



# Coexistence of Thyroid Tuberculosis and Graves Disease



Hassan Ouleghzal<sup>1,4\*</sup>, Hicham Attifi<sup>2,4</sup>, Mohamed Sinaa<sup>3,4</sup> and Soumia Safi<sup>1</sup>

<sup>1</sup>Endocrinology department, Military Hospital Moulay Ismail, Meknès, Morocco

<sup>2</sup>ORL department, Military Hospital Moulay Ismail, Meknès, Morocco

<sup>3</sup>Anatomopathology department, Military Hospital Moulay Ismail, Meknès, Morocco

<sup>4</sup>Faculté de médecine et de pharmacie, Fès, Morocco

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\*Corresponding author: Hassan Ouleghzal, Endocrinology department, Military Hospital Moulay Ismail, Meknes, Faculté de médecine et de pharmacie, Morocco, Tel: 002120661099517; Email:hassan.oulegzal@gmail.com

## Abstract

We report the observation of a 42-year-old patient who was diagnosed with Graves disease and with whom the synthetic antithyroid drugs was ineffective. This led us to opt for radical treatment (total thyroidectomy). Histological study showed the association of thyroid tuberculosis with a Graves disease. As per our knowledge, this association has never been reported in the literature. From this observation we try to understand the repercussions of each affection on the other when they coexist together.

**Keywords:** Graves disease; Thyroid tubeculosis; Histological study

## Introduction

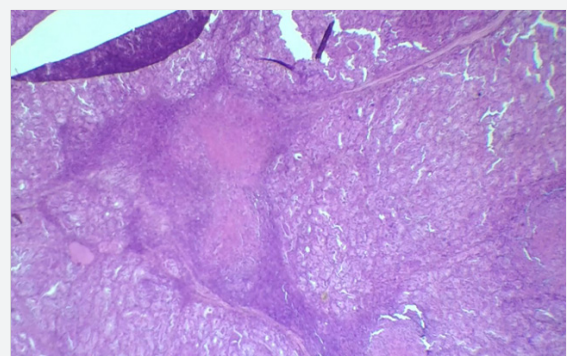
Thyroid tuberculosis is a rare form of extra-pulmonary tuberculosis, originally described by Lebert in 1862 [1]. Its frequency is estimated between 0.1-1% in clinical series and between 2-7% on autopsy data [2]. Its association with Graves disease is exceptional. We report an observation of this extremely rare association.

## Observation

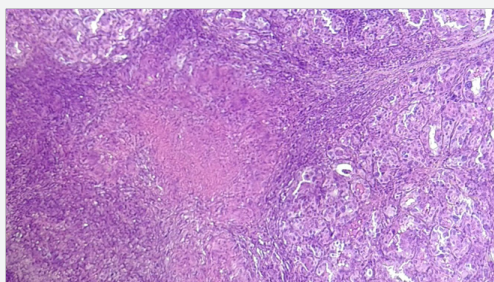
A 42 years old woman without any special pathological history who has shown signs of a serious hyperthyroidism with bilateral exophthalmia during two months. The clinical examination revealed a tachycardia at 120batt/min and the cervical palpation showed a homogeneous goitre characterized by an elastic consistency and a very clear vascular character. The biological balance noted a braked TSHus <0.005mUI/L NR: (0.27-4.2mU/L), a T4 at 98pmol/l NR: (12-22pmol/l), and a T3 at 54pmol/l NR: (3.2-6pmol/l). The Cervical ultrasound shows a homogeneous hypo-echogenic thyroid that is highly vascularized on doppler. The diagnosis of Graves disease was confirmed by the high level of antibody antiTSH 76NR: (<2mUI/ml). At last, it is to notice that the electrocardiogram and blood count were normal.

With this situation, the patient was put on medical treatment with carbimazole 40mg/d and propranolol 80mg/d. The

evolution was marked by a slight clinical improvement. However, after 04 months of high doses of the antithyroid synthesis and a serious respect of the treatment, the biological balance remained disrupted (TSH braked and thyroid hormone T4,T3). So, we opted for a radical treatment with total thyroidectomy. Then, the histological study of the thyroid revealed the coexistence of thyroid tuberculosis and the Graves disease (Figure 1 & 2). The patient was placed on anti-bacillary treatment for 6 months and a lifetime replacement therapy with L-thyroxine was initiated.



**Figure 1:** Histological sections showing an epitheloid granuloma with an anthelite deposit corresponding to the caseous necrosis associated with vesicular hyperplasia with fine and inflammatory fibrosis bands.



**Figure 2:** Histological sections showing an epithelioid granuloma with an anthelithic deposit corresponding to the caseous necrosis associated with vesicular hyperplasia with fine and inflammatory fibrosis bands.

## Discussion

Thyroid localization of tuberculosis is rare, even in endemic areas like Morocco [3]. This is explained by the relative resistance of the thyroid body due to its good oxygenation by a rich vascular network and the bactericidal character of iodine and thyroid hormones [2,4]. Traditionally, thyroid tuberculosis occurs in the presence of certain factors such as advanced age, diabetes, immunodepression (AIDS), malnutrition [4] or in association with other localizations (bone, pulmonary, etc.) [5].

We report an original observation where the thyroid tuberculosis is associated with the Graves disease. As known, this association has never been reported in the literature. On the one hand, during the Graves disease, the stimulation of the thyroid receptors of TSH by the anti-TSH receptor antibodies, particularly TSAb (Thyroid Stimulating Antibody) or TSI (TS Immunoglobulin), increased the synthesis of thyroid hormones. Due to an autoimmune mechanism, these thyroid changes will be responsible of vascular disorders that make the thyroid sensitive to the bacillary attack. On the other hand, the hyperproduction of thyroid hormones during Graves disease is normally sensitive to the action of synthetic antithyroid drugs which act by inhibiting thyroperoxidase (TPO) and have a Immunosuppressive effect by decreasing the CD8 T suppressor lymphocytes and increasing the CD4 T helper. The absence of response to antithyroid syntheses drugs in the reported case suggests a modulating action of the Koch bacillus on carbimazole or on the thyroperoxidase rendering the antithyroid ineffective.

Although the diagnosis of Graves disease is generally easy, based on the clinical triad: hyperthyroidism, goitre, exophthalmos

and confirmed by the positivity of anti-TSH receptor antibodies, the thyroid tuberculosis remains difficult outside of guidance by Clinical or biological factors (TB disease, history of tuberculosis, cutaneous fistula on clinical examination, fever, inflammatory syndrome). The coexistence of a Graves disease makes the clinical symptomatology more misleading. The attention of the practitioner should be attracted if a concomitant or sequential tuberculous focus is present [3] and in the case of unexpected response to treatment as reported in the observation.

The diagnosis confirmation requires a bacteriological proof of the existence of Koch bacillus in a thyroid or a granuloma epithelioid gigantocellular with caseous necrosis during the histopathological examination of the Piece of thyroidectomy.

Outside the complicated forms (abscdation, fistulization), the treatment of thyroid tuberculosis is medical. This treatment consists of the association of powerful anti-bacillary drugs [5]. In our case, the total thyroidectomy was indicated because of the ineffectiveness of synthetic antithyroid drugs on the control of hyperthyroidism that is related to Graves disease. The surgery has a double interest therapeutic and diagnosis. The evolution is often favorable and without sequelae.

## Conclusion

Graves disease can make the thyroid vulnerable to infections, the practitioner must think about a possible association with thyroid tuberculosis if there is no response to antithyroid treatment especially in tuberculous endemic areas.

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