

CASE REPORT / OLGU BİLDİRİSİ

Myositis complicating orbital cellulitis: A case report

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Orbital selülitli komplike eden miyozit: Vaka sunumu

Orbital miyozit ekstraoküler kasların enfeksiyöz olmayan enflamatuvar bir hastalıdır. Genellikle idiyopatik olmasına rağmen, sistemik ve enfeksiyöz hastalıklara sekonder de olabilir. Üst solunum yolu enfeksiyonu sonrası veya subklinik sinüzit ile birlikte görüldüğü vakalar bildirilmiştir. Klinik özellikleri göz hareketiyle artan orbital ağrı, periorbital ödem, konjonktival hiperemi ve ödem, diplopi ve proptozistir. Orbital miyozit klinik olarak orbital selülit gibi enfeksiyöz durumlarla benzer özelliklere sahip olduğu için özellikle erken safhada bunları birbirinden ayırtmak zor olabilir. Bu yazımızda akut sinüzitin neden olduğu ve ilk olarak medyal rektus kasını ve sonra diğer oküler kasları etkileyen miyozit ile komplike olan bir orbital selülit vakası sunulmuştur. Orbital miyozit ile selülit klinik olarak sık karışabilmeleri sebebiyle bu durumların ayırıcı tanısında dikkat edilecek noktalar literatür eşliğinde tartışılmıştır.

Anahtar Sözcükler: Orbital miyozit, Orbital selülit, sinüzitler.

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Abstract

Orbital myositis (OM) is a noninfectious, inflammatory disease of the extraocular muscles. Though generally idiopathic in origin, OM may be also secondary to systemic and infectious diseases. Various cases have been reported occurring after respiratory tract infections or together with subclinical sinusitis. Clinical features of OM are pain worsening with eye movement, periorbital edema, conjunctival hyperemia and edema, diplopia and proptosis. Since OM has clinically similar findings with infectious conditions such as orbital cellulitis, differentiating the two may be difficult especially at early stage. In this article, we report a case of orbital cellulitis caused by acute sinusitis and complicated with myositis first affecting medial rectus muscle and then other ocular muscles. Because of the difficulty to differentiate orbital myositis and cellulitis clinically, essential points to be noted in the differential diagnosis of these conditions have been discussed in the view of literature.

Key Words: Orbital myositis, Orbital cellulitis, sinusitis.

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Introduction

Orbital myositis (OM), first described in 1903, is a noninfectious, inflammatory disease of the orbital extraocular muscles. It most commonly affects adults in the third decade of life with a 2:1 female predominance. It is generally idiopathic. It may be secondary to systemic and infectious diseases. It is believed that the inflammation is caused by an immune-mediated mechanism. As infectious causes, respiratory tract infections, Herpes zoster and Lyme disease are reported. It is associated with systemic diseases such as giant cell myocarditis, Crohn's disease, systemic lupus erythematosus (SLE), and rheumatoid arthritis.^{1,2} The cardinal clinical feature of orbital myositis is orbital pain worsening by eye movement. Other common findings include periorbi-

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tal edema, conjunctival hyperemia and edema, diplopia and proptosis. Orbital myositis may involve one or more of the extraocular muscles. Most cases of OM are unilateral and involve one or two extraocular muscles. The most commonly affected muscle is the medial rectus, followed by the lateral, superior and inferior rectus muscles. It rarely affects oblique muscles. It generally characterizes a sudden onset but may be also subacute or chronic/recurrent. The signs and symptoms of OM reach their peak level at the initial onset. In addition to history and physical examination, diagnosis of OM is made by showing enlargement of one or more orbital extraocular muscles with echography and/or paranasal sinus computed tomography (CT) and magnetic resonance imaging (MRI).^{1,3,4} Since OM has clinically similar findings with infectious states such as orbital cellulitis, differentiating the two may be difficult especially at early stage. In this article, we report a case of orbital cellulitis caused by acute sinusitis and complicated with myositis first affecting medial rectus muscle and then other ocular muscles. Because of the difficulty to differentiate orbital myositis and cellulitis clinically, essential points to be noted in the differential diagnosis of these conditions have been discussed in the view of literature.

Case Report

A 12-year-old girl presented to our clinic with a swelling around her right eye started ten days ago. She had been treated with oral antibiotic, cefuroxime axetil, before presentation but no improvement was observed. On examination, purulent discharge was seen in the nasal cavity bilaterally. Movement impairment on upward and downward gaze in right eye and normal visual acuity were noted on eye examination. She complained of pain on right eye movements and there was right eyelid edema, hyperemia, and tenderness (Figure 1). Paranasal sinus CT showed ethmoidal sinusitis more pronounced on right side and marked enlargement of right orbital medial rectus muscle (Figure 2). Laboratory investigations showed a white blood cell count of 12200/mm³ and a C-reactive protein of 0.6 g/L. She received intravenous ceftriaxone 2x1.5 gr and metronidazole 3x400 mg with an initial diagnosis of orbital cellulitis. After a 10-day medical treatment, periorbital hyperemia of the patient regressed but periorbital edema and the impairment of muscle movement did not improve. Hence, with a differential diagnosis of OM and orbital abscess, we performed an orbital MRI. After the MR images demonstrating



Figure 1. A 12-year-old girl presented with a swelling around her right eye.



Figure 2. Paranasal sinus CT showing ethmoidal sinusitis more pronounced on right side and marked enlargement of right orbital medial rectus muscle (Black arrow).

enlargement in all extraocular muscles, we excluded OM and orbital abscess (Figure 3). As the inflammation spreaded to other ocular muscles despite antibiotic treatment, right anterior ethmoidectomy was performed with a minimally invasive approach. To decrease the

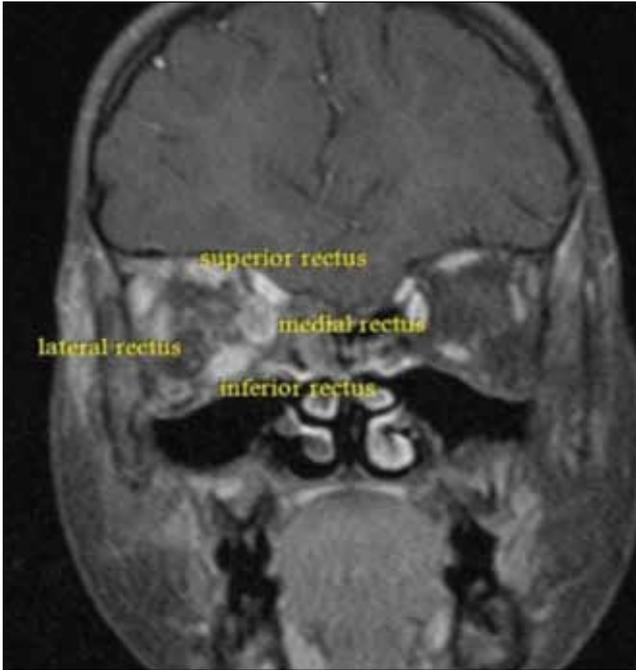


Figure 3. MR image demonstrating enlargement in all extraocular muscles.

muscle inflammation, 1 mg/kg of intravenous methyl prednisolone treatment was started after the operation. Periorbital edema and ocular movement impairment began to improve after the operation and steroid treatment and completely resolved one week later. Steroid treatment tapered for 3 weeks after the patient had recovered. The patient was discharged with a 2-week oral antibiotic treatment.

Discussion

Orbital myositis is a noninfectious, inflammatory disease of the orbita primarily involving the extraocular muscles. OM is the most frequent nonthyroid cause of orbital muscle disease. It is generally idiopathic but may be secondary to systemic or localized inflammatory diseases.¹

Before modern imaging modalities, a diagnosis could be established by observing the muscle enlargement and biopsy during surgery. Now the diagnosis can be made by history, physical examination, and imaging modalities such as echography, CT and MR. However, atypical patients who do not respond very well to therapy may require tissue biopsy. The diagnosis of OM is made by showing enlargement of one or more orbital extraocular muscles with echography and/or parana-

sal sinus CT and MRI.^{4,6} Imaging modalities can help a differential diagnosis between OM and cellulitis. While extraocular muscle enlargement is seen in CT scans of OM, a diffuse fuzzy pattern is seen in orbital cellulitis. While localized inflammations in affected extraocular muscles are seen in MR images of OM, high intensity signals which extend diffusely to the orbit are seen in cellulitis.⁵ After the patient did not respond well to antibiotic treatment, a diagnosis of OM was considered because of the detection of enlargement of medial rectus muscle on CT scans. But we excluded OM because MR images had showed enlargement of all extraocular muscles and diffuse high intensity signals which correlate with cellulitis.

Recently, it was reported that MR utilizing diffusion-weighted imaging (DWI) may help a differential diagnosis between idiopathic OM and orbital cellulitis and have advantages such as a rapid acquisition time of less than a minute and to be administered without contrast. According to the hypothesis that DWI based on, less diffusion restriction is seen in orbital cellulitis due to the edema related to increased capillary permeability than the idiopathic OM that has cellular infiltrate.^{3,7}

Orbital myositis may mimic several diseases. The differential diagnosis of OM include; Idiopathic orbital inflammation, orbital cellulitis, thyroid eye disease, primary or metastatic orbital tumors, parasitic infections (orbital cysticercosis and sparganosis), vasculitis (Wegener, Churg-Strauss), orbital foreign bodies, arterio-venous malformations, and intramuscular hemangioma.^{1,8} It is difficult to differentiate OM and cellulitis at early stage because both of them usually begin suddenly and have similar findings clinically. The signs and symptoms of OM reach their peak level at the initial onset. In contrast, the signs and symptoms of orbital cellulitis develop progressively. Clinically, periorbital pain and hyperemia, conjunctival hyperemia and edema, proptosis and ophthalmoplegia are seen generally in both of them. Although the visual acuity may decrease in orbital cellulitis, it is normal in OM.^{5,7} The visual acuity was normal in our case. Systemic symptoms such as fever, reduced appetite and lethargy may be seen in orbital cellulitis but there was no systemic symptom in our case. The diagnosis of orbital myositis is often made following the therapy for possible infectious causes. Some complications such as subperiosteal and orbital abscesses that might require urgent surgery may develop after orbital

cellulitis. Since serious complications such as loss of vision and cavernous sinus thrombosis may arise after these complications, cellulitis must be considered first in a patient presenting with acute orbital inflammation and broad spectrum antibiotics should be initiated. Nasal purulent discharge culture, blood culture or surgical exploration of involved sinuses and drainage culture must be performed. Inadequate response to initial treatment, negative cultures and normal complete blood count must suggest other diagnoses such as OM.^{1,5} The most common predisposing factor for orbital cellulitis is etmoid and/or maxillary sinus disease.⁹ In our case, etmoidal sinusitis was present.

Dylewski et al.⁴ reported a case of OM associated with subclinical sinusitis. Cases of OM occurring one or more weeks after respiratory tract infections have also been reported.² In our case, it was first thought that acute sinusitis or orbital cellulitis developing after acute sinusitis had induced OM by precipitating an immune reaction or OM had appeared concurrently with sinusitis. The factors that suggested OM in our case were the presence of painful eye movements, normal visual acuity and muscle enlargement detected in CT scans. But after MR images, we concluded that myositis had been caused by an infectious inflammation.

Systemic corticosteroids are the first line treatment for OM. The most frequently used initial doses of oral methyl prednisolone range from 60 to 80 mg per day for at least 2 weeks, with subsequent tapering over weeks to months. Especially the acute type of OM responds well to therapy. After steroid treatment, acute OM regresses within 48 hours and generally resolves within

2 months. Early therapy is recommended to alleviate discomfort during the acute phase, preserve motility function by decreasing the inflammation, and prevent both disease sequelae and recurrences. After steroid treatment, our patient recovered in a short time.

In conclusion, OM can mimic orbital cellulitis and differentiating the two may be difficult. OM together with orbital abscess should be considered in patients with orbital inflammation whose complaint of eye movement impairment did not resolve especially with antibiotic therapy. Steroid therapy can be initiated in patients with orbital cellulitis to accelerate recovery and to preserve ocular muscle functions if eye movement impairment persists despite antibiotic treatment. DWI may be helpful in differential diagnosis besides CT and MRI.

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Conflict of interest statement:

No conflicts declared.

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