CASE REPORT

Orbital myositis complicating sinusitis

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Orbital myositis is an idiopathic inflammation of the extraocular muscles (EOMs) in the absence of thyroid disease (1-3). The clinical presentation is acute orbital pain worsened by eye movements, and the diagnosis is confirmed by demonstrating enlargement of one or more EOMs by echography and/or a computed tomography (CT) scan (4,5). Various infectious and noninfectious conditions have been associated with orbital myositis, and treatment with corticosteroids can hasten recovery (1). Recurrences and chronicity have also been described. The present article describes a case of orbital myositis together with subclinical sinusitis and its rapid resolution after antibiotic treatment. The literature on this clinical entity is also reviewed.

CASE PRESENTATION

A previously healthy, 38-year-old female was seen in the emergency department with a two-day history of right ocular pain. The pain was described as severe, dull and worse with eye movements. There was photophobia and nausea with vomiting. She denied trauma, fever, diplopia or sinus pain. On examination, she was in obvious pain but afebrile. The right eye was mildly proptotic with chemosis and periorbital erythema. Visual acuity was 20/25 bilaterally (uncorrected), and the pupils were equal and reactive. The slit lamp examination was unremarkable, and the intraocular pressure was normal. Laboratory investigations showed a white blood cell count of 17 x 10^9/L with predominant neutrophilia and an erythrocyte sedimentation rate of 47. The working diagnosis was a retroorbital abscess, and a CT scan of the head and orbit was performed. The CT scan of the head showed air fluid levels in both the ethmoid and in the anterior sphenoid sinuses. The CT scan of the orbit completed with contrast revealed marked focal swelling of the right medial rectus muscle with an oval central, nonperfused lucency (Figure 1). The ethmoid plate adjacent to the medial rectus muscle was intact.
A diagnosis of orbital myositis with a possible abscess was made, and the patient was transferred to a tertiary care centre where she received intravenous piperacillin/tazobactam for five days. An orbital ultrasound performed two days before discharge showed an enlarged right medial rectus muscle with diffuse soft tissue swelling. The reflectivity of the muscle was low median and irregular. The central lucency seen by the CT scan was not identified. The patient improved dramatically, with a return of her white blood cell count to normal, and she was asymptomatic on discharge. A follow-up CT scan of the orbit (Figure 2) showed marked improvement in the previously enlarged right medial rectus muscle. She remained well six months after her hospitalization.

Orbital myositis was first reported in 1903, after several patients with proptosis and presumed orbital tumours had spontaneous improvement, whereas others who underwent surgical exenteration were found to have benign inflammation (6). Before modern imaging techniques, a diagnosis could only be established by surgery. Now the diagnosis refers to a nonspecific orbital disease in which one or more EOMs is infiltrated by an inflammatory process. Orbital myositis appears to affect predominantly females over a wide range of ages (three to 84 years). The mean age for reported patients is 37.0 years (1). Cases have been reported in association with giant cell myocarditis (7), systemic lupus erythematosus (8), Crohn’s disease (9,10) and cancer (11). Infectious causes for orbital myositis include herpes zoster (12), Lyme disease (13) and cestercerosis (14). Recent upper respiratory tract infections have also been associated with the development of orbital myositis (15).

The major clinical presentation of orbital myositis is pain worsened by eye movements. Patient have diplopia, proptosis, chemosis, periorbital and eyelid edema, conjunctival injection, blepharoptosis and, occasionally, a palpable mass. Visual acuity is normal, and the affected muscle may be paretic in the acute stage. More than one EOM may be involved, and rarely are both eyes affected. The most frequently involved muscle is the medial rectus, followed by the superior rectus, lateral rectus, superior oblique, inferior rectus and inferior oblique muscles (16). Imaging of affected muscles by CT scan or magnetic resonance imaging reveals enlarged muscle bellies with thickened tendons and low internal reflectivity on A-scan echography (4-5,16).

Orbital myositis appears to be an immune-mediated disease. There are reports of new onset disease being associated with increased activity of Crohn’s disease and resolving following bowel resection (10). Cases of orbital myositis have occurred one or more weeks after respiratory tract infections (15). There has been one previous case of sinusitis associated with orbital myositis reported, but no details were given on the patient’s presentation or response to therapy (17). Our patient did not have clinically evident sinusitis, but the CT scan was diagnostic. Of note in our patient, the ethmoid plate was intact, which is an argument against direct infection of the medial rectus muscle, although spread through penetrating veins was not ruled out. As in other cases, the diagnosis was delayed while the patient received antibiotics (17). In that report, the patients did not improve until treatment with corticosteroids were given (17). Resolution of symptoms took three to six weeks, unlike the rapid clinical response seen in this case. It is possible that an immune reaction directed at the medial rectus muscle was precipitated by the sinusitis and that antibiotic treatment targeted at that infection resulted in a diminished antigenic stimulus. However, spontaneous resolution is also a possible explanation (17).

Acute orbital myositis will often respond to systemic corticosteroids at doses of 60 to 120 mg prednisone/day for two weeks, with subsequent tapering over weeks to months (18). Prompt treatment is associated with dramatic improvement in symptoms, and a reduced risk of muscle fibrosis and recurrence. Treatment with nonsteroidal anti-inflammatory drugs has also had some success, but these drugs are not considered...
as effective as corticosteroids. Recurrent disease is not unusual; also, some cases have proven refractory to steroids, and orbital radiation has been tried with mixed results (17, 18). There are also cases of treatment with immunosuppressive drugs, but too few case reports make recommendations on their utility (19).

Acute orbital myositis is an acute inflammatory process involving EOMs that can easily be confused with a primary infectious disease. Clinicians should be familiar with the diagnostic and therapeutic modalities that concern this condition.

REFERENCES