Tuberculosis of the Thyroid—a Diagnostic Enigma

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Abstract Thyroid tuberculosis is very uncommon even in countries where tuberculosis is endemic. It is commonly seen secondary to tubercular infection of other organ or tissue by hematogenous spread. There are many different presentations of thyroid tuberculosis. Before the advent of fine needle aspiration cytology (FNAC), all patients had surgery and thyroid tuberculosis was diagnosed only on biopsy of specimen. Nowadays, FNAC can confirm the diagnosis in many cases, and the patient can be cured by standard anti-tubercular treatment without the need for surgery. Surgery is required only when there is suspicion of malignancy and FNAC is inconclusive.

Keywords Thyroid tuberculosis · Thyroid cold abscess · Tubercular thyroid nodule · Cold abscess

Introduction

Thyroid gland's infections are uncommon because of its high resistance to infection. Cold abscess of the thyroid gland due to tubercular infection is very rare even in countries where the prevalence of tuberculosis is high. Das et al. reported 0.6 % prevalence of tuberculosis among 1283 thyroid lesions [1]. The diagnosis of thyroid tuberculosis is difficult even in the modern era because it can present in many different ways. We report a case of thyroid tuberculosis presenting as abscess.

Case Report

A 38-year-old male presented with complaints of painless and gradually increasing swelling in front of the neck just on the left side of the midline for the last 5 months. He took some treatment from a local practitioner, but the swelling continued to increase in size. The swelling became soft, and the skin over it became reddish since last month. There was no history of cough, fever, night sweating, malaise, loss of appetite, or loss of weight. No past history of tuberculosis was present. There were no symptoms of hypo- or hyperthyroidism.

On examination, there was a well-defined 5 cm × 5 cm size swelling just on the left side of the midline in the neck anteriorly in the thyroid region. The swelling moved up on deglutition. The skin over the swelling was reddish. The swelling was soft and fluctuating, and no cervical lymph nodes were palpable (Fig. 1). Examination of the chest and other systems was normal. A clinical diagnosis of abscess at the left lobe of the thyroid was made, and the patient was investigated. Routine blood investigations were normal. Chest X-ray did not show evidence of tubercular infection. Other biochemical investigations including thyroid function tests were also within normal limits.

Fine needle aspiration from the swelling revealed pus, and staining for acid fast bacilli was positive, confirming the diagnosis of tubercular thyroid abscess. Mantoux test was also positive. Ultrasonography of the neck showed heterogeneous hypoechoic lesion in the left lobe of the thyroid entering into the strap muscles. Contrast-enhanced CT of the neck showed abscess at the left lobe of the thyroid communicating to the subcutaneous plane with bulky heterogeneous strap muscles at the level of thyroid gland (Fig. 2).

Patient was put on anti-tubercular treatment after anti-gravity aspiration of about 8 ml of pus. The swelling completely subsided, and abscess resolved after 2 months of four drug-intensive phases of anti-tubercular treatment.

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Fig. 1 Soft and reddish mid-line swelling in the neck without any cervical lymph node

Patient completed continuation phase of two drugs for 4 months. Patient is alright after 6 months of follow-up.

Discussion

The thyroid gland is relatively resistant to infection because of a number of factors like abundant lymphatic network, high vascular supply, well-developed capsule, high iodine content of the gland, and bactericidal effect of the colloid and iodine [2, 3]. It is very difficult to suspect a thyroid swelling being due to tubercular pathology because tuberculosis of the thyroid gland, primary or secondary, is an extremely rare disease. The frequency of thyroid tuberculosis ranges from 0.1 to

0.6 % [1, 4]. Thyroid tuberculosis is usually seen secondary to tubercular infection of other organ or tissue due to haematogenous spread.

Clinical presentation of thyroid tuberculosis varies widely. More common is miliary spread in the thyroid gland as part of the generalized dissemination or less commonly focal caseous tuberculosis presenting as a thyroid nodule mimicking carcinoma or in late stages, forming a cold abscess [5].

Thyroid function usually remains normal, but cases of thyroid tuberculosis with abnormal thyroid function, developing hypothyroidism and requiring hormone replacement therapy, has also been reported. Hypothyroidism is caused by extensive glandular destruction by caseous necrosis. Thyroid tuberculosis is sometimes associated with thyrotoxicosis [6].

The diagnosis is usually made by fine needle aspiration cytology (FNAC) or after histopathological examination of the resected surgical specimen when FNAC is negative [5]. Characteristic histopathological finding of central caseous necrosis with peripheral lymphocytic infiltration and Langhans' giant cells is typical of tubercular pathology. In addition, the presence of acid fast bacilli (AFB) confirms the diagnosis [1]. In the present case also, the diagnosis was established by FNAC and the presence of AFB in the aspirate.

The imaging techniques are not very useful in diagnosis and may show hypoechoic, heterogeneous lesion similar to neoplastic lesion or frank abscess with internal echoes as in this case.

The treatment of thyroid tuberculosis is anti-tubercular drugs, and it is now considered sufficient with no requirement of any surgery provided the diagnosis is made on FNAC [7, 8]. If FNAC fails to give definite diagnosis of thyroid tuberculosis and there is suspicion of malignancy, then surgery has been done in the form of hemithyroidectomy and even total thyroidectomy [5, 8]. In the present case, the diagnosis was confirmed by FNAC and the patient was put on ATT. Swelling completely disappeared, and the patient became alright after 6 months of treatment.

Conclusion

Thyroid tuberculosis, though rare, should be considered in the list of differential diagnosis of thyroid swellings or abscess in the region of the thyroid especially in areas where tuberculosis is prevalent. Preoperative diagnosis is necessary to avoid surgery.

Conflict of Interest Dr. Rajesh Kumar Soni and Dr. Ajit Sinha declare that they have no conflict of interest.

Fig. 2 Contrast-enhanced CT of the neck showing abscess at the left lobe of the thyroid communicating to the subcutaneous plane with bulky heterogeneous strap muscles at the level of thyroid gland

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