

Adipose metaplasia of the thyroid associated with Hashimoto's thyroiditis with nodular hyperplasia and oncocytic cells adenoma: case report and literature review

Metaplasia adiposa de tireoide associada à tireoidite de Hashimoto com hiperplasia nodular e adenoma de células oncocíticas: relato de caso e revisão da literatura

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ABSTRACT

Lesions involving adipose tissue and the thyroid gland are usually rare. In the present report, adipose metaplasia is associated with Hashimoto's thyroiditis with nodular hyperplasia and oncocytic adenoma in a 40-years-old female patient, which is one of the first reported cases of this association. The main clinical finding is the diffuse goiter, and the differential diagnosis must be performed to exclude the possibility of malignancies. The treatment is performed through total thyroidectomy. Thus, it is important the physicians be aware of this pathology with a view to a more effective clinical reasoning and to exclude more serious possibilities.

Key words: metaplasia; lipomatosis; Hashimoto's disease; adenoma; hyperplasia.

INTRODUCTION

Lesions involving adipose tissue and the thyroid are rare and have few cases reported in the history of Medicine⁽¹⁾. The presence of adipose tissue has been reported in association with several pathologies, such as adenolipoma (thyrolipoma), lymphocytic thyroiditis, amyloid goiter, papillary carcinoma and liposarcoma⁽¹⁾. In this case report, adipose metaplasia was associated with Hashimoto's thyroiditis with nodular hyperplasia and oncocytic adenoma.

Hashimoto's thyroiditis is an autoimmune disease that results in thyroid destruction and gradually affects its hormonal function. It is the most common cause of hypothyroidism in iodine-sufficient areas; usually reaching individuals aged 45-65 years and is more common in women than in men. Often, there is a pattern of reactive nodular hyperplasia associated^(2, 3). The oncocytic adenoma is an increase in cell volume characterized by granular, eosinophilic and abundant cytoplasm due to the

accumulation of abnormal mitochondria, which association with Hashimoto's thyroiditis is very common⁽⁴⁾.

Adipose metaplasia within the thyroid refers to the reversible alteration of glandular cells in adipocytes, consisting of an apparently benign condition, causing no functional alteration of the gland with cases described in patients aged 11-76 years, mean age 42 years⁽⁵⁻⁷⁾. Furthermore, there is not sufficient data to demonstrate its clinical significance and little is known about its etiological process. Because of the unusual nature of the disease, especially associated with Hashimoto's thyroiditis, this is the subject presented in this case report.

CASE DESCRIPTION

A female patient, 40 years old, presented left goiter with bilateral nodulations with 10 years of evolution. She was on levothyroxine 75 mcg, with no other significant previous findings. Family history was positive for thyroid carcinoma (mother),

breast cancer (maternal grandmother) and oropharyngeal cancer (paternal grandfather). Due to the nodular growth and the family history, total thyroidectomy was chosen. At the anatomopathological examination, the thyroid presented dimensions of $6.8 \times 6.5 \times 3.3$ cm, weighing 62 g and irregular appearance. The right lobe contained five nodules, the largest presented dimensions of $0.8 \times 0.5 \times 0.5$ cm and the lowest $0.2 \times 0.2 \times 0.2$ cm. The isthmus presented a nodule measuring $3 \times 1.5 \times 1.4$ cm. The left lobe presented six nodules, the largest measuring $4.3 \times 3.9 \times 3.6$ cm and the lowest $0.7 \times 0.5 \times 0.4$ cm (**Figure 1**). All nodules were solid and presented soft consistency. At histological section, atypical follicular proliferation in the left lobe intersected by foci of mature adipose tissue – adipose metaplasia – associated with non-hyperplastic multinodular goiter with foci of hyperplasia and adenomatous nodules (**Figures 2, 3 and 4**). Therefore, immunohistochemistry was indicated for diagnostic confirmation. The patient was followed by mild to moderate chronic lymphocytic thyroiditis with reactive follicular lymphoid hyperplasia (Hashimoto pattern) intersected by areas of fibrosis and multinodular oxyphilic cell hyperplasia with lymph nodes free of tumor. Among the immunohistochemical results were: CD56+++/3, CK 19-negative, galectin-3-negative, HBME-1-negative and nonspecific chromogranin A. The anatomopathological profile and immunohistochemical profile were consistent with adipose tissue metaplasia in the thyroid associated with Hashimoto's thyroiditis with nodular hyperplasia of oncocytic cells and oncocytic adenoma. On the seventh postoperative day, patient evolved with paresthesia of the lower limbs and Chvostek's sign on the right side. Laboratory tests confirmed hypocalcemia. After increased supplementation (calcitriol + calcium), the patient evolved with total resolution of the symptoms. After two years of evolution, the patient follows without any other significant medical findings.



FIGURE 1 – Enlarged thyroid with irregular appearance and dimensions of $6.8 \times 6.5 \times 3.3$ cm, weighing 62 g

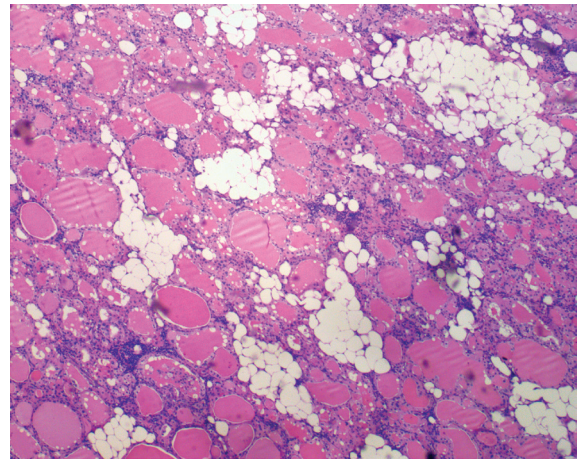


FIGURE 2 – Thyroid (HE, 40 \times): intense lymphocytic infiltrate diffusely associated with adipose tissue sparse within the parenchyma

HE: hematoxylin and eosin.

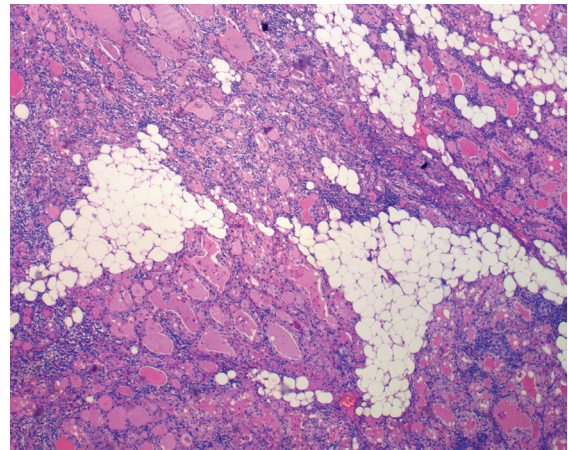


FIGURE 3 – Thyroid (HE, 100 \times): adipose metaplasia and lymphocytic infiltrate

HE: hematoxylin and eosin.

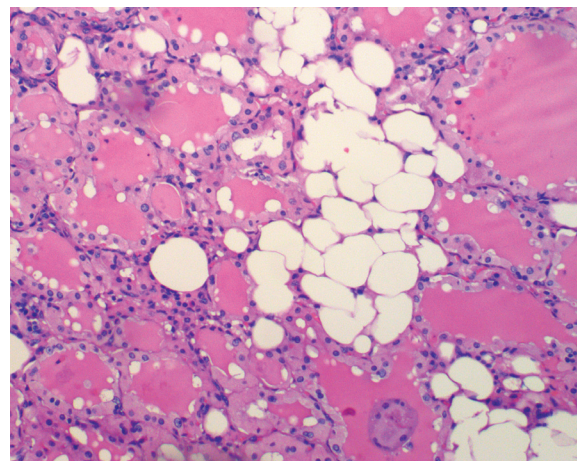


FIGURE 4 – Thyroid (HE, 100 \times): adipose metaplasia and oncocytic cells

HE: hematoxylin and eosin.

DISCUSSION

It is rare to find mature adipose tissue in the thyroid gland; therefore few cases have been described in the literature. Occasionally, mature adipocytes are found in the perivascular and subcapsular areas^(1, 5, 8, 9). The pathophysiological mechanism of evolution of adipose metaplasia in the thyroid is unclear. However, based on its appearance in other organs, it is believed in a relationship with the process of parenchymal atrophy. Some authors, however, believe that the tissue is a neoplastic component or that it occurs by vascular hypoxia⁽¹⁾. The appearance of adipose tissue itself seems to arise from cells incorporated during embryogenesis⁽⁹⁾. In some cases, there is only exclusive appearance of diffuse adipose proliferation by the gland, without other associated pathologies (except for the possibility of amyloid deposits), characterizing the diffuse lipomatosis form⁽⁹⁾. The adipose metaplasia form associated with Hashimoto's thyroiditis has no descriptions in the literature, drawing attention to this case.

Regarding the clinic, almost all the patients with adipose tissue distributed in the thyroid (lipomatosis) complain of a diffuse increase of the anterior cervical region (goiter). The time of evolution of this increase varies, but the cases described in the literature are from three months to five years (two years, on average). At palpation, some cases presented nodulations, but the glandular consistency is always soft. The most prevalent subsequent symptoms were dysphagia and dyspnea, the latter due to airway compression. Other less common findings were hoarseness, hyperthyroidism, weight loss, and sleep disorders^(1, 5-9). As in some cases described in the literature, our patient referred the presence of a visible mass in the region of the neck which, on physical examination, showed to be soft in consistency and, in this case, it was accompanied by non-neoplastic multinodular goiter with foci of hyperplasia and adenomatous nodules. A curious fact is that three patients had chronic kidney disease, and two of them were dialytic. One of them was only 43 years old^(5, 10). The family history of the other patients did not call attention, although our patient had a positive history for thyroid cancer.

When it is a question of hormonal changes, the majority of the patients described in the literature showed thyroid stimulating hormone (TSH), triiodothyronine (T3) and thyroxine (T4) values within the normal limits, and some cases reported associated conditions that caused hyperthyroidism^(1, 5-9). Our patient had hypothyroidism due to concomitant presence of Hashimoto's thyroiditis. Ultrasonography was able to

confirm diffuse goiter accompanied by heterogeneities in all patients. In cases in which scintigraphy was also used, areas of hyperactivity (in general, diffuse) were observed^(5, 8, 9). Patients who reported dyspnoea were submitted to computed tomography with injection of contrast material, which showed the airway compression associated with diffuse heterogeneity of the thyroid parenchyma^(1, 8). In one case, laryngoscopy and echocardiography were ordered, but they did not show relevant results⁽⁸⁾. The cytological evaluation by fine needle aspiration (FNA) was one of the managements in most cases, however, it was not enough for diagnostic confirmation or suspicion^(1, 5-9). However, some authors advocate exclusion of other differential diagnoses, such as adenolipomatosis⁽¹⁾. Since thyroid gland with adipose metaplasia is rare, with few non-invasive diagnostic possibilities and, among them, there is the possibility of malignant neoplasm as a differential diagnosis, the histopathological evaluation is necessary. This, in general, is performed after thyroidectomy, especially in symptomatic patients^(1, 10).

Differential diagnosis should be performed due to the possibility of malignancies, as mentioned previously. Ectopic thyroid nests present as small islands of adipose tissue, often are incidental findings. The thyro-lipoma or adenolipoma is characterized by a well delimited, encapsulated neoplasia, composed of variable proportions of adipose and glandular tissues. The lipomatosis or adenolipomatosis, lastly, is the appearance of adipose tissue diffusely infiltrated, and may be accompanied by amyloid deposits. Most cases described in the literature are not accompanied by amyloid deposits^(1, 5-9), as observed in our patient. Other more classic diagnoses in anatomopathological terms are the presence of adipose tissue associated with lymphocytic thyroiditis and the liposarcoma itself, the latter with a fast growing and aggressive behavior mass^(1, 5-7).

All patients underwent thyroidectomy (partial or total) and presented good postoperative evolution^(1, 5-9). One patient had partial response to the use of beta-blockers while waiting for the operation, even with normal thyroid function and only with goiter, dysphagia, hoarseness and hyperthermia symptoms⁽¹⁾.

Therefore, the evaluation of patients with adipose components in the thyroid is important due to the range of differential diagnoses, especially to exclude malignant conditions. Diffuse lipomatosis has few reports in the literature, presenting a good response to the treatment and little is known about adipose metaplasia associated with Hashimoto's thyroiditis, and this is probably one of the first reports in the literature.

RESUMO

Lesões que envolvem tecido adiposo e glândula tireoide costumam ser raras. No presente relato, a metaplasia adiposa associou-se à tireoidite de Hashimoto com hiperplasia nodular e adenoma de células oncocíticas em uma paciente de 40 anos, sexo feminino, sendo um dos primeiros casos relatados dessa associação. O principal achado clínico é o bócio difuso, e o diagnóstico diferencial deve ser realizado com o intuito de excluir malignidades. O tratamento é feito por meio de tireoidectomia total. Dessa forma, é importante que o médico conheça essa patologia a fim de um raciocínio clínico mais eficaz, excluindo possibilidades mais graves.

Unitermos: metaplasia; lipomatose; doença de Hashimoto; adenoma; hiperplasia.

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