

## Primary Tuberculosis of Thyroid: A Rare Case Report

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**Abstract:** Thyroid tuberculosis is a very rare condition. Although there is an increase in the incidence of extra-pulmonary tuberculosis, the primary involvement of thyroid gland is rarely seen. We report a case of primary tuberculosis of the thyroid gland in 22 years old female, she was referred for ultrasound evaluation of the neck swelling. The ultrasound guided FNAC was done and the diagnosis was confirmed histo-pathologically by demonstration of acid fast bacilli. The Anti-tubercular treatment was started after the definitive diagnosis.

**Keywords:** Thyroid tuberculosis, Abscess, Thyroid ultrasound, Neck swelling

### INTRODUCTION

Thyroid gland is rarely affected by tuberculosis. It was once considered immune from the disease till Lebert in 1862 reported the involvement of thyroid gland [1]. There have been isolated case reports and few case series of thyroid tuberculosis in the literature [2]. It is an uncommon disease even in the countries in which, tuberculosis is endemic though incidence of extra-pulmonary tuberculosis is increasing in recent time [3]. On imaging, tuberculosis of thyroid may have variable appearances. It may mimic malignant tumor when associated with cervical lymphadenopathy.

### CASE REPORT

22 year old female was referred for ultrasound evaluation of anterior neck swelling which was gradually increasing and progressive since 2 months (Fig. 1). The Patient had mild non-productive cough with mild dyspnoea. There were no symptoms of hypo-

or hyperthyroidism. She had no complains of dysphagia, weight loss or hemoptysis. There was no history of tuberculosis. On examination, swelling was seen in infrahyoid region which was more on left side, moving with deglutition. In laboratory tests, hemoglobin level was 12 g/dL and ESR 24mm/hr. The thyroid function tests was as follows: T3 169 ng/dL ; T4 10 ug/dL ; thyroid- stimulating hormone (TSH) 2.16 uIU/mL. The patient was non-reactive for HIV. High resolution ultrasound revealed multi-septated collection involving left lobe, isthmus and part of right lobe of thyroid with few necrotic lymph nodes. Abdominal ultrasound was normal. On CT imaging, there was a hypo dense lesion with peripheral enhancement involving thyroid gland with few lymph nodes. Contrast enhanced CT thorax was normal. Patient underwent ultrasound guided FNAC which revealed acid-fast bacilli on Ziehl- Neelsen staining. After that, the patient was started on anti-tubercular therapy.

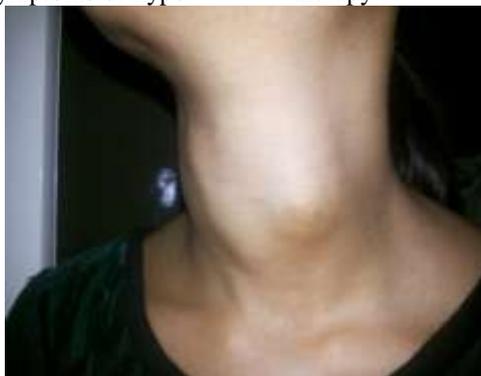
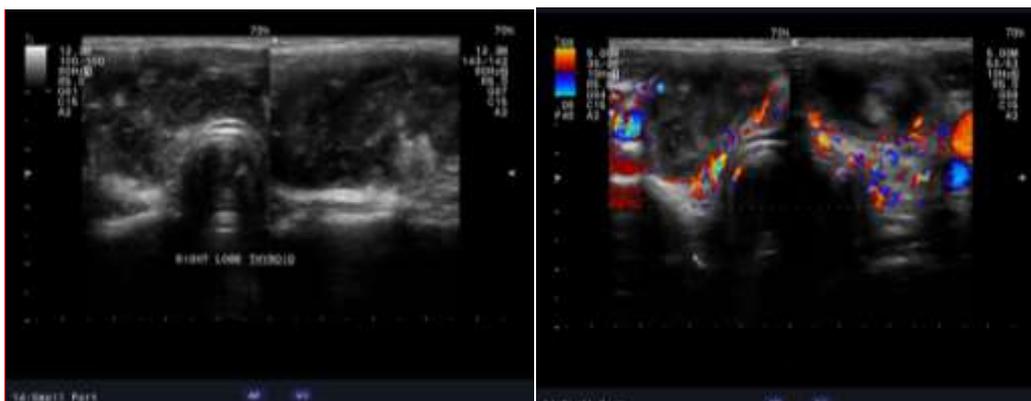
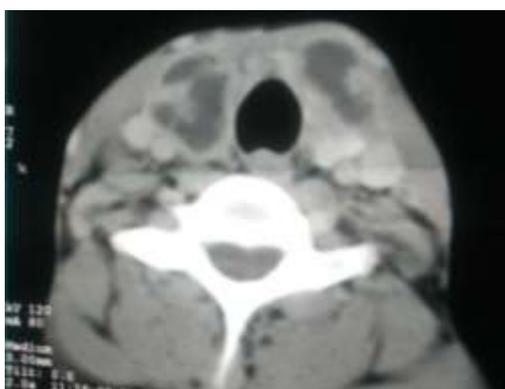


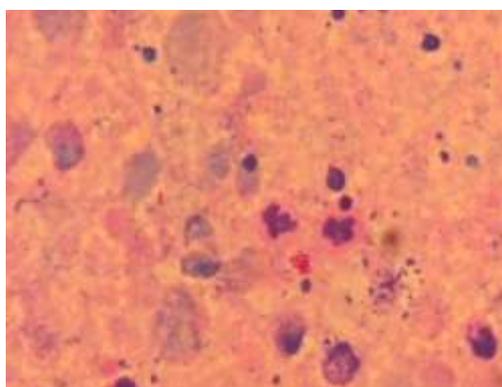
Fig. 1: Image showing neck swelling in 22 year old female



**Fig. 2:** High resolution ultrasound and color Doppler image showing multiseptated collection within thyroid



**Fig. 3:** Contrast enhanced CT image showing hypodense lesion with internal septations and peripheral enhancement within thyroid gland



**Fig. 4:** Ziehl- Neelsen staining showing acid fast bacilli

#### DISCUSSION

Tuberculosis of the thyroid gland is an extremely rare condition even in endemic areas. Thyroid tuberculosis is reported at a rate of 0.1%-0.3% in postmortem studies. Before 1980, only few cases were reported in the literature, however, in the last two decades, more cases have been documented [4]. This can be explained by the increased incidence of extra-pulmonary tuberculosis world-wide. This increment in the incidence of extra pulmonary forms of tuberculosis is firstly due to the increased resistance to medications used to treat *Mycobacterium tuberculosis* and secondly due to increase in the number of immuno-deficient

people, for instance persons with HIV infection [5]. Infectious diseases of the thyroid gland are uncommon due to the fact that the resistance of the thyroid gland to infections. It is attributed to many factors such as colloidal material in the thyroid gland which has bactericidal action, well developed capsule covering gland, high iodine content and high blood flow to thyroid gland [6, 7].

Tuberculosis of the thyroid gland is difficult to distinguish from other inflammatory diseases as well as from carcinoma of the thyroid gland as the regional lymph nodes are also involved. It is particularly vital to

distinguish thyroid tuberculosis from thyroid cancer in an attempt to avoid unnecessary surgery [4]. It is also very important to differentiate tuberculosis from other granulomatous diseases such as De Quervain thyroiditis and sarcoidosis [8]. Corticosteroids are used for treatment of De Quervain thyroiditis which may worsen the illness of patients with tuberculosis of the thyroid gland.

Tuberculosis of thyroid may be primary or in association with tuberculosis elsewhere in the body. Two main types of thyroid involvement by tuberculosis are documented: diffuse miliary type and focal caseous tuberculosis [9]. It is also possible for tuberculosis of cervical lymph nodes or larynx to involve thyroid gland by direct extension [10]. It may also present as sub-acute thyroiditis [11], thyroid abscess [12] or euthyroid nodular goiter [3]. In our case, patient presented with abscess in the thyroid gland. This patient did not have constitutional symptoms such as fever, night sweats, weight loss, and fatigue. There was no evidence of disease outside of the thyroid. On ultrasound, tuberculosis of thyroid may appear as diffusely enlarged thyroid with heterogeneous echo-texture or focal hypo-echoic nodule or hypo-echoic collection (abscess) within thyroid (Fig. 2). It may be associated with cervical lymphadenopathy. Contrast enhanced CT may show hypo-dense lesion with peripheral enhancement (abscess) (Fig. 3) or diffuse enlargement with heterogeneous enhancement (diffused type). CT is also helpful to demonstrate the enlarged lymph nodes in neck region or any collection in retropharyngeal space or the involvement of larynx. The definitive diagnosis of tuberculosis can be made histo-pathologically by demonstrating either acid-fast bacilli on Ziehl-Neelsen staining or caseating granuloma with Langhans type giant cells [13] (Fig. 4).

The treatment of thyroid tuberculosis is same as the tuberculosis elsewhere in body. It consists of anti-tubercular drugs therapy with Rifampicin, Isoniazid, Pyrazinamide and Ethambutol with or without drainage of abscess.

#### CONCLUSION

In conclusion tuberculosis although a rare disease of thyroid, should be kept in mind in evaluating thyroid abscess or nodule. When fine needle aspirate contains purulent material, aspirate should be

investigated for presence of acid-fast bacilli and culture for Mycobacteria.

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