



TUBERCULOSIS OF THYROID: A CASE REPORT

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ABSTRACT Tuberculosis of thyroid is extremely rare, even in regions with high prevalence of tuberculosis. During last century case reports of TTB appeared in journals across the world and the total number of such cases is about a hundred; many of which are post-mortem. We are presenting one such case of Tuberculosis of thyroid and discussing its management.

KEYWORDS : Tuberculosis of thyroid.

INTRODUCTION

Tuberculosis of thyroid (TTB) is extremely rare, even in regions with high prevalence of tuberculosis (TB). During last century case reports of TTB appeared in journals across the world and the total number of such cases is about a hundred; many of which are post-mortem. We are presenting one such case of TTB.

CASE DETAILS

A 48 year old lady presented to our out-patient department with complaint of slowly progressive painless anterior midline swelling in neck of five months duration. She did not have any significant past medical or surgical history. She was post-menopausal. Clinically the swelling was mobile with deglutition, confirming it to be thyroid and not attached to skin or underlying structure. On palpation thyroid was nontender, freely mobile with palpable nodules bilaterally and no palpable lymphadenopathy anywhere. The skin over thyroid was unremarkable. She did not have any features of hyper or hypothyroidism. She did not complain of any fever, weight loss, lethargy or night sweats.

She was further evaluated, the clinical diagnosis being multinodular goiter (MNG).

The laboratory reports were as follows: Hb- 13.2 gm/dl, TLC- 8400/cmm, DLC- N66%, L- 30%, E- 04%, Urine RE- NAD, Blood Sugar Fasting- 72 mg/dl, Postprandial- 95 mg/dl, Blood Urea- 37 mg/dl, Serum Creatinine- 0.97 mg/dl, Serum Bilirubin- 0.9 mg/dl AST- 29 IU/L and ALT- 32 IU/L. Thyroid profile was as follows: Total T3- 1.11 mmol/L, Total T4- 94.10 mmol/L and TSH- 1.661 μ U/ml. Ultrasonography (US) of thyroid and neck showed multiple nodules in thyroid, few showing cystic degeneration and no lymphadenopathy in neck. US guided FNAC of thyroid showed small clusters and singly placed follicular epithelial cells in background of thin colloid and RBCs. She was diagnosed as a case of MNG and Near Total Thyroidectomy was done after informed consent. The specimen was sent for histopathology and sections showed multiloculated lesion composed of dilated thyroid follicles filled with colloid intermixed with areas showing necrotizing coalescing epithelioid cell granulomas, langhans and foreign body type giant cells. No atypia or invasion was seen. AFB was negative. Hence, the final opinion was "Granulomatous Thyroiditis with Multinodular Goiter" (Figure 1 and 2). With the suspicion of TB she was further evaluated. ESR was 20 mm fall in first hour and PPD skin test showed an induration of 14 mm and Chest X-ray and USG of abdomen for any lymphadenopathy were unremarkable. She was managed with antitubercular drugs (2 HRZE + 4HR).

DISCUSSION

Tuberculosis remains a major public health problem in developing countries. In developed countries TB had virtually been eradicated and

has seen resurgence because of AIDS epidemic. TB infection exists in two forms: pulmonary and extrapulmonary. TTB is a very rare form of extrapulmonary TB. Since 1905, only 76 cases have been reported. Of the 76 cases, 19 were reported between 1904 and 1980; the rest, since 1980¹. Ten additional cases have been reported before 1905, thus a total of 86 cases to date². The first case was reported by Libert (1862) in a patient with disseminated tuberculosis. There are many hypotheses that attempt to explain why TTB is so rarely found, including bactericidal action of the thyroid colloid material, high blood flow leading to high oxygenation, and the high concentration of iodine within the thyroid gland^{1,3}. Failure to diagnose TTB cases could be attributed to lack of awareness and lack of any clear signs and symptoms. In earlier literature TTB has mostly been reported in autopsy specimens and along with miliary tuberculosis. Thyroid tuberculosis was recognized with a rate of 0.1%–0.003% in postmortem studies. But this rate is 0.2% in chronic thyroiditis specimens while it is 14% among miliary tuberculosis cases¹.

TTB may be primary or secondary. Primary or isolated TTB is infection of the thyroid gland with no evidence of tuberculosis elsewhere in the body. Primary TTB is very uncommon and more difficult to explain. Secondary TTB may be the result of hematogenous spread to the thyroid gland or by direct extension from an active laryngeal or cervical lymph node focus³.

TTB is diagnosed more frequently in females and has been reported in patients between 14 and 83 years old^{1,3}. The reason for female preponderance is not known.

Five pathological varieties of TTB have been described. They include multiple lesions in association with miliary tuberculosis, a goiter with caseation, cold abscess formation, chronic fibrosing tuberculosis, and acute abscess¹.

The clinical presentation of TTB is variable. The commonest presentation is asymptomatic thyroid enlargement, either nodular or diffuse goiter; solitary nodule being most common and thyroid adenoma or carcinoma is the most common clinical diagnosis^{1,2}. Other presentations could be cold or acute abscesses, pressure symptoms like dyspnea, dysphagia, hoarseness, and cervical lymphadenopathy⁸. Prolonged fever, weight loss and night sweats common in pulmonary tuberculosis are almost never seen in TTB³.

Thyroid function abnormality is rare in TTB. Hyperthyroidism may be seen, depending on the parenchymal damage and increased release of thyroid hormones. At the late stages, hypothyroidism is seen as a result of total destruction of the gland¹.

Imaging is not very helpful in diagnosis of TTB. US may show a solitary nodule which may mimic a carcinoma, multiple nodules, diffuse goitre or rarely, abscess formation. The lesion involving the

gland is usually hypoechoic. An abscess is anechoic and may show internal echoes^{4, 6}. Regional lymphadenopathy is usually noted. Computed Tomography (CT) imaging may show an enlarged thyroid gland; the parenchymal lesions become conspicuous on administration of a contrast agent and appear hypodense against the enhancing normal thyroid. Abscesses, either within the gland or in the subcutaneous plane, show peripheral rim enhancement. In addition, CT aids in the detection of any other focus of infection in the neck^{5, 6}. The normal thyroid gland is homogeneously hyperintense relative to the neck muscles on both T1- and T2-weighted Magnetic Resonance (MR) images. The tuberculous lesion shows an intermediate signal on both T1 and T2-weighted images. The subcutaneous abscess appeared hypointense on T1 and hyperintense on T2-weighted images, and may show peripheral rim enhancement on contrast enhanced MR imaging⁶.

In 1939, Seed described three criteria for the diagnosis of TTB, which included the presence of AFB, necrosis or abscess in the gland, and a definitive TB focus outside the thyroid. If the first two criteria are met, the third criterion is not essential^{3,7,8}. Therefore, definitive diagnosis of TTB is based on histopathological findings or the demonstration of tubercle bacilli by ZN staining or culture³.

Mondal et al, in their study of fine needle aspiration cytology (FNAC) of thyroid gland over a period of 9 years, observed that tuberculosis of the thyroid, though rare, is efficiently detected by FNAC. They isolated AFB in all 18 cases^{10,11}. Goel MM et al in their review of 43 case reports of TTB found FNAC to be suggestive in 37 cases and AFB positive in 35 cases, mostly by ZN stain².

An inverse relationship has been observed between granulomas and the presence of AFB. Purulent aspirates show highest number of AFB and lowest number of granulomas; whereas blood mixed aspirates show highest number of granulomas and lowest number of bacilli in ZN staining⁷.

Raised ESR and positive PPD skin test support the diagnosis. Chest X-ray should be done in all cases to look for evidence of pulmonary tuberculosis. Presence of evidence of tubercular infection elsewhere supports diagnosis, especially if present in contiguous sites like cervical lymphnodes. MTB PCR and immunocytochemistry are important adjuncts to diagnosis.

Sometimes thyroid tuberculosis is mistakenly thought to be carcinoma; however there are reports of tuberculous thyroiditis coexisting with thyroid carcinoma in the same patient^{9,12}.

Treatment of TTB is not different from TB elsewhere and medical therapy with anti-tubercular drugs for 6-9 months is the mainstay for therapy and surgery has a limited role. In TTB cases that have undergone a total thyroidectomy, testing must be performed to determine the presence of additional infection foci throughout the body. If there are no other foci found, close follow-up with no additional antituberculosis treatment is recommended. However, if other foci are detected, antituberculosis treatment is administered for at least 6 months, even if a total thyroidectomy has been performed. If TTB is found in patients who have undergone subtotal or near-total thyroidectomy or thyroid lobectomy, an anti-TB treatment of at least 6 months is administered, regardless of the presence of any additional foci. Drainage or complete thyroidectomy together with medical treatment is recommended in patients who develop complications such as an abscess or sinus due to TB³.

CONCLUSION

TB should be considered as a differential diagnosis in cases of nodular lesions or abscess of thyroid, especially in countries with high prevalence. FNAC and demonstration of AFB by ZN stain or culture are the cornerstones of diagnosis. Treatment of TTB is mainly by antitubercular drugs with surgery having a limited role.

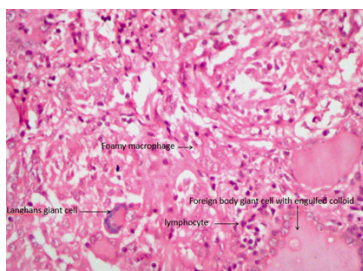


FIGURE 1

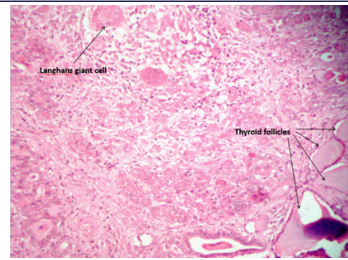


FIGURE 2

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