

## Tuberculosis of the thyroid gland

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We are reporting a case of thyroid gland tuberculosis presenting as a painless hard nodular swelling of the thyroid with concomitant pulmonary tuberculosis in a 53-year-old adult diabetic male. Fine needle aspiration cytology showed epithelioid cell granuloma without any acid fast bacillus. He made an uneventful recovery with anti-tuberculous drugs. Though rare, tuberculosis should be considered as a differential diagnosis of nodular or diffuse enlargement of thyroid gland.

**Keywords :** Tuberculosis, Thyroid gland, Extra-pulmonary tuberculosis.

### Introduction

Tuberculosis (TB) affecting the thyroid gland is extremely uncommon even in countries with high burden of tuberculosis (Bulbuloglu et al 2006). However, its true incidence is difficult to determine because clinical suspicion is rarely made by the physicians. TB of thyroid gland can be primary or secondary to other sites. We report a case of thyroid gland tuberculosis along with pulmonary tuberculosis in a diabetic male patient.

### Case Report

A 53-year-old diabetic nonsmoker male presented with productive cough and low grade fever for 3 months and a painless swelling on the right side

of the neck for 2 months. On examination, there was a 2 x 3 cm nodular swelling on right side of midline of neck, which moved well with deglutition, but not on protrusion of the tongue, indicating its origin from thyroid gland. The swelling had a smooth surface, with firm to hard consistency, and ill-defined margins. There was no bruit over the swelling. The overlying skin was normal. The rest of the thyroid gland was normal on palpation. Cervical lymph node was not palpable. No sign suggestive of hypo or hyperthyroidism was present. Examination of respiratory system revealed diminished vesicular breath sounds and coarse crepitations in right and left infraclavicular areas. Indirect laryngoscopy was normal. Examination of the other systems was unrewarding.

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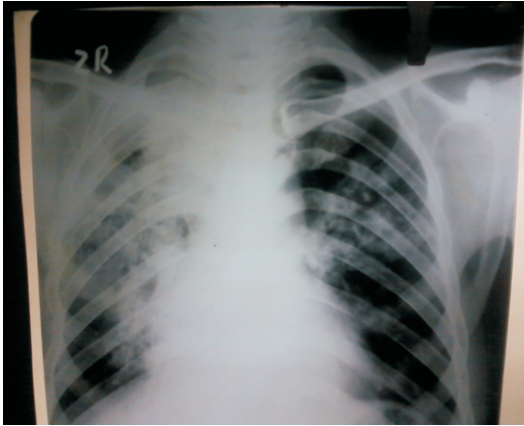
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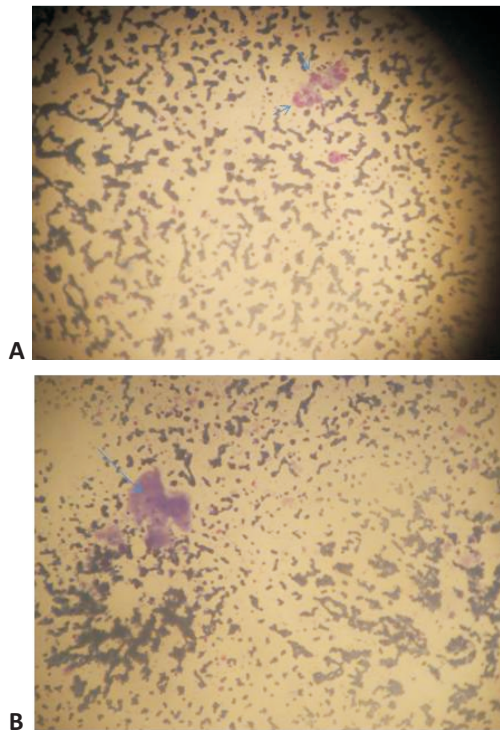
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**Fig 1 :** Chest X-ray (PA View) revealed non-homogenous opacity in right mid and lower zones.



**Fig 2 :** Fine needle aspirate cytology of the thyroid swelling showed granulomatous inflammation with epithelioid cells, multinucleated giant cells and colloid matter (Leishman Stain x 100)

Investigations revealed haemoglobin 11.8g/dL, normal total and differential leucocyte count and ESR 45 mm in first hour. Free T3, T4 and TSH levels were normal. Fasting and post-prandial plasma glucose were 188 mg/dL and 346 mg/dL respectively. Glycosylated haemoglobin level was 8.6%. His HIV status was negative. Serum thyroglobin and thyroid peroxidase (TPO) antibody were negative. Mantoux test (with 5 T.U) showed 14 mm induration after 72 hours. Chest X-ray revealed non-homogenous opacity in right mid and lower zones (Figure 1). Fine needle aspirate cytology of the thyroid swelling showed granulomatous inflammation with epithelioid cells, multinucleated giant cells and colloid matter (Figure 2). Sputum smear was positive for acid fast bacilli (AFB). There was no evidence tuberculous involvement of other organs. He was diagnosed as type 2 diabetes mellitus with new smear positive pulmonary tuberculosis and thyroid tuberculosis. He was put on RNTCP (Revised National Tuberculosis Control Programme) Category-I antituberculous drugs comprising of thrice weekly isoniazid, rifampicin, pyrazinamide and ethambutol for two months followed by isoniazid and rifampicin for next four months. His glucose level was controlled with subcutaneous insulin. He made an uneventful recovery with sputum conversion in the second month, disappearance of the thyroid swelling and normalization of HbA1C level.

### Discussion

TB of thyroid is rare, different studies reporting a frequency varying from 0.2% in chronic thyroiditis to 7% among military tuberculosis cases (Simkus 2004). Rarity of this disease is probably due to antibacterial action of colloid material, extremely high blood flow and an excess of iodine, and enhanced phagocytic activity in hyperthyroidism (Puri et al 2002). Most cases have been reported to occur in middle age with slight female

preponderance. Primary TB of thyroid is sporadically reported (Sharma et al 2006). In secondary thyroid involvement associated with pulmonary or extra-pulmonary tuberculosis, TB reaches thyroid gland by haematogenous or lymphogenous route, or directly from larynx or cervical or mediastinal lymph node (Groen et al 1988). In our case the patient had pulmonary tuberculosis with tuberculous involvement of thyroid gland. Miliary spread to thyroid gland as a part of generalized dissemination in miliary TB has never been shown to give rise to clinical thyroid disease. However focal tuberculosis of thyroid may present as localized swelling mimicking carcinoma, nodule with cystic component, diffuse goitre, superficial cold abscess, acute abscess or chronic fibrosing thyroiditis (Bulbuloglu et al 2006, Gupta et al 2004, Al-Mulhim et al 2002).

Diagnosis of thyroid TB is difficult because it may be asymptomatic or may present with nonspecific or misleading symptoms. Patients may develop dysphagia, dysphonia or recurrent laryngeal nerve palsy related to compression of adjacent structures or fibrosis, raising the suspicion of malignancy (Simkus 2004). Fine needle aspiration cytology and microbiology is preferred diagnostic tool for the diagnosis of thyroid TB, obviating the need for unnecessary surgical removal (Mondal and Patra 1995). The definite diagnosis depends on the demonstration of cytopathological changes with either a positive acid fast stain or culture for *Mycobacterium tuberculosis*. However in countries with high incidence of TB, the diagnosis should be suspected and treatment started if epithelioid granuloma is found even in absence of bacteriological confirmation. Our patient showed epithelioid cell granuloma, multinucleated giant cell and colloid matter.

The important differential diagnosis include thyroid cancer, acute thyroiditis, Riedel's thy-

roiditis, other granulomatous diseases like sarcoidosis, syphilis, de-Quervain's thyroiditis, and Hashimoto's thyroiditis. Differentiation is best done by cytological or histological studies, thyroid function tests and TPO antibody assays.

Thyroid function tests are usually normal in thyroid tuberculosis, but both hyperthyroidism due to increased release of thyroid hormones and hypothyroidism due to total destruction of the gland are reported (Chaudhary et al 2010, Kapoor et al 1985).

Antituberculous therapy is highly effective and most patients do not require surgery if diagnosed preoperatively. Surgical removal of the thyroid gland becomes necessary when malignancy can not be ruled out.

Preoperative diagnosis of thyroid TB is important because of success of medical treatment and limited role of surgery. This disease should be always considered in evaluation of patients with thyroid swelling.

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