

OPHTHALMOLOGICAL IMPAIRMENT CAUSED BY CHANGES IN THE THYROID

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Abstract: Thyroid ophthalmopathy is a disease with orbital involvement, of an autoimmune nature, which is closely linked to hyperthyroidism, and may or may not be related concomitantly. The ophthalmological alteration may precede, coincide with or follow the onset of thyroid dysfunction, rarely occurring in euthyroid or hypothyroid patients. In cases of succession of thyroid dysfunction, the clinical manifestations take about a year to start. These manifestations occur in the extraocular muscles, which will suffer hyperemia and, consequently, will cause ophthalmoplegia and proptosis. In time, it is also worth mentioning the occurrence of eyelid retraction, periorbital edema and conjunctival hyperemia. In this disease, the congestion, hypertrophy and fibrosis of fat and surrounding muscles can affect the ophthalmic nerve, in which, in certain situations, there is partial or even total loss of vision.

Keywords: Endocrinology. Imaging exams. Hyperthyroidism. Ophthalmology.

INTRODUCTION

Thyroid ophthalmopathy is a serious pathology in which the ocular orbit is affected due to an autoimmune disease, directly related to hyperthyroidism. In advance, it is emphasized that the existence of a disease does not depend on the other, since both can coexist independently. It is believed that the pathophysiology of the disease is due to the crossing of sensitized T lymphocytes or even antibodies against antigens commonly present in the thyroid and in the eye socket.

Commonly, the picture of ophthalmopathy starts together with the picture of hyperthyroidism in its initial stage. In certain cases, however rare, the aforementioned ophthalmological involvement may arise concomitantly with a different picture of thyroid dysfunction, such as hypothyroidism,

and treatment must be based on systemic corticosteroid therapy, given that the referred process is self-limited.

The active picture of thyroid ophthalmopathy lasts from months to years. Ophthalmological reports describe conditions that lasted up to 3 (three) years. The involvement will be resolved from the moment the quiescent or inactivation phase begins, with the appearance of fibrosis.

Currently, in the Brazilian population, ophthalmopathy is the main cause of orbital disease in the adult population. When addressing unilateral exophthalmos in adults, it is estimated that the involvement in the Brazilian population ranges from 15 to 30% of individuals, reaching 80% of the population when it becomes bilateral.

In thyroid ophthalmopathy, there is congestion, fat fibrosis, hypertrophy, inflammation and a foreign body sensation in the orbital muscle region, consequently causing their volumetric increase.

By performing imaging tests, such as computed tomography (CT) and magnetic resonance imaging (MRI), the disease is better characterized, thus allowing a series of clinical findings to be noted, including whether the pathology is found whether in the acute or chronic phase.

OBJECTIVE

To establish the correlation between thyroid ophthalmopathy and thyroid diseases, including their influences on that condition.

METHODOLOGY

The present work consists of a qualitative review of the literature that sought to address results found in research on the ophthalmological and endocrinological theme, whether in a comprehensive, orderly or systematic way. To carry out the work, the following steps were followed:

1. Selection of the corresponding themes;
2. Selection of samples found and used;
3. Analysis of the characteristics of the original research;
4. Analysis of the obtained results;
5. To carry out the review.

The scientific literature databases and the techniques used in carrying out the review were Google Scholar, Scientific Electronic Library Online (SciELO), Virtual Health Library, Latin American and Caribbean Literature in Health Sciences (LILACS), using the search engines: “ophthalmopathy caused by thyroid diseases”; “thyroid ophthalmopathy” and “occurrence of ophthalmic and thyroid involvement”.

Thus, the present work seeks not only to analyze the ophthalmological interface within the different thematic points correlated to endocrinology, aiming to shed light on an educational path, clarifying and raising awareness about the importance of multidisciplinary work.

DISCUSSION

Thyroid ophthalmopathy is an ophthalmic involvement due to endocrinological alteration, more specifically, of the thyroid organ. This disease is subdivided into an acute phase and an inflammatory phase. Furthermore, it may have an inflammatory or acute character, progressive and, histologically, associated with lymphocytic infiltration and edematous alteration.

Subsequently, there is the inactive phase, or also fibrotic, in which changes occur, such as fatty infiltration in retroorbital tissues, mainly when approaching the extraocular muscles. The aforementioned manifestations develop approximately 1 (one) year after the onset of thyroid dysfunction.

In this context, the main structures affected are the extraocular muscles, given the immunological fall suffered. Consequently, there is hypertrophy of these muscles, as well

as of the fatty tissue in the retro-orbital region. That said, it constitutes ophthalmoplegia and proptosis.

Furthermore, other inflammatory manifestations may occur, such as vascular congestion, upper and lower eyelid retraction, periorbital edema, conjunctival hyperemia. In time, it is worth noting that loss of vision, corneal ulceration and compression of the optic nerve may also be present.

In order to obtain the diagnosis of thyroid ophthalmopathy, there must be a clinic compatible with the clinical picture, as well as the imaging tests must be consistent, especially when the diagnosis is clinical. When diagnosing optic neuropathy, imaging tests must be performed.

At Computed Tomography and Magnetic Resonance, muscle hypertrophy and periorbital fat can be found, mainly in the region of the orbital apex. Proptosis can also be found, such as lacrimal gland prolapse, eyelid edema, anterior displacement of the orbital septum and enlargement of the optic nerve, for example.

When performing an image exam in the axial plane, there is an estimate of proptosis, in which the presence of a volumetric increase in the muscular constitution is noted, being them in the rectus muscle, both medial and lateral. At the orbital apex, when the optic nerve is compressed, there may be better visualization through the axial plane. In order to evaluate the inferior and superior straight musculature, as well as the superior oblique muscle, the coronary plane must be used.

In order to observe orbital structures, magnetic resonance imaging becomes the gold standard exam for performing this exam. This fact is due to the tissue resolution of the orbital structures, as well as the absence of ionizing radiation.

CONCLUSION

Thinking about the diagnosis of endocrinological ophthalmopathy, magnetic resonance imaging and computed tomography are essential in order to establish a technical evaluation of affected patients. When the same comes with a wide involvement of orbital structures, either in the inflammatory phase or in the fibrotic phase, the referred image exams are the only ones capable of indicating the degree of involvement, as well as the structures that were affected.

Magnetic resonance imaging is effective in the process of differentiating the stages of the disease, enabling the differentiation of inflammatory signs that indicate the pathology's exacerbation. This way, it becomes possible to select patients suitable for treatment with anti-inflammatories, in addition to estimating a possible diagnosis for them.

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