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Case Report

Primary Thyroid Tuberculosis: A Case Report from Jazan, Saudi Arabia

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ABSTRACT: Thyroid tuberculosis is a rare disease. Diagnosis can be difficult because the clinical course is not very specific in most cases. Ziehl–Neelsen staining is frequently negative. Epithelioid granulomas and necrosis are the main biopsy findings. The diagnosis can be confirmed using polymerase chain reaction, detection of acid-fast bacilli, or bacteriological cultures.

I report the case of a young patient who presented with anterior neck swelling. Primary thyroid tuberculosis was diagnosed based on the clinical picture and fine-needle aspiration cytology findings. Treatment with a combination of anti-tuberculous chemotherapy was initiated using the WHO category I regimen, and the patient showed an excellent response to treatment. To my knowledge, this is only the second clinical case of primary thyroid tuberculosis to be reported in Saudi Arabia.

In conclusion, tuberculosis of the thyroid gland should always be considered in the differential diagnosis of goiters, albeit being rare. The presence of cold abscesses and discharging sinuses in the midline of the neck raises suspicion of this disease, especially in endemic areas. The clinical presentation, in addition to strong evidence from fine-needle aspiration cytology, is sufficient for the diagnosis of this condition.

Keywords: Thyroid, Tuberculosis, Epithelioid Granuloma, Thyroiditis, Neck Cold Abscess.

INTRODUCTION

The involvement of the thyroid gland with primary tuberculosis is rare, and some eminent pathologists in the nineteenth century believed that the thyroid gland is never affected by tuberculosis. [1, 2]. According to many studies, the incidence of primary thyroid tuberculosis in histologically examined thyroid specimens ranges from 0.4 to 1.15% [3-8]. In a retrospective review of 527 thyroid biopsies over 20 years, Al-Mulhim et al. reported two patients with tuberculous thyroiditis in eastern Saudi Arabia (approximately 0.4 %) [3]. My search cited only one clinical case of thyroid tuberculosis reported by Alshareef et al. in the western region of Saudi Arabia [9].

The diagnosis of thyroid tuberculosis remains challenging due to the rarity of this condition and the nonspecific nature of its clinical presentation. It can be confused with other thyroid conditions, such as multinodular goiter, granulomatous thyroiditis, Hashimoto's thyroiditis, bacterial abscesses, and thyroid malignancies [10]. However, establishing a diagnosis is crucial to avoid unnecessary thyroid surgery and delays in treatment. Antituberculous medications are well tolerated and highly effective, especially when diagnosed early.

CASE DESCRIPTION

Patient Information: A 26-year-old male patient presented to our outpatient department complaining of anterior neck swelling for one year. He reported a thick yellow discharge from the swelling seven months before presenting to the hospital, which stopped spontaneously after two weeks. He denied any history of fever but reported having trouble swallowing, which started a few weeks before visiting our clinic. No weight loss, chronic cough, or any other symptoms were reported. The patient had close contact with a patient with tuberculous lymphadenitis.

Clinical Findings: On examination, there was a non-tender, firm, and partially cystic swelling in the anterior aspect of the neck, which moved with deglutition There was a transverse scar of a healed sinus on the left side of the swelling with seropurulent discharge from its medial aspect (Figures 1 and 2). The systemic examination was normal.

Diagnostic Assessment: Thyroid ultrasound revealed enlargement of both thyroid lobes with a heterogeneous non-uniform echo pattern and complex variable-sized solid and

cystic nodules with multiple foci of microcalcification involving both thyroid lobes and the isthmus. Peripheral hypervascularity and enlarged deep cervical lymph nodes with preserved shapes were observed. Retrosternal extensions were not observed. Computed tomography (CT) of the neck confirmed the ultrasound findings (Figure 3). Thyroid function tests showed normal T3 and T4 levels but significantly elevated TSH levels. Fine-needle aspiration cytology revealed several epithelioid cells, one multinucleated giant cell with scattered neutrophils, and a spectrum of lymphoid cells. Follicular epithelial cells were scant, and the background showed necrotic debris. Both Ziehl–Neelsen staining and culture results were negative. Polymerase chain reaction was unavailable at the time. Chest radiography revealed clear lungs bilaterally.

Therapeutic Intervention: Tuberculous thyroiditis was diagnosed based on the clinical presentation and the findings of fine-needle aspiration cytology (FNAC). The patient was administered a combination of rifampicin 600 mg, isoniazid 300 mg, pyrazinamide 1500 mg, and ethambutol 800 mg daily for the first two months of treatment, followed by a four-month period of rifampicin and isoniazid.

Follow-up and Outcomes: The patient complied with the treatment and did not experience any adverse drug reactions. The patient responded well, and the sinuses healed completely within two months of treatment initiation.

Figure 1: Right and left side pictures of the patient showing thyroid enlargement and scar

Figure 2: Anterior view showing thyroid enlargement, scar, and a partially healed sinus

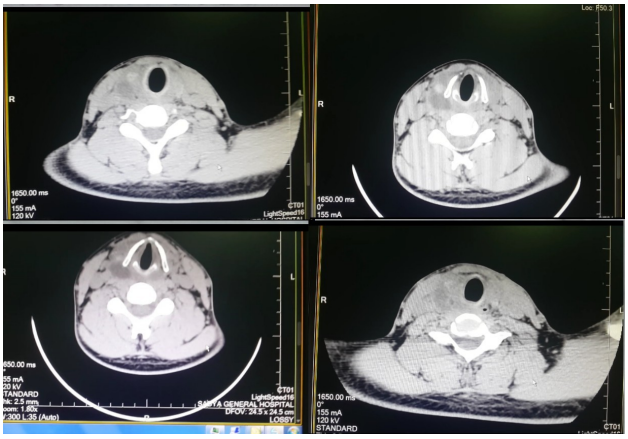

Figure 3: CT scan showing heterogeneous enlargement of the thyroid gland with some deep cervical lymph node enlargement

DISCUSSION

Thyroid tuberculosis is an extremely rare condition, even where the disease is endemic [8]. Diagnosis is challenging because there is no specific clinical presentation, and it presents in various ways [11]. It can present as a thyroid nodule or cold abscess, with or without systemic symptoms [12]. Pressure symptoms such as dysphagia, hoarseness of the voice, and dyspnea have all been reported to be associated with tuberculous thyroiditis. This has led to the suspicion of malignancy in some cases [13, 14]. It can present as acute infectious thyroiditis or follow a subacute course mimicking other forms of thyroiditis, such as De Quervain's thyroiditis [15]. Euthyroid, hyperthyroid, and hypothyroid states were observed in association with this condition [14,15]. Failure to make a diagnosis or misdiagnosis can lead to unnecessary thyroid surgery [16].

The initial assessment of thyroid disease involves ultrasound, thyroid function tests, and FNAC. Ultrasound is non-invasive and very informative in the hands of experienced sonographers. It is the most sensitive method for detecting thyroid enlargement, nodules, cysts, cyst-like lesions, and enlarged cervical lymph nodes [17]. However, it cannot differentiate between different pathologies because the findings are nonspecific, especially in thyroid tuberculosis. Kang et al. described a predominantly anechoic, well-defined lesion with internal echoes in one patient and a heterogeneous, predominantly anechoic lesion with irregular margins in another [18]. Heterogeneous, hypoechoic, irregular thyroid lesions, whether single or multiple, have been described in many cases [19]. When CT is performed in such cases, it usually confirms ultrasound findings and may detect other enlarged cervical lymph nodes. Although thyroid function tests are important in the assessment of thyroid diseases, they do not help diagnose tuberculous thyroiditis, as we have seen earlier. FNAC remains the mainstay of diagnosis for this condition. It is a minimally invasive and cost-effective procedure that can be performed in outpatient settings. Cellular material can be

obtained for microscopy, ZN staining, culture as well as polymerase chain reaction (PCR). Ultrasound guidance and novel techniques such as universal sample processing can be used to increase the yield of FNAC. The presence of epithelioid granulomas and caseous necrosis is consistent with the diagnosis of tuberculous thyroiditis [4]. The diagnosis can be confirmed using ZN staining, especially in doubtful cases. However, the sensitivity of AFB and culture can be low (39–80%), and some samples are both AFB- and culture-negative [20]. PCR can be particularly useful for the confirmation of the diagnosis [20]. Different combinations of these methods should be used to clarify the diagnosis. Our patient showed ultrasonographic and cytological findings similar to those previously described. Diagnosis was made based on clinical presentation and cytological findings, and treatment was initiated accordingly.

CONCLUSIONS

Tuberculosis of the thyroid gland should always be considered a possibility in the differential diagnosis of goiters, although it is rare. The presence of cold abscesses and discharging sinuses in the midline of the neck raises suspicion of this disease, especially in endemic areas. The clinical presentation, in addition to strong evidence from fine-needle aspiration cytology, is sufficient to diagnose this condition.

INFORMED CONSENT STATEMENT

Written informed consent was obtained from the patient for the publication of this case report and the accompanying images. Ethical approval for the publication of this case was waived by the ethics committee of the Faculty of Medicine, Jazan University.

DATA AVAILABILITY STATEMENT

The images and data discussed in this report are available upon reasonable request from the corresponding author.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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