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Case Report

Infectious myositis in medial and lateral pterygoid muscles: A case report

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ABSTRACT

Infectious myositis in masticatory muscles is extremely rare. The most likely reasons are hematologic spread, trauma, or dental treatments. It can result in jaw pain, trismus, and inflammatory responses. Myositis is difficult to diagnose. Most of the time, physical examination, laboratory results, and advanced imaging methods would be required. The treatment focuses on eliminating the potential pathogens or causes of the process. In this case report, we represented a 66-year-old male patient who was admitted to the department of otorhinolaryngology with a 15-day-old sore jaw.

Keywords: Infectious myositis, pterygoid muscles, trismus.

Myositis is the inflammation of the muscles.[1] Infectious and non-infectious etiologies can both cause myositis. Trauma, such as tooth extraction, certain medications, and certain autoimmune diseases may cause non-infectious myositis. Infectious myositis may result from bacterial, fungal, parasitic, and/or viral agents.[2,3] Patients usually complain of pain, tenderness, weakness, and swelling in that particular area. It can induce trismus if the pterygoid muscles are involved.

Since myositis might be life-threatening, diagnosis and treatment are essential. The early diagnosis is based on the patient's story and laboratory in addition to physical examination findings. For further examination, imaging techniques such as magnetic resonance imaging (MRI) and/or computed tomography (CT) are preferred.[2]

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When myositis is caused by infectious etiologies, antimicrobial therapy will constitute the mainstay of the treatment. In some cases, abscess drainage might be needed. As sampling from the infected area will require overly invasive procedures, instead of waiting for the culture results, the first step in therapy needs to be managing the pain and taking control of the infection with empiric antibiotics. The antibiotics should be chosen according to the potential pathogens and the patient's clinical history.[4]

CASE REPORT

A 66-year-old male patient with a 15-day-old sore jaw was admitted to the Istanbul Florence Nightingale Hospital Department of Otorhinolaryngology in January 2021.

The soreness was on the right side and seemed to worsen after yawning. The pain deepened when the patient opened his mouth more than a specific degree. He had to take a non-steroidal anti-inflammatory drug before going to sleep. He had his tooth extracted because of a mandibular tooth caries on the left side in July 2020. He was going to have an implant. The patient was being treated for both hypertension and Type 2 diabetes mellitus. In his familial history, his father had

heart failure and his brother had a cerebral hemorrhage. His current medications were acetylsalicylic acid (ASA), dihydropyridine, an angiotensin-converting enzyme (ACE) inhibitor, a beta-blocker, and two different anti-diabetics (sodium-glucose co-transporter 2 inhibitor and dipeptidyl peptidase-4 inhibitor), and a statin.

His ears, nose, and neck examination were found to be normal, with the exception of a slight tenderness in the right retromandibular area. He had significant trismus and expressed pain around his right mandibular ramus when forced to open his mouth. On the lower right side of his jaw, he was partially edentulous. His tongue was large. The fiberoptic examination of his nasopharynx, oropharynx, hypopharynx, and larynx failed to indicate any other pathologies. There was no significant finding in other physical system examinations.

Blood testing revealed a mild leukocytosis with a level of 11.7 cells/μL. His C-reactive protein (CRP) was 100 mg/dL. There were no other notable findings in his lab results.

The MRI results revealed edema in the right medial and lateral pterygoid muscles, as shown in Figure 1a, b.

Thus we concluded that the patient had a myositis of his right-sided pterygoid muscles.

We started cefuroxime 500 mg tablets BID, metronidazole 500 mg tablets BID, diclofenac sodium 75 mg tablets BID, and esomeprazole tablets 40 mg tablets BID after being diagnosed with myositis.

After a 10-days follow-up, the patient felt significant relief from pain and disability to open his mouth. Apart from the slight pain, he felt clenching his teeth, he felt no discomfort. The blood tests were repeated, and the CRP level was 3.2 mg/dL. Also, there was a significant decrease in leucocytes and neutrophil levels. The patient was kept on the same treatment for another 10 days.

DISCUSSION

Myositis is an inflammation of the muscles and it is very unusual to involve the masticatory muscles.[5] It can have infectious or non-infectious causes. Trauma, surgery, and odontogenic interventions may lead to myositis. If there is underlying immunosuppression, the risk of having an infectious etiology increases significantly. Viral pathogens mostly cause diffuse problems and mostly occur with myalgia.[3]

In this patient, there were multiple immunocompromising conditions and predisposing factors such as high blood pressure and Type 2 diabetes mellitus. Our patient had been suffering from a sore jaw and trismus for 15 days. In his MRI it was shown that he had edema in his medial and lateral pterygoid muscles. Myositis was diagnosed based on his CRP and leukocyte levels.

According to Jiang et al.,[6] infections in the medial pterygoid muscle may have spread toward the lateral pterygoid muscles through potential fascial spaces containing loose connective tissue.

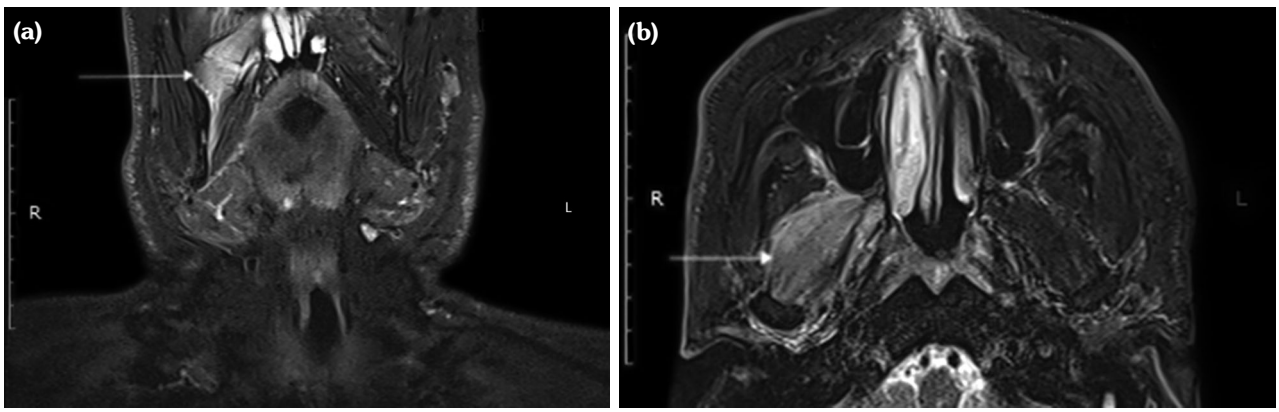

Figure 1. Significant swelling of the right medial and lateral pterygoid muscles. Muscles involved are significantly swollen and are seen as T2 hyperintense (white arrow). **(a)** Coronal, **(b)** axial view.

With that being said, it is possible that our patient's myositis has spread to the other muscle.

When a patient presents with limited mouth opening and jaw pain, a history of trauma and/or systemic infection should be obtained. A detailed history and physical examination should be done. However, it is difficult to diagnose the disorders arising from the lateral pterygoid muscles because they are not in a place to palpate.[1] Hence imaging methods are required in these situations. Since MRI is a highly accurate imaging method for detecting masticatory muscle diseases, it can be used in the diagnosis of myositis.[7]

If needed a biopsy and culture can be performed to determine which pathogen is responsible for the infection. Here, we decided on empiric antibiotics to treat most of the potential agents. The patient's follow-ups revealed that the diagnosis and treatment were accurate, and the patient experienced no discomfort afterward.

In conclusion, whenever a patient is encountered jaw pain and trismus, it is important to consider masticatory muscle inflammation. Since it is not possible to palpate the pterygoid muscles, MRI is the best way to show the inflammation if there is any. The laboratory results make it easier to determine whether the cause was infectious or non-infectious. The treatment should be administered according to the etiology and patient's condition.

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