

Case Report

Primary Tuberculosis of the Thyroid Gland

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ABSTRACT

Tuberculosis of the thyroid gland, whether primary or secondary is a rare disease. The authors describe a case of primary thyroid tuberculosis occurring in association with a goiter in a 42-year-old woman who presented with

a solitary cold nodule. Tuberculosis was not suspected clinically and there was no other focus anywhere else in the body. The diagnosis was made after histopathological examination of the right hemithyroidectomy specimen.

KEYWORDS: solitary nodule, thyroid gland, tuberculosis primary

INTRODUCTION

Tuberculosis (TB) of the thyroid gland is an uncommon disease, and primary involvement of the thyroid is even more rare. There have been isolated case reports and few case series of thyroid tuberculosis in the literature^[1-18]. It is rare to suspect a thyroid swelling or nodule as being tuberculous on clinical examination, unless it has destroyed the gland and formed an abscess in a patient with known pulmonary tuberculosis^[19]. More often the diagnosis is suspected or confirmed after fine needle aspiration cytology of the thyroid swelling^[2,8] or on histopathological examination of the resected gland^[12,13,16]. In this case report, we describe a case of primary thyroid tuberculosis, which presented as a solitary cold nodule and was diagnosed on histopathological examination of the hemithyroidectomy specimen.

CASE REPORT

A 42-year-old female presented with a right thyroid swelling. The swelling was painful, slowly increasing in size and without compression symptoms. There was no history of pulmonary or extra-pulmonary tuberculosis. Clinically, the swelling was a solitary nodule, firm in consistency and mildly tender, involving most of the right thyroid lobe. There were no enlarged lymph nodes in the neck. The chest X-ray was normal. Thyroid function tests showed an euthyroid state. A full blood count, erythrocyte sedimentation rate (ESR) and biochemical parameters were all within normal range. On ultrasound examination, a nodular lesion involving most of the right thyroid lobe was identified and it showed a cold defect on thyroid isotope scan. An ultrasound guided fine needle aspiration cytology (FNAC) revealed only benign follicular cells and some hemosiderin-laden macrophages. It was thus reported as a benign

thyroid nodule. The patient underwent a right hemithyroidectomy and isthmectomy with an uneventful postoperative course. Antituberculous treatment (rifampicin, isoniazid and ethambutol) was given for six months following the histopathological report. Tuberculin test was not done. The patient responded well to surgery and to antituberculous treatment.

Pathology

On gross examination the right thyroid lobe was enlarged, measuring 6.5 x 6 x 4 cm. Cut surface was grayish-white, partly tan and hemorrhagic with few colloid nodules. Microscopically, the characteristic features of multinodular goitre with secondary degenerative changes were seen. In addition, amidst the goitrous areas and in the non-goitrous portion of the gland, multiple epithelioid cell granulomas were present with Langhans' type of giant cells. Many of these granulomas displayed central acellular necrosis (Fig. 1). Although the Zeihl-Neelson (Z-N) stain for acid-fast bacilli (AFB) was negative, the morphology was highly consistent with tuberculosis. A mycobacterial culture was not done because a pre-operative diagnosis of tuberculosis was not made.

DISCUSSION

Tuberculosis of the thyroid gland, whether primary or secondary, is an extremely rare disease. According to the literature, its frequency is 0.1-0.4% in histologically diagnosed specimens^[1,9]. In the study by Das *et al*^[9], the incidence of tuberculous thyroiditis was 0.6%. This high frequency could be related to a higher incidence of tuberculosis in countries like India. Secondary involvement of the gland is associated with pulmonary or extra pulmonary tuberculosis, where spread of the disease occurs through hematogenous or

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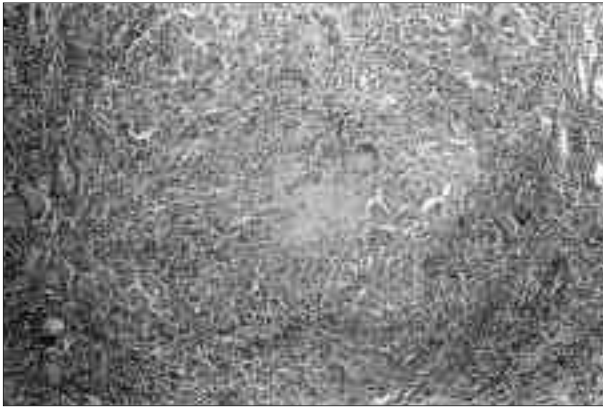


Fig.1: Necrotising epithelioid cell granuloma with Langhans' type of giant cell and peripheral cuff of lymphocytes. The thyroid acini are being destroyed by the granulomatous process (left side of the picture). Hematoxylin & Eosin, X100).

lymphogenous route or directly from larynx or tubercular cervical lymphadenitis^[8,19]. A primary involvement of the thyroid gland in the absence of tuberculosis elsewhere is very uncommon and much more difficult to explain. The most common clinical presentation is a solitary thyroid nodule and an euthyroid state^[2,8,14]. Other uncommon forms of presentation include thyrotoxicosis, subacute thyroiditis, thyroid abscess and thyroid enlargement mimicking cancer^[3-5,8,12,13]. The patient may be asymptomatic or have symptoms of dysphonia, dysphagia, dyspnea and rarely, recurrent laryngeal nerve paralysis due to the expanding gland^[6].

Most reported cases were middle-aged women as in our case^[1,2,17]. Because of its rarity, thyroid tuberculosis is unlikely to be suspected clinically. The diagnosis is made only after FNAC or after histopathological examination of the surgical specimen when FNAC is negative as was done in our case^[2,7,8,12,13,16]. The characteristic morphologic features of tuberculous infection are necrotizing epithelioid cell granulomas with Langhans' giant cells. Demonstration of AFB by Z-N stain is confirmatory but this stain is frequently negative in tissue sections^[6,7]. A mycobacterial culture is helpful in the latter situation. In the absence of clinical suspicion of tuberculosis, especially when the presentation is a solitary thyroid nodule (as in our case), it is unlikely that material will be taken for culture. The diagnosis thus rests on finding the typical granulomas of tuberculosis. According to Joll^[10], the inability to identify Koch's bacilli by staining or culture does not exclude the diagnosis of TB of the thyroid. However, others like Klassen and Curtis^[11] considered only those cases with positive AFB as TB of the thyroid. Other granulomatous lesions involving the thyroid gland include sarcoidosis and subacute thyroiditis. These

can be distinguished from tuberculosis by the presence of caseation and demonstration of AFB in the latter^[3,8].

Our patient presented as a solitary cold nodule in the right lobe of the thyroid gland with no pressure symptoms and a euthyroid status. Tuberculosis was not suspected clinically and an FNAC only revealed the benign nature of the nodule. Histopathological examination of the right hemithyroidectomy specimen was suggestive of tuberculosis associated with a multinodular colloid goiter. Typical epithelioid cell granulomas with central caseation necrosis were noted. The negative Z-N stain was also reported by other studies^[6,7]. There was no evidence of tuberculosis elsewhere in the body. An alternative and reliable technique of detecting *Mycobacterium tuberculosis* is the polymerase chain reaction^[15].

Surgery with administration of antituberculous drugs is considered to be the treatment of choice^[13,18] as was done successfully in the present case.

In conclusion, tuberculosis should be considered in the differential diagnosis of thyroid swellings. Final diagnosis is made by histopathological examination. Patients respond well to surgery along with antituberculous therapy.

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