

# Tuberculosis Of The Thyroid Gland In A Nigeria Female: A Case Report

Type of Article: Case Report

\*Cecil Obinna Maduforo, \*\*Datonye Dennis Alasia, \*\*\*Uriah Stephen Etawo

\*Department Of Radiology, \*\*Department Of Internal Medicine And \*\*\*Department Of Surgery, University Of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.

## ABSTRACT

**Background:** Affectation of the thyroid gland by Mycobacterium tubercle is known to be rare. High index of suspicion is required to diagnose this rare condition and the place of radiological imaging as an adjunct in correct diagnosis and follow up is brought to the fore.

**Methodology:** The medical records of the patient who presented with tuberculosis of the thyroid gland secondary to tuberculosis of the chest and literature review of the case using available journals and pubmed search was employed. The radiological imaging and laboratory results were reviewed

**Conclusion:** Tuberculosis of the thyroid gland should be included in the differential diagnosis of thyroid swelling especially in a patient with Koch's disease.

**Keywords:** Thyroid gland, Tuberculosis, Radiological imaging, Nigeria

**Correspondence to:** DR C O MADUFORO

## INTRODUCTION

Tuberculosis of the thyroid gland is rare, as shown by few cases reported in recent times despite a high incidence of tuberculosis in the developing world.<sup>1</sup> In most of the reported cases, the patients were clinically and bio-chemically euthyroid.<sup>2</sup> Due to the rare and unusual presentations, suspicion of the thyroid nodule or swelling being tuberculous on clinical assessment is remote, unless much of the thyroid gland had formed abscess in a patient with known pulmonary tuberculosis or, when fine needle aspiration cytology is positive for tuberculosis.<sup>3</sup>

This case is reported because tuberculosis of the thyroid is rare, even in areas where tuberculosis is endemic.

## CASE REPORT

O.M is a 32-year-old female who presented with a five month history of cough, and three-month history of progressively

increasing swelling on the anterior neck.

The patient was apparently well until five months prior to presentation when she started coughing, cough was initially dry but later became productive of yellowish sputum and occasional haemoptysis. There was associated night sweat and weight loss. Two months later, she noticed a swelling on the anterior portion of the neck, which was not painful, but progressively increased in size. There were no associated tremors, dysphagia, dysphonia, or undue heat intolerance. She denied any history of contact with anybody with a chronic cough. She was not exposed to industrial dust and there was no history of neck swelling in the family.

Physical examination revealed an asthenic young woman that was mildly pale and anicteric, with no peripheral lymphadenopathy or pedal oedema.

Examination of the neck revealed a firm, smooth, and non-tender mass that moved with deglutition. No transillumination was seen on it or bruit heard over it. The respiratory rate was 16/mm and with signs of right apical fibrosis and consolidation and left mid zonal consolidation. The Cardiovascular, abdomen and central nervous systems were essentially normal.

Laboratory investigations revealed a PCV of 26%, WBC of 4,700/mm<sup>3</sup> with differential count of neutrophil 46%, lymphocytes 52% and eosinophils 2%. The ESR was 110mm in the first hour (westergreen). The serum electrolyte and urea were within normal limits. Sputum for acid-fast bacilli was positive and tests for HIV I and 2 were negative.

Lateral soft tissue neck radiograph showed a soft tissue swelling in the anterior neck over the thyroid gland with amorphous calcifications in it. The trachea was not compromised or displaced ( Fig.1). Ultrasound scan showed enlarged thyroid gland with amorphous calcifications ( Fig.2). Chest radiograph showed patchy opacities with cavitary lesions and background nodularities in the upper and midzones bilaterally (Fig.3).

The thyroid function tests revealed Free T3 = 4pg/ml (normal value is 1.5 to 5.0pg/ml). Free T4 = 1.5ng/gl (normal 0.95 - 2.23ng/dl) and TSH = 0.41 u/ml (normal 0.3 - 6.51u/ml). Fine Needle Aspiration Cytology (FNAC) revealed caseous necrotic, inflammatory exudates and epithelioid cell granuloma. Microscopy of the aspirated material was positive for acid fact bacilli.

Patient received rifampicin, isoniazid and pyrazinamide daily for two months, and subsequently rifampicin and isoniazid daily for 4months. The neck swelling reduced markedly after 5-weeks and significant interval improvement was shown on



Fig1: Plain lateral soft tissue neck showing marked soft tissue swelling on the anterior neck over the region of the thyroid gland with amorphous calcifications within it (arrows). The inferior portion of the trachea is narrowed.



Fig 2: Transverse ultrasound scan of the neck showing enlarged thyroid gland with calcifications within it (arrows)

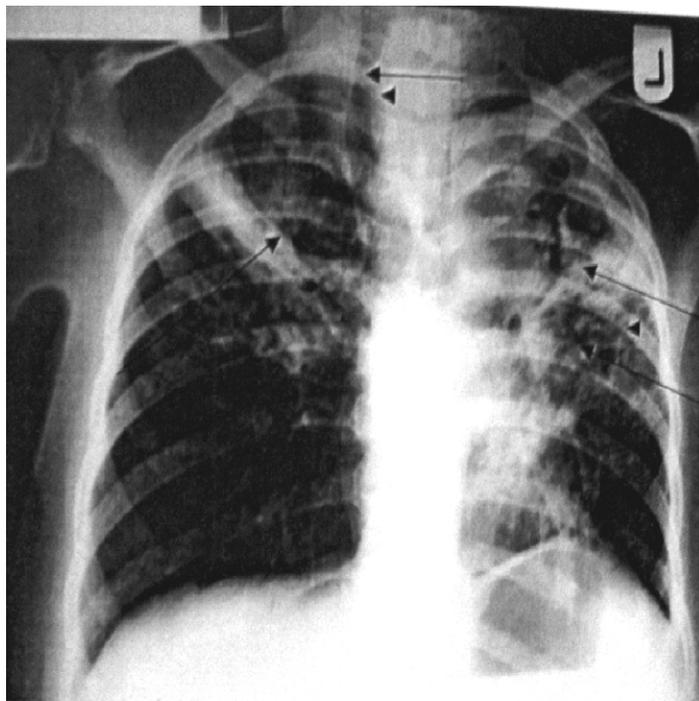


Fig 3: Plain chest radiograph showing patchy opacities with cavitary lesions and background nodularities in the left lung fields sparing the base (long arrows) and obliterating the right cardiac margin and the descending aorta. Similar lesions are seen on the right upper and mid zones. The trachea is deviated to the right (short arrow)

CXR as well as her clinical status.

### DISCUSSION

It has been suggested that tuberculosis never involved the thyroid gland.<sup>4</sup> The exact reason for the rarity is unknown.<sup>4</sup> The hypothesis mentioned in the literature includes: colloid material possessing bactericidal action, extremely high blood flow and an excess of iodine and enhanced destruction of tubercle bacilli by increased physiological activity of phagocytes in hyperthyroidism.<sup>4</sup>

Tuberculosis of the thyroid gland may be primary or associated with tuberculosis elsewhere in the body<sup>5</sup> as shown in our patient, who had pulmonary tuberculosis. Mycobacterium may spread to the thyroid gland from an adjacent focus such as cervical gland or they may seed the gland during hematogenous spread.<sup>6</sup>

Lebert in 1862 reported the first case of thyroid involvement in a patient with disseminated tuberculosis and in 1878, Chiari described seven cases of microscopic involvement of thyroid in one hundred autopsies of patients who died from disseminated tuberculosis. This was followed by sporadic reports in which there was miliary spread to the thyroid gland but no abnormality was suspected clinically. In 1893, Burns described the first case of tuberculous thyroiditis diagnosed in a middle aged woman with an enlarging goitre, who had cervical lymphadenopathy but no evidence of pulmonary tuberculosis.<sup>2</sup> This presentation contrasted with our patient who had pulmonary tuberculosis but no cervical lymphadenopathy.

In 1894, Schwartz reported the first case of successful drainage

of tuberculous thyroid abscess.<sup>2</sup> In our case antituberculous drugs were used to achieve cure. In 1926, Collar et al.<sup>7</sup> described five cases of thyroid tuberculosis in a series involving thyroid gland surgery. Rankin et al.<sup>8</sup> studied a large series of twenty thousand seven hundred and fifty-eight partial thyroidectomy specimens from the Mayo clinic, between 1920 and 1931 and found only twenty-one cases of thyroid tuberculosis, giving an incidence of 0.1%. A similar incidence was confirmed by Levitt in 1952, who found only two cases of thyroid tuberculosis among two thousand one hundred and fourteen consecutive thyroid specimens. The rarity of tuberculosis of thyroid gland was emphasized by Bolis, who found two cases of fibrocaceous thyroid tuberculosis in seventy four thousand, three hundred and ninety-three consecutive thyroid biopsies in Italy<sup>2</sup>.

Tuberculosis may involve the thyroid gland in two main forms. The more common of these is milliary spread to the gland as part of generalised dissemination. This form has never been shown to give rise to clinical thyroid disease.<sup>8</sup> Occasionally, milliary spread may occur in pre-existing thyroid enlargement. In our case, thyroid enlargement followed pulmonary tuberculosis as the thyroid function test values were normal. Less commonly, focal caseous tuberculosis of thyroid gland may occur, presenting as a localised swelling mimicking carcinoma.<sup>2,9</sup> It may also appear as cold abscess appearing superficially and very rarely, as an acute abscess.<sup>10,11</sup> In our case, there was mixture of cold abscess and calcifications.

Fibrosis and adherence to adjacent structure may occasionally lead to pressure symptoms like dysphagia, dyspnea or recurrent laryngeal nerve palsy causing hoarseness of voice<sup>12</sup>. Our patient did not experience these symptoms.

The differential diagnosis of tuberculosis of thyroid gland are sarcoidosis<sup>3</sup> and subacute thyroiditis<sup>14</sup> but the presence of caseation and demonstration of acid fast bacilli will confirm tuberculosis. Chronic fibrosis of thyroid has been described in association with tuberculosis by European investigators, but the exact relationship of sclerosing thyroiditis with tuberculosis is not clearly defined.<sup>2</sup> Disorders of thyroid function have seldom been described in association with tuberculous thyroiditis. Mosiman<sup>15</sup> in 1917 recorded seven cases to be clinically thyrotoxic, but no biochemical confirmation was done.<sup>15</sup> Our patient was clinically and biochemically euthyroid.

In 1939 Seed<sup>2</sup> described three pre-requisite conditions to be present for diagnosis of thyroid tuberculosis. These are:

- i. Demonstration of Acid Fast bacilli within the thyroid gland
- ii. A necrotic or abscessed gland
- iii. Demonstration of tuberculous focus outside the thyroid gland.

In our patient these three conditions were met, as the tuberculous focus was the lung.

Imaging modalities that are helpful in diagnosis and follow-up of tuberculosis of thyroid gland are, plain lateral soft tissue neck X-ray, Ultrasonography, Computed Tomography (CT), and Scintigraphy.

Plain radiograph may show soft tissue swelling in the region of

the thyroid gland. Calcifications may be seen in the swelling as demonstrated in our patient. Ultrasound scan demonstrates enlarged thyroid gland with midlevel echoes and may show calcifications as hyper dense structures which may be amorphous, casting acoustic shadows. This was demonstrated in our patient.

CT has been reported to show tuberculous lesion in the thyroid gland as iso to hypo dense soft tissue mass, which does not enhance on intravenous contrast administration.<sup>4</sup> Scintigraphy will demonstrate hot areas in tuberculous foci in the thyroid gland.<sup>4</sup> We did not investigate our patient with CT and/or scintigraphy because of lack of funds and availability of these imaging modalities.

Tuberculosis of the thyroid gland heals well without an ugly sequel when appropriate management is instituted<sup>2</sup> as was the case in our patient.

## CONCLUSION

A case of tuberculosis of the thyroid gland with primary focus in the lungs in a 32-year-old-female is reported. The fact that mycobacterium tubercle could seed through a haematogenous route from the lung to the thyroid gland is note worthy, emphasizing the need to have an index of suspicion for thyroid tuberculosis in patients with pulmonary TB and thyroid swelling in our environment, where the incidence of pulmonary TB is high.

## REFERENCES

1. Mondal A, Patra DK. Efficacy of fine needle aspiration cytology in the diagnosis of tuberculosis of the thyroid gland: a study of eighteen cases. *J Laryngol Otol* 1995; 109: 36 - 38.
2. Barnes P, Weatherstone R. Tuberculosis of the thyroid. Two cases report. *Br J Dis Chest*. 1979;73:187-191
3. Kukreja HK, Sharma ML. Primary tuberculosis of the thyroid gland. *Indian J Surg*. 1982; 44: 190 - 191.
4. Puri MM, Dongall DRM, Arora VK. A case of tuberculosis of the thyroid gland. *Med J Malaysia*. 2002; 5(2): 237 -239.
5. Johnson AG, Philips ME, Thomas RJS. Acute tuberculous abscess of the thyroid gland. *Br J Surg* 1973; 60(8): 668-669.
6. Sachs MK, Dickinson G, Amazon K. Tuberculous adenitis of the thyroid mimicking subacute thyroiditis. *Am J Med* 1988; 85: 573 -575.
7. Coller FA, Huggiris CB. Tuberculosis of the thyroid gland. *Am Surg* 1926;84: 408.
8. Rankin FW, Graham AS. Tuberculosis of the thyroid gland. *Am Surg* 1952; 96:625.
9. Crompton GK, Cameron SJ. Tuberculosis of the thyroid gland mimicking carcinoma. *Tubercle* 1969; 50:6.
10. Goldfarb H, Schiffrini D, Craig FA. Thyroiditis caused by tuberculous abscess of the thyroid gland. *Ann J Med* 1965; 38:825.
11. Johnson AG. Philips ME, Thomas RJS. Acute tuberculous abscess of the thyroid gland. *Br J Surg* 1973; 60:608.
12. Harzard JB. Thyroiditis: A review. *Am J Clin Path* 1955; 25: 189.
13. Karlsh AJ, Macgregor GA. Sarcoidosis, Thyroiditis and Addison's disease? *Lancet*. 1970; 2:330.