Primary thyroid tuberculosis: a case report

Tuberculosis tiroidea primaria: reporte de un caso

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Abstract

Involvement of the thyroid gland by tuberculosis is very rare and is usually secondary to disseminated infection. Very few cases of primary thyroid tuberculosis have been described even in countries with a high incidence of this disease. We present the case of a Spanish patient operated for a suspicious thyroid nodule that was finally diagnosed as primary thyroid tuberculosis.

Key words: *Thyroid tuberculosis. Tuberculosis. Thyroid surgery.*

Resumen

La afectación de la glándula tiroidea por tuberculosis es muy rara y generalmente es secundaria a una enfermedad diseminada. Se han descrito muy pocos casos de tuberculosis tiroidea primaria incluso en paises con alta incidencia de esta enfermedad. Presentamos el caso de una paciente española operada por un nódulo tiroideo sospechoso que fue finalmente diagnosticado como tuberculosis tiroidea primaria.

Palabras clave: *Tuberculosis tiroidea. Tuberculosis. Cirugía tiroidea.*

Introduction

Thyroid involvement by disseminated tuberculosis is rare, and primary involvement of this organ is rarer, even in countries with a high incidence of tuberculosis[1]. Approximately 5 cases have been reported in Europe in the last 10 years, all of them of patients from South American or Asian countries with a higher incidence of tuberculosis than in Europe. We present the case of a Spanish patient with an isolated thyroid nodule.

Clinical Case

The patient is a 50 year old woman with no medical history of interest. As the only important antecedent, she works in a health center performing Mantoux tests. She was evaluated by her primary care physician for presenting a left cervical nodule. An ultrasound was performed which showed a lesion with irregular borders and solid appearance covering a large part of the middle and lower third of the left thyroid lobe. Its major axis measured approximately

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3 cm and showed signs of an infiltrative lesion (Fig.1). No pathological adenopathies were observed. In view of this finding, the lesion was punctured, resulting in a follicular lesion of undetermined significance, Bethesda III. With these results, the patient was referred to the general surgery service where a left hemihyroidectomy was proposed, with the possibility of needing to complete the thyroidectomy depending on the results.

As planned, a programmed left thyroidectomy was performed. During surgery, no significant alterations were observed on the surface of the left thyroid lobe. The described nodule was palpable but showed no signs of infiltration of adjacent structures.

Intraoperative study of the specimen was not performed because there were no macroscopic signs of malignancy. The patient had no postoperative complications and was discharged the same day. The pathological analysis of the surgical specimen showed a granulomatous thyroiditis with non-necrotizing epithelial granulomas with the presence of multinucleated giant cells. In view of the possibility of an infectious etiology, more stains were performed, evidencing acid fast bacilli using the Ziehl-Nielsen technique. This finding confirmed the tuberculous origin of the patient's nodule (Fig. 2).

The patient was studied by the department of infectious diseases where complementary tests were performed excluding affectation at other levels. Also, quadruple antituberculosis therapy was initiated with isoniazid, rifampicin, pyrazinamide, and ethambutol.

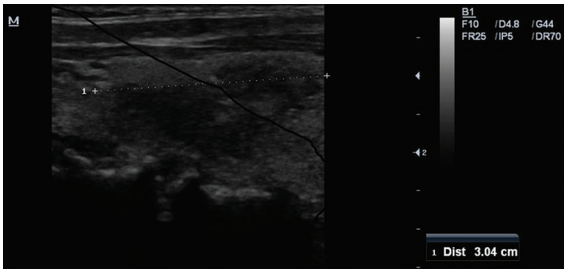

Figure 1. *Preoperative ultrasound showing a heterogeneous nodule of approximately 3 cm in the left thyroid lobe.*

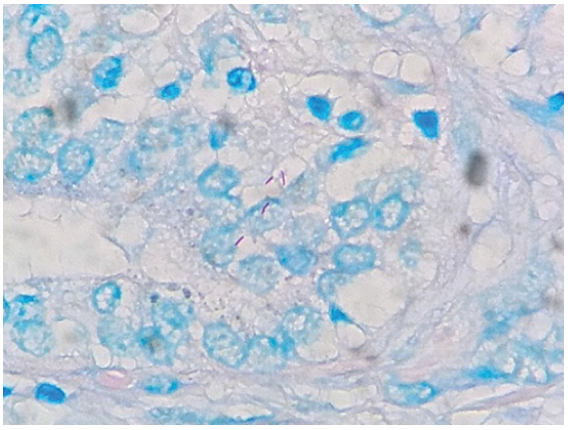

Figure 2. *Tuberculous bacilli stained by ziehl neelsen technique in thyroid parenchyma.*

Discussion

The thyroid gland has a high intrinsic resistance to infections as well as to metastatic involvement. This is probably due to the high blood flow, the high concentration of iodine and oxygen and the possible bacteriostatic effect of thyroid hormones[2,3]. Therefore, thyroid involvement by tuberculosis is extremely rare.

Hematogenous or lymphatic spread in the context of a miliary disease is responsible for most cases, with thyroid involvement of about 14%[4]. Primary thyroid tuberculosis is an even rarer process and is difficult to diagnose. Women are affected more frequently and in most cases the patients are euthyroid. The clinical presentation is very variable, the most frequent is a solitary nodule, but it can present as a fast growing goiter or a thyroid abscess. Sometimes, it can appear with dyspnea or dysphagia due to the involvement of adjacent structures[5].

Cervical ultrasound, although necessary, is often non-specific, as are CT and MRI scans. Fine needle biopsy of lesions can be very useful. The visualization of granulomas with case necrosis is sufficient to assume that it is a tuberculous thyroiditis. Similarly, culture of tuberculosis in material obtained by fine needle biopsy or visualization of acid fast bacilli would confirm the diagnosis[6]. In the presence of suspicious granulomas and negative cultures, a PCR for tuberculosis of thyroid tissue can be performed. A positive result would support the diagnosis.

However, on many occasions, such as in our patient, fine needle biopsy is non-specific. Intraoperative pathological study can be useful and cost effective in these cases with suspected malignancy in the ultrasound and inconclusive biopsy[7]. However, in this particular case this option was not considered because of the absence of suspicious findings during surgery.

Usually, the definitive diagnosis is given by the study of the surgical specimen. The presence of

caseous granulomas, a positive stain, a tuberculosis culture or a positive PCR would give us the diagnosis.

Medical treatment with anti-tuberculosis agents according to local resistances is the main treatment and can avoid surgery if the diagnosis is made by fine needle biopsy[8]. In case of acute abscesses, surgical drainage may be necessary.

In conclusion, thyroid tuberculosis is a rare entity with a highly variable presentation and a complex diagnosis when it is not suspected. It usually occurs in patients with disseminated tuberculosis who are from endemic countries. However, sometimes, as in our patient, it may present as a solitary nodule in a patient with no history of previous tuberculosis and no contact with areas of high prevalence. Therefore, at the minimum suspicion, it is necessary to consider this option to perform the necessary complementary studies for its diagnosis.

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Conflicts of interests

The authors declare that they have no conflicts of interest.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

References

1. Peteiro-González D, Cabezas-Agrícola JM, Cameselle-Tejeiro J, Mínguez I, Casanueva F. Primary thyroid tuberculosis. Endocrinol Nutr. 2010;57:82---3.
2. Rojo-Abecia, M., Rivera-Alonso, D., Herrero-Álvarez, S., Ochagavía-Cámara, S., & Torres-García, A. J. (2020). Thyroid metastases from colorectal cancer 14 years later: A case report and literature review. Cirugia y cirujanos, 88(4), 508-510.
3. Khan EM, Haque I, Pandey R, Mishra SK, Sharma AK. Tuberculosis ofthe thyroid gland: a clinicopathological profile of four cases and review ofthe literature. Aust N Z J Surg 1993;63:807–10.
4. B.P. Silva, E.G. Amorim, E.J. Pavin, A.S. Martins, P.S. Matos, D.E. Zantut-Wittmann. Primary thyroid tuberculosis: a rare etiology of hypothyroidism and anterior cervical mass mimicking carcinoma. Arq Bras Endocrinol Metabol, 53 (2009), pp. 475-478.
5. Bulbuloglu, E., Ciralik, H., Okur, E., Ozdemir, G., Ezberci, F., & Cetinkaya, A. (2006). Tuberculosis of the thyroid gland: review of the literature. World journal of Surgery, 30(2), 149-155.
6. Lacka, K., & Maciejewski, A. (2015). Rare thyroid non-neoplastic diseases. Thyroid Research, 8(1), 5.
7. Vuong, C. D., Watson, W. B., Kwon, D. I., Mohan, S. S., Perez, M. N., Lee, S. C., & Simental, A. A. (2020). Cost effectiveness of intraoperative pathology in the management of indeterminate thyroid nodules. Archives of Endocrinology and Metabolism, (AHEAD).
8. Majid, U., & Islam, N. (2011). Thyroid tuberculosis: a case series and a review of the literature. Journal of Thyroid Research, 2011.