

## Thyroid tuberculosis in a HIV patient: Report of a case and review of literature

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### Summary

Thyroid tuberculosis is an extremely rare condition and its diagnosis is difficult, requiring first resorting to thyroid ultrasound. The confirmation of the thyroid localization relies on either a cytology using a thyroid nodule fine needle aspiration or sometimes on the examination of tissue by surgical excision. We report the case of an HIV patient hospitalized in the Infectious Diseases department to diagnose the cause of a prolonged fever and poly cervical lymphadenopathy.

**Keywords:** Tuberculosis; Thyroid ultrasound; Fine needle aspiration

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### Introduction

Thyroid tuberculosis is a rare disease, characterized by its polymorphic clinical presentation, and could be mistaken for other thyroid diseases including cancer and thyroid hemorrhagic cysts. Its diagnosis is often late, responsible for an important morbidity-mortality. Ultrasound is currently a diagnostic and monitoring tool. The treatment is based initially on the use of the antituberculosis drugs followed by a treatment of the associated endocrinopathy. The purpose of the work is to describe the clinical and radiological signs that should alert the clinicians to this disease.

### Case Report

A 38 years old man, without medical history, admitted in the Infectious Diseases Unit for management of HIV1 infection revealed by a prolonged fever and cervical lymphadenopathy associated with a weight loss of 12 kg in within 2 months.

The clinical state worsened by the onset of headaches and dizziness. The clinical exam showed a conscious patient, with a blood pressure of 110/60mmHg, a fever at 39°C and dyspnea with 26 cycles/min and peripheral cyanosis. The neurological exam showed a slowed rhythm, with a tremor in the extremities, no extrapyramidal syndrome and no neck stiffness. The rest of the patient's examination found lymph nodes: fixed bilateral cervical lymphadenopathy, painful without any visual inflammatory signs, the biggest one was 1cm on 1cm on the major axis. The brain scan and the fundoscopic examination were normal and the Chest X-ray showed an interstitial syndrome. The lumbar puncture was normal with a negative search in the cerebral spin fluid for *Cryptococcus neoformans* and acid fast bacilli (AFBs). The blood count showed an anemia, thrombocytopenia and lymphopenia to 522 cells/mm<sup>3</sup>. The research of AFB in the expectorations was negative.

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The viral serologies hepatitis B and C, syphilis and toxoplasmosis, were negative as well. The blood cultures were sterile, LDH levels was 642 UI/L with a CRP of 113.9 mg /mL without hydro electrolytic disorders or liver enzymes elevation. The fine needle cytology aspiration of the cervical adenopathy found a granuloma and AFBs. The bone marrow biopsy showed a granuloma with a focal caseous necrosis. The diagnosis of a hematopoietic tuberculosis was held and the thyroid localization suspected because of the tremor in the extremities.

The cervical ultrasound objectified an heterogeneous structure and a three nodules; A hypo echogenic in the right lobe of 3.5 on 7.7 mm, a kystized in the isthmus of 3.2 on 2 mm and a hypo echogenic heterogeneous one in the superior pole of the left lobe of 5 on 8.3mm, some with deformed edges and peripheral vascularity, with multiple bilateral jugular carotid lymph nodes and also in the left submandibular area, they were heterogeneous hypo echogenic and some of which were cystic, The most voluminous one was 19.6mm. The TSHus, T3 and T4 levels were normal, and the fine needle cytology aspiration found a granuloma and AFBs.

The antituberculosis treatment was initiated according to protocol 2RHZE/4RH (R rifampicin, H isoniazid, Z pyrazinamide, E ethambutol) with good clinical outcome shown by the disappearance of the fever and the weight regain; and in the cervical ultrasound a complete clearance of the thyroid nodules in the 30<sup>th</sup> day of the treatment. The antiretroviral treatment was started at the 15<sup>th</sup> day of the anti -tuberculosis treatment, based on Ténofovir/Emtricitabine/Efavirenz in fixed dose combination with favorable evolution.

## Discussion

The Tuberculosis continues to be a public health problem. Its prevalence is estimated at 9.6 million new cases, and it is responsible for 1.5 million deaths in 2014 [1]. It's associated with a dysfunction of the majority of the glands especially the adrenals, the thyroid gland, the pituitary gland, the pancreas and the gonads [2]. Although, the thyroid affection was described in 1863 [3], it remains rare .Its prevalence varies from 0.1 to 0.4% of new cases of tuberculosis [4]. The Tuberculous thyroid abscesses occur rarely. There is a frequency of 1% among HIV-infected patients infected with M. tuberculosis [5] and 1.15% in cytologically diagnosed cases of thyroid lesions subjected to fine-needle aspiration [6]. Mycobacterial organisms may spread from an adjacent focus, or may seed the gland during haematogenous dissemination [7,8].

This low prevalence is attributed to several factors including the bactericidal action of thyroid colloid, the particularity of the blood circulation and oxygenation of the tissue and its high iodine concentration [4]. In a sectional study conducted in South Africa, which included 50 hospitalized patients with active TB, showed that 46 patients that is 92% had a sick euthyroid syndrome [9], and in another cross-sectional study 42% of the 40 patients have a euthyroid sick syndrome and 2 patients had subclinical hypothyroidism [2]. The clinical presentation of a thyroid tuberculosis is variable going from the asymptomatic to the cervical tumoral mass, causing confusion with other thyroid pathologies especially the thyroid cancer, and the hemorrhagic cysts causing a delay of the diagnosis and the high morbidity-mortality rate [4].

In the presented case the diagnosis was suspected in front of shakings extremities. Biology could be unspecific and shows an inflammatory syndrome or uncovers a hematopoietic tuberculosis as it was the case of our patient.

The disturbances of the hypothalamic-pituitary-thyroid axis led to a reduction of the stimulation of the thyrotrophs and low production of the thyroid hormones, which is translated by a sub-clinical hypothyroidism or an euthyroid sick syndrome [2,9]. Indeed sectional study conducted in South Africa, which included 50 hospitalized patients with active TB, showed that 46 patients that's 92% had a sick euthyroid syndrome [9], and in another cross-sectional study 42% of the 40 patients have a euthyroid syndrome sick and 5% or 2 patients a subclinical hypothyroidism table [2].

The thyroid ultrasound is a cheap and accessible tool it represents one of the pillars for the diagnosis and the monitoring of patients, the sonographic aspects according to Kang and al are heterogeneous lesions, hypo echogenic multifocal nodules with margins badly defined in the two thyroid lobes and effect of mass on the parenchyma, as well as calcifications [10]. But the definitive diagnosis can only be

put finding either AFB on the fine needle cytology aspiration of a thyroid nodule, which is not positive except in 0.6 to 1.15% [11], or with tuberculoid granuloma with caseous necrosis shown in the biopsy of the nodule [4]. The use of molecular biology (PCR) or the culture on radiolabeled compounds C14 allows to confirm the diagnosis if the granuloma is without a caseous necrosis [11].

The treatment is based on the use of antituberculosis agents for a period of 6 to 12 months [12] associated with a treatment by the thyroxine in the case of hypothyroidism, the introduction of this hormone therapy remains discussed and even not recommended if there is an euthyroid sick syndrome owing to the fact that it has a spontaneous resolution after setting up the antituberculosis treatment [2,13]. The treatment failure is only seen in 1% due to the emergence of resistant strains of mycobacterium tuberculosis [11].

It is finally important to maintain a clinic-radiological monitoring of patients to detect early thyroid cancer, indeed several studies has set the point on the association of the tuberculosis and thyroid cancer, because of several factors such as the chronic inflammation, the apoptosis inhibition and the thyroid cell's DNA lesions [14].

## Conclusion

Thyroid tuberculosis is a rare disease but it should still be considered in the differential diagnosis of cervical masses. The cytology aspiration with the fine needle or the biopsy are the best tool of diagnosis, to prevent a useless thyroidectomy.

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