

# Midline neck abscess: An important and rare presentation in a patient with tubercular thyroiditis

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## ABSTRACT

**Introduction:** Involvement of the thyroid gland in extra-pulmonary tuberculosis is extremely rare. A midline neck abscess is the rarest form of presentation. **Case Report:** We present a 39-year-old Asian male with a known history of tubercular thyroiditis that presented with a history of pyrexia, cervical lymphadenopathy and a discharging neck abscess overlying the thyroid gland that required surgical drainage and medical treatment. The patient was left with a discharging sinus which completely resolved after five months. **Conclusion:** Although early diagnosis for extra-pulmonary tuberculosis may be challenging, tubercular thyroiditis remains an important differential diagnosis in a world where populations are becoming increasingly dynamic, with respect to migration and urbanization, causing increased spread of infectious disease.

**Keywords:** Abscess, Management, Thyroid, Tuberculosis

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## INTRODUCTION

According to the World Health Organization, over two billion people were infected with tuberculosis (TB) which was associated with 1.4 million deaths worldwide in 2011 [1]. Extra pulmonary TB accounts for approximately 20% of the disease, where involvement of the thyroid gland is extremely rare [2]. Tubercular thyroiditis can either be associated with miliary TB, or be a primary focal disease of the thyroid gland. Disseminated disease is more common, and often associated with hematogenous, lymphatic or direct spread from adjacent structures [3]. The first reported case of primary tubercular thyroiditis was in the 19th century [4]. Focal disease often presents with cervical lymphadenopathy, compressive symptoms (dysphagia and dysphonia) and/or beta symptoms. A chronic discharging sinus or midline neck abscess is the rarest form of presentation [5]. The abscess will contain caseating necrotic thyroid tissue, and may serve as the only clue for underlying primary tuberculous infection. Other than acute infection, differential diagnosis must also include carcinoma of the thyroid gland. Diagnosis can be confirmed by histology (identifying granulomas that consist of epithelioid histiocytes and Langerhans

giant cells), or culture/Ziehl–Neelsen staining of acid-fast bacilli (though culture can be negative due to a low yield rate in non-pulmonary tissue) [6,7]. Management of the abscess includes incision and drainage along with medical treatment for tubercular thyroiditis.

## CASE REPORT

A 39-year-old, third generation, Asian male with no prior history of recent travel presented with a one day history of swinging pyrexia, painless midline neck swelling and a two-month history of 6 kg weight loss. On examination a diffuse non-tender 4x5 cm mass was palpable in the midline of the neck which moved with deglutition. Cervical lymph nodes were palpable in all levels of the neck bilaterally. He had a raised white cell count and ESR. Viral screening including HIV, HVC, HbsAg, *Legionella* and pneumococcal antigen, were negative. Chest radiograph was normal. An ultrasound scan of the neck revealed a multinodular goitre with a 1.7x2.1 cm right sided dominant nodule and a 4.4x6.7 cm left sided dominant nodule that extended retrosternally. Fine-needle aspiration of the thyroid was positive for acid-fast bacilli (AFB). Computer tomography (CT) scan revealed cystic necrosis within the left sided nodule (Figure 1). A diagnosis of tubercular thyroiditis was made and the patient was commenced on the 'standard recommended regimen' for the treatment of TB, as per UK NICE guidelines. This includes a thrice weekly regimen of isoniazid 15 mg/kg, rifampicin 600 mg, prazinaimide 2.5 g and ethambutol 30 mg/kg, for two months, followed by isoniazid and rifampicin for four months [8].

Three months following initial diagnosis, the patient re-presented to hospital with pyrexia, cervical lymphadenopathy and a self discharging midline abscess overlying the thyroid gland with discoloration and necrosis of the surrounding skin (Figure 2). Flexible nasolaryngoscopy did not reveal any extension of the abscess within the upper airway. A CT scan showed the drainage pathway of the abscess arising from within the thyroid gland (Figure 3).

Incision and drainage of the abscess contained approximately 50 mL of frank pus. The abscess cavity was washed out and left to heal by secondary intention. Following this, the patient had a chronic discharging sinus which fully resolved after 5 months.

## DISCUSSION

Approximately, 30 cases of primary tubercular thyroiditis presenting as a thyroid abscess have been reported in literature. The most recent review article published over five years ago [9]. Given the current proportion of migration and urbanization across the western world, it is essential that clinicians consider infectious disease within the differential diagnosis,

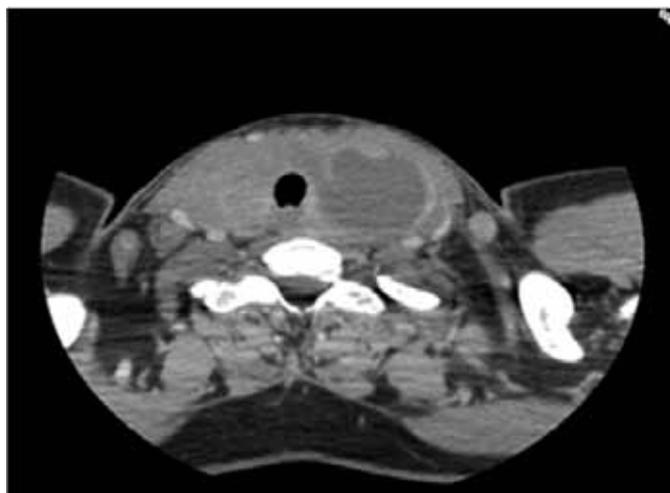


Figure 1: Axial slice of contrast-computed tomography scan showing cystic necrosis of left sided thyroid nodule.



Figure 2: A clinical photograph showing a midline discharging abscess arising from the thyroid gland with discoloration and necrosis of surrounding skin.

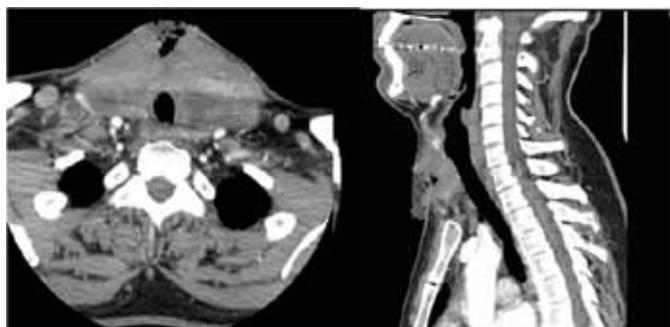


Figure 3: Contrast-computed tomography scan showing (A) Axial slice, and (B) Sagittal views of the thyroid phlegmon (containing air) draining into the subcutis layer of the skin.

even amongst patients who may not initially appear 'high risk', such as the patient described in our case report. Differential diagnoses of a midline neck abscess include acute suppurative thyroiditis, carcinoma and less

commonly, tubercular thyroiditis [10, 11]. The incidence of tubercular thyroiditis has been reported between 0.1-1.15% [12, 13]. Rare involvement of the thyroid gland is thought to be due to the bactericidal nature of colloid and relatively high level of iodine within the gland [14]. Ultrasound demonstrating heterogeneous hypoechoic lesions of the thyroid gland is useful (alongside culture) in assisting diagnosis and CT can delineate abscesses that arise from thyroid tissue, as was illustrated in this case.

Tubercular thyroiditis is a rare and important differential diagnosis in patients who present to clinic with atypical features such as thyroid nodules/goitre, cervical lymphadenopathy, compressive symptoms (dysphagia, dysphonia, dyspnea). Quite often beta symptoms (night sweats, weight loss, pyrexia) and being amongst the high risk population for TB (immunocompromised, e.g., HIV, diabetes, malnutrition, ethnic origin and travel, e.g., sub Saharan Africa, China, Asia) is far more suggestive in pulmonary TB but must be considered in tubercular thyroiditis. Early diagnosis can prompt further investigation for additional extra-pulmonary and pulmonary TB and expedite treatment to improve prognosis.

## CONCLUSION

A thyroid abscess is a relative rare presentation of tubercular thyroiditis. Its diagnosis can be confirmed by histology or culture/Ziehl-Neelsen staining of acid-fast bacilli, although culture can be negative due to a low yield rate in non-pulmonary tissue. The management of the abscess is by incision and drainage along with anti-tuberculous treatment for extra-pulmonary tuberculosis. Tubercular thyroiditis is a rare and important differential diagnosis in patients who present to clinic with atypical features such as thyroid nodules/goitre, cervical lymphadenopathy or compressive symptoms.

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## Author Contributions

Hala Kanona – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Jagdeep Virk MA – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Khash Nikookam – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Hesham Kaddour – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

## Guarantor

The corresponding author is the guarantor of submission.

## Conflict of Interest

Authors declare no conflict of interest.

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