Idiopathic Orbital Inflammation and Graves Ophthalmopathy

Idiopathic orbital inflammation (IOI) is a poorly understood disease entity in which an orbital inflammatory process is found with, by definition, no identifiable local or systemic cause.1 Graves ophthalmopathy (GO) is often mentioned as a disease to exclude in the diagnosis of IOI.2 In the Orbital Clinic of the University Medical Center Utrecht, we have encountered 4 patients in whom diagnoses of both IOI and GO were made at different times. In this case series, we describe the clinical and diagnostic features of these patients, show that both IOI and GO can occur at different times in the same patient, and demonstrate the ways the diseases can be differentiated.

Report of Cases. Case 1. A 47-year-old woman with autoimmune hypothyroidism, had slowly progressive painless proptosis of the left eye. Computed tomography (CT) showed an orbital mass located in the posterior superior orbit (Figure A). A biopsy specimen showed lymphoid cells without indication of lymphoid hyperplasia on flow cytometry, and a diagnosis of IOI was made. Treatment with oral prednisone resulted in complete resolution of the condition. Eleven months later the patient was diagnosed as having diffuse retrobulbar IOI on the right side and treated with oral prednisone.

At the age of 52 years, she developed right-sided eyelid retraction and proptosis. The extraocular muscles on both sides were enlarged on CT (Figure, B), and thyroid antibodies were found in her
blood serum. A diagnosis of GO was made. After resolution of inflammatory symptoms, the eyelid retraction was surgically corrected.

Case 2. A 35-year-old woman with primary hypothyroidism, had subacute eyelid swelling, proptosis, eyeball motility restriction, and pain. On CT, the right lacrimal gland appeared enlarged; biopsy of the gland revealed lymphoid cells. She was treated for IOI (dacryoadenitis) with intravenous, high-dose methylprednisolone sodium succinate. Four years later she was treated for dacryoadenitis on the left side (Figure, C) with intravenous steroids.

Four months after that treatment, she had developed diplopia and left upper eyelid retraction. Computed tomography revealed left-sided extraocular muscle enlargement (Figure, D). Thyroid antibodies were found in her blood serum, and she was diagnosed as having unilateral GO. To improve eyelid motility, she was treated with radiotherapy.

Case 3. A 30-year-old man with diabetes mellitus, Crohn disease, and hyperthyroidism, had bilateral painless proptosis, eyeball motility disturbances, and upper eyelid retraction. The extraocular muscles appeared enlarged on CT, and thyroid antibodies were found in his blood serum, which yielded a diagnosis of GO. The disease resolved itself without therapy.

At the age of 39 years, the patient developed proptosis on the left side with eyeball motility disturbances. Two months later the right side had become involved as well. Computed tomography revealed lacrimal gland enlargement, and a biopsy specimen showed chronic inflammation. A diagnosis of IOI (dacryoadenitis) was made, and the patient was treated with oral prednisone.

Case 4. A 22-year-old man, had left-sided proptosis, eyeball motility disturbances, and pain. Computed tomography revealed a mass in the medial superior orbit (Figure, E). The lesion was biopsied twice, which revealed fibrosis with some lymphocytes. He was diagnosed as having IOI and treated with radiotherapy and oral prednisone.

At the age of 27 years, he developed progressive proptosis of the left eye and extraocular muscle enlargement on radiologic imaging (Figure, F). Antithyroid antibodies were found in his blood serum, but thyroid function test results were normal. A diagnosis of euthyroid GO was made. After resolution of inflammatory signs, his left orbit was surgically decompressed.

Comment. In this article, 4 patients with both GO and IOI separated in time of onset and localization in the orbit are described. Both GO and IOI share characteristics of proptosis and motility disturbances, thus they are considered orbital inflammatory diseases. However, some features differentiate GO from IOI. Upper eyelid retraction and enlargement of the bellies of the extraocular muscles are considered pathognomonic for GO. Furthermore, in Graves disease, thyroid dysfunction and antibodies against the thyroid are often, but not necessarily, found. Idiopathic orbital inflammation can manifest itself with inflammation of any orbital structure and often with pain. In the patients described in this report, the localization of orbital inflammation that does not involve the muscles distinguished IOI from GO. Idiopathic orbital inflammation of extraocular muscles, a condition known as myositis, is different from GO in that it also affects the muscular tendon and not only the belly of the muscle, as is found in GO. However, this distinction can be difficult to make on radiologic images, especially in the case of pure eye muscle GO.

In 3 of the 4 patients, multiple autoimmune diseases were found. The finding of both GO and IOI in the same patients could be explained by the tendency of autoimmune diseases to occur together, but given the low incidence rate of GO and IOI, it is more likely that both diseases share a yet-unknown common pathogenesis. Remarkably, 2 of the 4 patients had hypothyroidism compared with the general population with GO, most of whom have hyperthyroidism. This observation may point to a thyrotopin-binding inhibitory antibody in the pathogenesis.

Cankurtaran et al described a patient with thyroid dysfunction and IOI that occurred together as part of Riedel thyroiditis. However, their patient did not show signs of GO. To the best of our knowledge, this is the first report to describe GO and IOI that occurred in the same patients.

In summary, we have described 4 patients with both IOI and GO separated in both time of onset and orbital localization. Idiopathic orbital inflammation and GO can be differentiated by upper eyelid retraction, pain, and orbital localization inside or outside the extraocular muscles. Therefore, the theory that GO automatically rules out IOI is not necessarily true.

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Financial Disclosure: None reported.

Funding/Support: This research was facilitated by an unrestricted grant from the F.P. Fischer Foundation.


Delayed Diagnosis of Microcystic Adnexal Carcinoma in Progressive Eyelid Distortion

Microcystic adnexal carcinoma (MAC) is a rare, insidious, and highly infiltrative cutaneous malignant neoplasm that mainly affects the facial region. Eyelid involvement has been described in at least 50 cases, including 8 with orbital extension. We describe 3 patients with MAC invading the orbit or cranium, all referred very late after several years of unexplained progressive eyelid distortion.