

Primary thyroid tuberculosis associated with thyrotoxicosis - Rare presentation

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ABSTRACT

Primary thyroid tuberculosis (TB) gland is a very rare disease; although, the incidence of extra pulmonary TB has been increasing in the recent year. We present a case of primary thyroid TB. The case was diagnosed on the basis of findings of fine-needle aspiration cytology, as our case presented with multinodular thyroid goitre and erythema nodosum. She was given antitubercular treatment for 9 months, and she improved and her multinodular lesion completely resolved after treatment. In conclusion, thyroid TB should be kept in mind in the differential diagnoses of the thyroid masses, even in a patient with no history and symptoms of TB disease.

Key words: *Fine-needle aspiration cytology, Hyperthyroidism, Thyroid tuberculosis*

Tuberculosis (TB) is a chronic granulomatous disease caused by mycobacterium TB, which primarily affect lung and cause pulmonary TB. It can also affect all organs and tissues of the body. TB is endemic in India. Global burden of TB is 9 million new cases and 1.5 million deaths in 2013. Among the new cases, approximately 24% and 11% cases are detected in India and China, respectively [1]. Primary TB of thyroid gland is extremely uncommon. The incidence of primary TB of thyroid is very low even in developing countries where prevalence is very high as compare to pulmonary TB. Extra pulmonary TB have a different clinical presentation and difficult to diagnose. For an accurate diagnosis, clinical and radiological investigations are nonspecific and required tissue examination.

Traditionally, the diagnosis of TB has been made based on clinical findings and radiographs and confirmed by sputum or tissue smears that show the bacilli, which still remain the gold standard. Fine-needle aspiration cytology (FNAC) is now widely utilized as a first line diagnostic procedure in the diagnosis of palpable masses, its value in the diagnosis of mycobacterial of palpable mass in adults is well documented. FNAC is a simple effective and safe modality for obtaining a representative sample of material from a swelling. It is adequate for diagnosis and avoids a major surgical operation. It is also cost effective and can be carried out at outpatient levels. In our patient, the FNAC revealed the presence of an epithelioid cell granuloma and caseous necrosis. This is indicative of TB on the basis of cytomorphology. We, hereby, present a case of a 17-year-old female patient who was diagnosed to have primary thyroid TB.

CASE REPORT

A 17-year-old female patient presented with a history of fever, pain and swelling in front of neck and red round painful nodule below the shins and forearms for 6-7 days. There were symptoms of hyperthyroidism such as excess sweating, fatigue, rapid heartbeat, irritability, diarrhea, and restlessness. On examination, she had multinodular in anterior neck without lymphadenopathy. Erythema nodosum was there. Systemic examination was normal except feature of hyperthyroidism.

Ultrasonography showed hyperechoic areas with surrounding hypoechoic halo, and on Doppler study, there was increased intranodular vascularity. Chest X-ray was done to rule out pulmonary TB. Routine hematology and biochemistry were within normal limits except increased T3, T4 and decreased thyroid-stimulating hormone (TSH) levels (T3 - 2.41 ng/mL, T4 - 18 ug/dL, and TSH - 0.06 uIU/mL). Montoux test was positive (size - 12 mm). FNAC of thyroid swelling showed features of caseating granulomatous thyroiditis. Ziehl-Neelsen stain for acid-fast bacilli (AFB) was noncontributory. She was being ruled out for sarcoidosis. Patient was given antitubercular therapy (ATT) for 9 months (2HRZE/7HR). The patient responded well to the treatment, and after completion of 9 months, there was complete resolution of swelling of the neck.

DISCUSSION

Primary TB of the thyroid gland is an extremely rare disease. The frequency of thyroid TB is 0.1-0.4% [2]. Extra pulmonary TB has different clinical manifestation and may be difficult to diagnose. In the thyroid gland, TB involvement may be in two forms. First, which is more common, is miliary spread to thyroid

gland as dissemination. Less common is focal caseous TB of the thyroid, presenting as cold abscess [3], multinodular goitre [4] or localized swelling like carcinoma [5]. Thyroid TB can also manifest itself as a common thyroid nodule, lump, or as a nodule with a cystic component.

Clinical presentation is often subacute but may be acute in case of thyroid abscess [4,6] or chronic in nodule with cystic component. The patient may be also asymptomatic. Thyroid functions is preserved in the majority of cases but were disturbed in our case in the form of hyperthyroidism in the beginning which got controlled with ATT only. The hyperthyroidism is caused by extensive glandular destruction by caseous necrosis [7]. In suspected cases, chest X-ray and a tuberculin skin test (purified protein derivative) should be performed [8]. The diagnosis is made only after FNAC. The characteristics cytopathological findings include epithelioid cell granulomas with caseous necrosis and lymphocytic infiltration [9]. The simultaneous finding of AFB makes diagnosis almost certain. In this situation, a mycobacterium culture is helpful [10].

The imaging technique is not very helpful in establishing the diagnosis. Radiological findings of thyroid TB and malignant thyroid have a similar picture [11]. Many diseases may cause granulomatous inflammation in thyroids such as granulomatous thyroids, fungal infection, TB, sarcoidosis, granulomatous vasculitis, and foreign body reaction. Caseating necrosis is seen only in TB inflammation. Pathologists should keep in their mind the rare possibility of tubercular infection. Treatment of thyroid TB consisted of ATT. It has been recognized that complete resolution usually follows an appropriate ATT only [10].

CONCLUSION

The thyroid TB is usually not investigated and is rare but should be considered as differential diagnosis of thyroid masses particularly

in developing countries like India, where there is a high prevalence of TB. FNAC is the main diagnostic method to diagnose the disease. Treatment is mainly based on the antitubercular agents.

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