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Original Article

Myostitis Ossificans Traumatica Of Lateral Pterygoid Muscle A Rare Presentation

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ABSTRACT

Myositis ossificans is a relatively uncommon pathological condition characterized by the formation of nonneoplastic, ectopic bone within muscles, tendons, and ligaments. It is typically classified into two types: Myositis ossificansprogressiva, which is inherited in an autosomal dominant manner, and Myositis ossificans traumatica, which is caused by severe or repetitive trauma. Clinically, patients may present with pain, swelling, or limitations in movement, which can be either painful or painless. CT scans are valuable in both diagnosing and managing this condition. Surgical excision is the established treatment approach.

Key Words: *myositis ossificans, ossification, trauma, pterygoid muscle*

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INTRODUCTION:

The heterotopic production of bone inside a muscle, tendons, and ligaments is a characteristic of myositis osseous[1-4]. This disease has two categories Munchmeyer's disease, also known as the hereditary form of progressive myositis ossificans, is passed down through autosomal dominant genes. It manifests in early childhood and can effect multiple muscles, resulting in a gradual and incapacitating decline in functional abilities[1]. Patients with this condition often present with additional symptoms including hearing loss, problems with sexual development, and deformities in the skeletal structure. Approximately 20% of individuals may also experience the involvement of the head and neck area[1]. The second condition, also known as myositis osseous circumscripta or myositis osseous localized, is characterized by heterotopic bone production inside a single or group of muscles that have experienced one or more episodes of trauma or harmful force[1,2,4]. MOT is diagnosed based on clinical, radiographic, and microscopic features as well as anamnesis (history of trauma)[2]. X-ray, CT, and magnetic resonance imaging (MRI) are a few imaging examinations that are referred to be additional diagnostic procedures for MOT. The utilization of a CT scan is advantageous for both scheduling surgical procedures and diagnosing medical conditions. This imaging technique yields valuable insights regarding the exact positioning of a lesion and its impact on the surrounding tissues[1,2,3]. In the literature, various therapeutic approaches for MOT have been considered, including surgical treatment (excision), physiotherapy (including Thera Bite TM), and medicinal therapy.(nonsteroidal anti-inflammatory medications, bisphosphonates, magnesium, warfarin) as well as low-dose radiation therapy. Complete removal of the ossified bulk as soon as possible is the only form of treatment modality that is universally recognized[1].

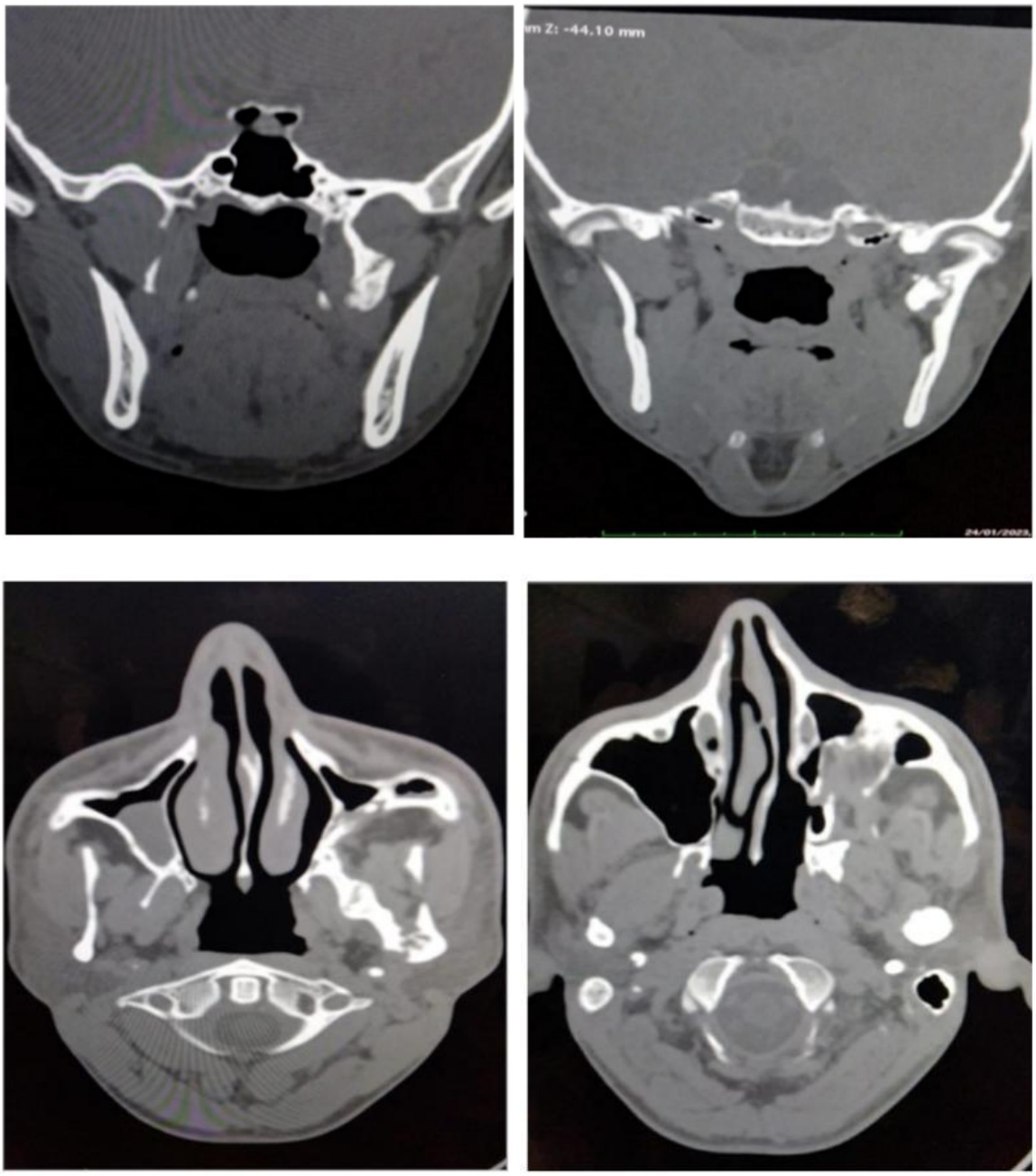
In our hospital, We report a case of unilateral MOT of left lateral pterygoid muscle with previous history of bomb blast injury.

CASE REPORT

A 23-year-old male visited our outpatient department with a four-month history of pain and limited mouth opening. Upon arrival, his vital signs were normal. Physical examination showed no abnormalities in the chest, cardiovascular system, or central nervous system, and his abdomen was soft and non-tender. The patient had a past surgical history of a prosthetic eye on the left side. Laboratory tests, including a complete blood count, revealed normal values with hemoglobin at 14.6 and platelet count at 414. The remaining lab workup did not indicate any notable findings. The patient mentioned that these complaints began a few months after a bomb blast injury.

Following the patient's complaints, a CT scan was performed, revealing the presence of heterotopic ossification and thickening in the left lateral pterygoid muscle. This finding indicates the occurrence of unilateral post-traumatic myositis ossificans.

The surgeon recommended a comprehensive surgical removal of the ossification foci to the patient. However, the patient failed to attend subsequent follow-up appointments, resulting in a loss of contact.



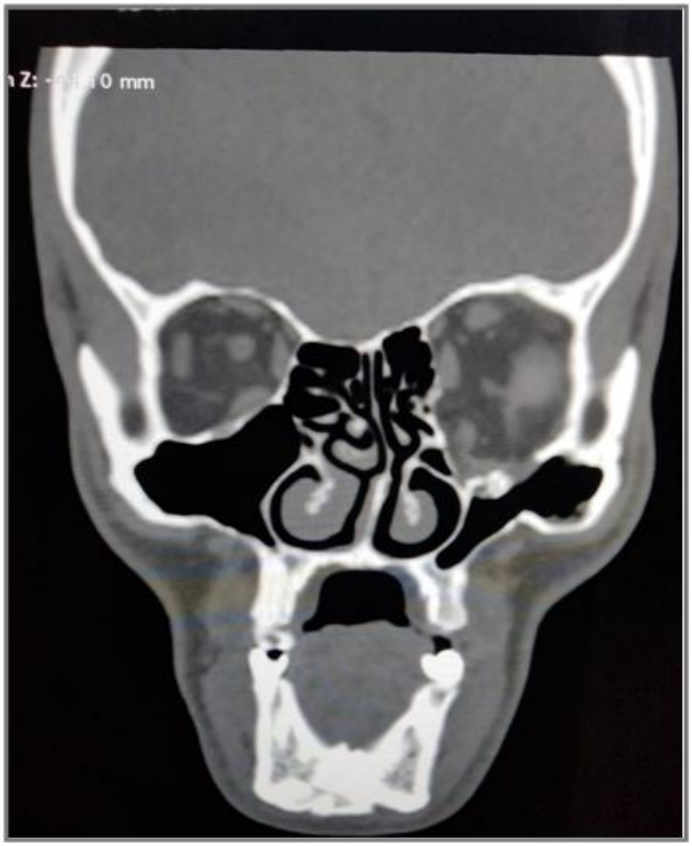


Figure 1 calicifed density is noted in right lateral pterygoid muscle resulting in its thickening

Discussion:

There are the three primary kinds of Myositis ossificans. 1; Myositis ossificans-traumatica (MOT), 2; myositis ossificans-progressiva (MOP), also known as fibrous dysplasia ossificans-progressiva is an autosomal dominant illness with varying expression and penetrance that causes skeletal abnormalities as well as the ossification of any muscle in the body. and 3; Myositis ossificans-idiopathica (MOI) is a third form with scant research. This variety closely mimics MOT, but it only manifests when there isn't a clear systemic or traumatic cause [5,6].

MOT is an innocuous, self-sustainable, limited lesion characterized by ossification of fibrous connective tissue inside skeletal muscle bundles following traumatic episodes associated with muscle hemorrhage[3,4]. Thus, a bone morphological signs from the site of damage causes mesenchymal cells to differentiate into osteoblasts or chondroblasts[4]. Thomas initially reported traumatic myositis ossificans in 1958. It is an unusual medical disorder that is atypical in the head and neck region [3]. The patients' average age is 36.6 years, with a male to female ratio of 7:3 and a range of 21 to 65 years[4,5].

Due to the overlapping anatomical components of the skull, conventional radiographs have limited ability to diagnose MOT. Face computed tomography (CT), which offers 3-dimensional images help with diagnosis and treatment planning is the most important imaging technique. A hyper dense area with a well-defined periphery and a hypo dense central region, that may or may not be related to the neighboring bone is the hallmark of MOT [2].

Carey offered four primary hypotheses for its formation: The following processes occur: 1) relocation of bony pieces into the soft tissue, followed by proliferation; 2) separation of periosteal parts into the encompassing tissue, followed by proliferation of osteoprogenitor cells; 3) migration of sub periostealosteoprogenitor cells into surrounding soft tissue, through periosteal perforation brought on by trauma; and 4) metaplasia of extraosseous cells exposed to bone morphogenic proteins produced by the lysis of bone fragments[4,6].

The primary causes of this condition have been identified as following A; Third molar extraction, B; cervical collar immobilization following laminoplasty, C; repeated absolute alcohol injections used to treat trigeminal neuralgia, D; temporomandibular joint luxation brought on by a 3-hour mouth opening during periodontal surgery, E; direct trauma, F: odontogenic infection, and G; anesthetics injection[3].

The symptom of MO involving the masticatory muscle that manifests itself most frequently is trismus but additional symptoms can include discomfort, edema, and facial asymmetry. Very few would have no symptoms or indicators [2,3,5]

Under differential diagnosis, the diseases that can result in decreased mouth opening are peri-mandibular inflammation or abscess, foreign-body reaction, cancer, musculoskeletal injury, or temporomandibular joint illnesses such as ankylosis, anchored disc phenomena, bilateral anterior disc displacement with reduction must be taken into account[4].

Complete removal of the ossified bulk of lesion as soon as possible is the only form of therapy that is widely recognized, postoperative physical rehabilitation should come next. Several pharmacologic substances have been employed as complementary treatment options as bisphosphonates for use before and after surgery, warfarin, low-dose radiation therapy, corticosteroids, and NSAID's have all been tried with little to no success[2,5,6].

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Conclusion:

In this particular case, the patient was offered surgical excision as the recommended treatment for myositis ossificans, considering the stage of development of the condition. The patient did not maintain regular follow-up appointments because they did not have any pain or noticeable limitations in their daily activities. Nevertheless, the patient is currently undergoing physical therapy to preserve mouth opening and prevent additional calcification of the lateral pterygoid muscle.

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