CLINICAL VIGNETTE

Tuberculous Lymphadenitis Masquerading as Metastatic Papillary Thyroid Carcinoma

Shalini Bhat, MD

Division of Endocrinology
University of California Los Angeles David Geffen School of Medicine

Introduction

Papillary thyroid carcinoma (PTC) is frequently associated with cervical lymphadenopathy at presentation[1,2]. Lymphadenitis due to tuberculosis is clinically indistinguishable from lymph node metastasis due to PTC because the distribution of affected lymph nodes is virtually identical[3]. Tuberculous lymphadenitis is a diagnostic challenge in the United States because it is rare and mimics other pathological processes[4]. This is the first U.S. case reported of a patient suspected to have metastatic thyroid cancer found to have tuberculous lymphadenitis after surgical excision.

Case Report

A 39-year-old male of Indian origin who had moved to the United States eleven years ago presented to his primary care physician with a three month history of dysphagia and sore throat. On physical exam the patient was found to have a one centimeter right thyroid nodule and bilateral cervical lymphadenopathy. The remainder of the exam was unremarkable. He had a past medical history of hypothyroidism, diabetes mellitus type 2, hypertension, and anemia. The patient denied symptoms of night sweats, weight loss, or fever. He had no personal history or known exposure to tuberculosis. There was no family history of thyroid disease.

Laboratory testing documented that his serum thyrotropin level 1.8 uIU/mL (range 0.3-4.7) and serum free thyroxine level 1.1 ng/dL (range 0.8-1.6) were normal. A chest radiograph was normal.

A thyroid ultrasound (US) showed an isoechoic nodule in the mid lateral right lobe measuring 1.0 x 0.7 cm. Fine needle aspiration cytology (FNAC) was positive for PTC. The FNAC of the lymph node showed granuloma formulation with focal caseating necrosis, but the acid fast bacilli (AFB) smear for mycobacteria and Periodic acid-Schiff stain for fungi were negative. There was no evidence of metastatic carcinoma.

The patient underwent a computed tomography scan of the cervical bed, which showed bulky right cervical adenopathy with scattered left neck nodes (Figure 1). The patient underwent total thyroidectomy with radical neck dissection, left selective neck dissection levels II through IV, and mediastinal lymph node dissection. Pathology revealed micropapillary carcinoma of the thyroid (0.7 cm in greatest dimension). Granulomatous inflammation was seen on the right lymph node pathology (Figure 2). AFB stains were done on the right-sided lymph nodes. The right lymph nodes Ziehl-Neelsen stain and Fite stain were positive for tuberculosis. The patient was started on a four-drug anti-tuberculosis medication regimen.

Discussion

This case initially appeared as a straightforward presentation of PTC with metastatic cervical lymph nodes. Cervical lymphadenopathy is present in 23-56 percent of cases of PTC at initial presentation[1,2].

The distribution of lymphadenopathy is similar in tuberculous lymphadenitis and cervical metastases from thyroid carcinoma[3]. Clinical evaluation cannot distinguish between these different entities. Both metastatic PTC and tuberculosis cervical adenopathy occur in the supraclavicular area or posterior triangle of the neck[3]. In addition, the sonographic appearance of tuberculous lymph nodes (round and hypoechoic and with frequent intranodal cystic necrosis and calcifications) is very similar to metastatic PTC cervical lymph nodes[5].

Tuberculous lymphadenitis is easy to miss without a high index of suspicion because it occurs

infrequently, mimics other diseases, and has inconsistent laboratory findings[4]. The diagnosis is established by histopathologic examination by excisional biopsy or FNAC. Although histopathology is the most accurate test for the diagnosis of cervical lymphadenopathy, it has largely been replaced by FNAC, which is a less invasive, less expensive outpatient procedure recommended as the initial test in suspected cases[4]. Histopathology can be used for definitive diagnosis in patients with a non-diagnostic FNAC, as occurred with this patient[4]. Alternatively the use of polymerase chain reaction (PCR) of FNAC allows identification and genotyping of Mycobacterium tuberculosis when only a small amount of sample is obtained[4].

This case demonstrates the importance of tuberculosis workup before surgery. If the PCR assay was performed earlier, tuberculous lymphadenitis could have been identified preoperatively. PCR tests detecting Mycobacterium tuberculosis genes from fine needle aspirates have a high sensitivity (82.4 percent) when compared to FNAC alone (52.9 percent) and have 100 percent specificity[6].

Cervical lymphadenitis is the most common head and neck manifestation of mycobacterial infections[7,8]. In the United States, nearly 20 percent of patients with tuberculosis have extra pulmonary disease, and of these patients lymphadenitis is a presenting symptom in around 40 percent of cases[9,10]. In addition, cervical lymphatic tuberculosis represents more than 60 percent of lymphatic tuberculosis. Declining tuberculosis cases in the U.S. has decreased physician suspicion of tuberculosis and more missed cases[10]. Tuberculous lymphadenitis should be included in the differential diagnosis of cervical lymphadenitis in PTC. The correct diagnosis is important because the surgical excision of lymph nodes can lead to complications.

Conclusion

This case illustrates that cervical lymphadenopathy, despite appearing as malignant in a patient with PTC, may not necessarily be due to metastatic spread. Simultaneous tuberculous lymphadenitis may masquerade as metastatic lymph nodes from PTC.

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Figure Legends

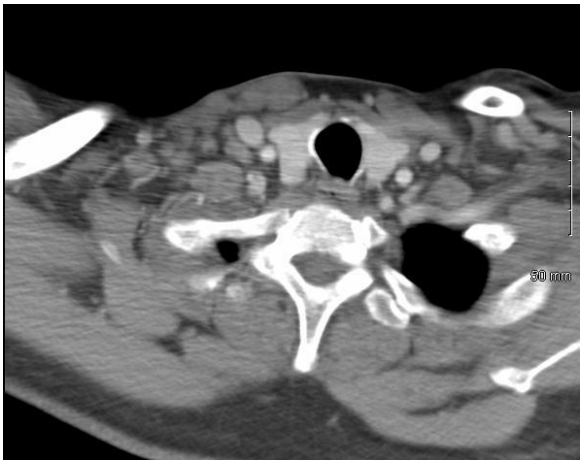

Figure 1. Contrast enhanced computed tomography of neck. Axial images showed bulky right cervical adenopathy with multiple matted nodes on the right side in levels II, III, IV. There are scattered left sided lymph nodes in level V, and II through IV.

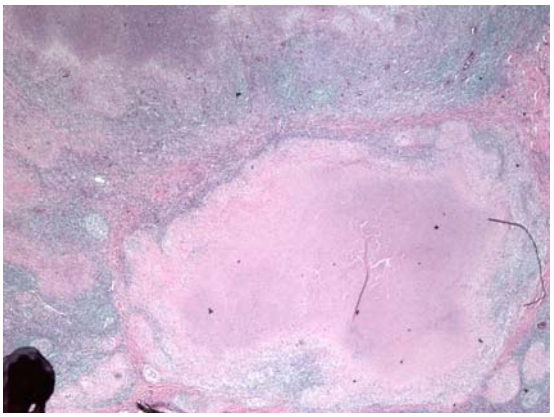

Figure 2. Epithelioid cell clusters with giant cells and reactive lymphoid cells suggestive of granulomatous lymphadenitis, H&E magnification x 4.