIGINAL RESEARCH PAPER

General Surgery

UNCOMMON COEXISTENCE: A CASE REPORT OF METASTATIC PAPILLARY CARCINOMA THYROID CONCURRENT WITH TUBERCULOSIS OF THYROID AND LYMPH NODES

KEY WORDS: Papillary carcinoma thyroid, coexistence, thyroid tuberculosis, tuberculous lymphadenopathy

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ABSTRACT

A 67-year-old lady was admitted for fever, joint pain and cervical adenopathy. Ultrasound guided core biopsy of the node showed metastatic papillary thyroid carcinoma. CT thorax also revealed mediastinal lymphadenopathy. Total thyroidectomy with modified radical neck dissection was done. Histopathology showed papillary carcinoma and tuberculosis in both thyroid and lymph nodes. This report is presented for the rarity of coexistence.

INTRODUCTION

The coexistence of malignancy with tuberculosis in the thyroid and lymph nodes represents a rare yet intriguing clinical scenario. Papillary carcinoma, the most common type of well-differentiated thyroid cancer typically arises from the follicular cells of the thyroid gland and commonly metastasises through the lymphatic route. On the other hand, extrapulmonary tuberculosis, most commonly caused by Mycobacterium tuberculosis occurs in lymph nodes and rarely in the thyroid gland. When these two conditions occur concurrently, they can pose diagnostic and therapeutic challenges.

Papillary carcinoma, characterized by distinctive nuclear features and papillary structures usually presents as a solitary nodule or as a part of multinodular goiter. Diagnosing lymph node metastasis, when there is a clinical doubt of tuberculous lymphadenopathy, adds complexity to the diagnostic workup due to overlapping clinical and radiological features. Differentiation may require histopathological examination with or without immunohistochemistry markers.

Multidisciplinary collaboration between endocrinologists, surgeons, pathologists and nuclear medicine specialists become crucial to achieve the right diagnosis and treatment. Surgical intervention in the form of total thyroidectomy with neck dissection will have to be offered for papillary carcinoma with nodal metastasis, while antitubercular therapy is essential for treating tuberculosis.

Case Presentation:

A 67-year-old lady presented with swelling in the right side of neck which gradually increased in size over a month and fever spikes in the evening with polyarthralgia for a week. Examination of the neck showed mobile, non-tender, soft, non-matted nodes in level II, III and IV on the right side. There was no other palpable swelling in the neck. Systemic examination was essentially normal.

Investigations:

Blood investigations including thyroid function tests were normal. Ultrasound of the neck showed two nodules on each side TIRADS 2,3 and 4, the largest measuring 14x7 mm in size. HRCT thorax showed multiple mediastinal lymphadenopathy (Image 1) with ground glass opacities in bilateral lungs and cardiomegaly. FNAC of TIRADS nodule showed benign thyroid follicular disease. Ultrasound guided core needle biopsy from the level II lymph node (Image 2) was in favor of metastatic deposit from papillary carcinoma thyroid, confirmed with IHC markers including CK19, CK7 and patchy positivity for thyroglobulin. She tested strongly positive for the Mantoux test.

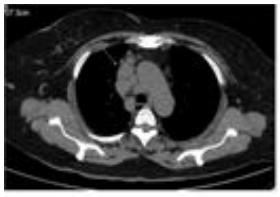

Image 1: Mediastinal lymph nodes on HRCT

Image 2: Ultrasound guided biopsy of lymph node

Management:

Though the cervical node was proven as metastasis from papillary carcinoma thyroid, differential diagnosis of extrapulmonary tuberculosis or sarcoidosis were thought of in view of the incidental mediastinal lymphadenopathy found on the CT chest. Multidisciplinary team involved at the tumor board meeting made a unanimous decision to go ahead with total thyroidectomy with modified radical neck dissection. Intra operatively total thyroidectomy along with meticulous neck dissection was done. No evidence of caseation or suppuration were seen during neck dissection. Bilateral RLNs and parathyroids were seen and safe guarded. Her post operative recovery was uneventful. Histopathology report showed mpT2pN1b - papillary carcinoma, classic subtype (Image 3) with all margins free of invasive carcinoma and necrotising granulomatous inflammation (Image 4) in thyroid and lymph nodes (Images 5 and 6). Xpert MTB and AFB stain were negative from both the node and thyroid gland.

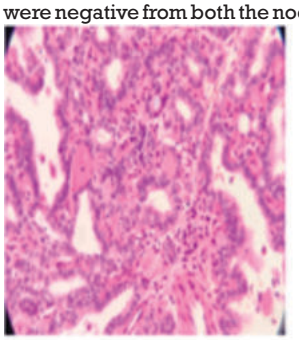

Image 3: Papillary thyroid carcinoma

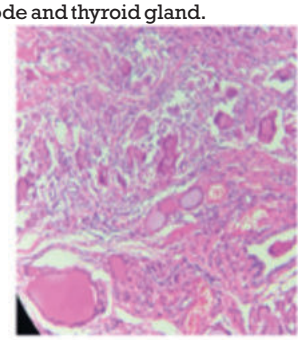

Image 4: Thyroid with necrotising granuloma

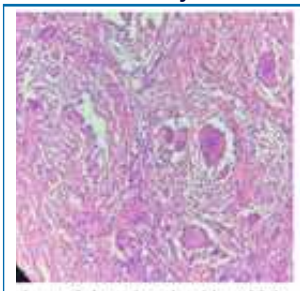

Image 5: Lymph node with multiple epithelioid granuloma

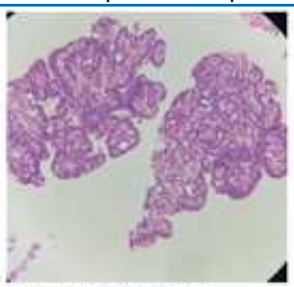

Image 6: Lymph node with papillary neoplasm

With consensus of endocrinologist and pulmonologist, her anti-tuberculosis treatment was started. The need for radioactive iodine scan and possible ablation after four weeks has been explained.

DISCUSSION

Differentiating tuberculous cervical lymphadenitis from lymphatic metastasis in a patient with PTC can be difficult. Only a subset of patients with cervical lymphadenopathy have characteristic clinical features of tuberculosis. Radiological and microscopic features may not be foolproof methods to differentiate between the two conditions. Immunohistochemistry may be necessary to clinch the exact diagnosis (1).

In our case, the need to suspect tuberculous pathology despite biopsy-proven thyroid metastasis in the nodes was strong. This was because of the positive Mantoux test and the HRCT showing ground glass opacities (2) and mediastinal lymphadenopathy (3). These investigations though not specific for tuberculosis raise the suspicion significantly.

Whether nodal TB is proven or not, surgery has to be offered as soon as a diagnosis of PTC with nodal metastasis is made (4). However, investigations like Xpert MTB/RIF assay, AFB stain to prove an additional diagnosis of tuberculosis has to be done from the final specimen.

There are several cases mentioned about the association of PTC with tuberculous cervical lymphadenitis (5). Less than ten case reports have documented the coexistence of PTC and thyroid tuberculosis with the lymph nodes showing either papillary carcinoma metastasis or TB (6). As far as the authors know this is the first instance where PTC and tuberculosis have been histologically confirmed in both the thyroid gland as well as in the lymph nodes.

In India, with high prevalence of tuberculosis, the incidence of thyroid tuberculosis remains low (0.6-1.15%). Bacteriostatic thyroid hormones and good oxygenation can be possible reasons for the rarity. The diagnosis has been based on the postoperative histopathological examination.

The association of thyroid tuberculosis and thyroid carcinoma is extremely rare. A possible role of mycobacterial infections in the tumorigenesis of PTC could be chronic and persistent inflammation. Mycobacterial cell wall components are capable of inducing DNA damage through the production of nitric oxide and reactive oxygen species. This DNA damage has been implicated in inflammation-related carcinogenesis (7).

Papillary carcinoma of thyroid requires total thyroidectomy with appropriate neck dissection according to the level of nodes involved. Once coexistent tuberculous pathology is confirmed, antituberculous treatment should be given for 6 months. A radioactive iodine scan is usually done 4 weeks after surgery, after which ablation is done if needed.

CONCLUSIONS

The association of PTC and TB in thyroid and lymph nodes, like in our case, has not been reported till date. Metastatic adenopathy is considered in the presence of discrete cervical nodes. Tuberculosis is also a possibility, though they are usually matted. The management involves a multidisciplinary team. Optimal medical and surgical treatment is usually associated with a good prognosis.

Abbreviations

PTC - papillary thyroid carcinoma
TB - tuberculosis
FNAC - fine needle aspiration cytology
TIRADS - thyroid imaging reporting and data system
AFB - acid fast bacilli
MTB - Mycobacterium tuberculosis
IHC - immunohistochemistry

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