Case report:

Myositis ossificans traumatica of the left masseter muscle presenting as soft tissue mass: a case report

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Abstract:
Myositis ossificans is a rare disease in which manifests as heterotopic bone formation within a muscle and is rarely found in the head or neck regions, including the masticator muscle. It should be considered as a differential diagnosis in patients of trauma with severe limitation of jaw opening. Panoramic radiographs and axial and coronal computed tomography (CT) scans can effectively delineate the calcified mass. Other imaging studies that may be helpful include magnetic resonance imaging (MRI), bone scans, and ultrasound.

Keywords: Myositis ossificans traumatica; masseter muscle; computed tomography.

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Introduction:

Myositis ossificans is a rare entity in which there is heterotopic bone formation within a muscle. It is frequently reported in the orthopedic literature (1,2,3,4) and is rarely found in the head or neck (5,6). In head and neck regions, it usually involves the temporal muscle, masseter, buccinators, platysma and sternocleidomastoid muscles (3,9-11).
Hereby, we report a case of myositis ossificans traumatica involving the left masseter muscle which had developed following trauma of maxillofacial region.

Case Report:

A 20 year-old male patient presented with complain of hard swelling in left cheek region & difficulty in opening of mouth for 30 days, following trauma to the maxillofacial region 4 months ago.The clinical examination showed limited mouth opening with tenderness and swelling in the left mandibular region. Neurological evaluation was negative. Hematological parameters were within normal limits. Plain radiograph shows ill-defined radiopaque lesion adjacent to the ramus of left mandible with no associated periosteal reaction (Figure 1).

Multidetector CT (MDCT) scan of the mandible was done in axial section with coronal reconstruction. MDCT (Figure 2a, 2b and 2c) revealed bulky left masseter muscle with a irregularly outlined hyperdense lesion with dense corticated peripheral rim (s/o ossification) abutting the ramus & angle of left mandible; however the underlying bone was normal. There was no evidence of periosteal reaction or breach in the cortex. Radiological diagnosis of myositis ossificans traumatic was made.
Partial resection of the calcified left master muscle was performed and the post-operative period was uneventful.

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Discussion:

Myositis ossficans is broadly classified into myositis ossificans progressive and myositis ossificans traumatic (1,2). Myositis ossificans progressive is an autosomal dominant disease in which multiple, heterotopic ossifications develop in the soft tissues (1-3); mostly seen in children and even it can cause pulmonary complications due to restricted movement of the respiratory muscles resulting in death (2). Myositis ossificans traumatica is also known as traumatic myositis ossificans and myositis ossificans circumscripta; and is characterized by heterotopic bone formation within a muscle due to a single or repetitive injury (1,2,8,9). The lesion occurs predominantly at the site of injury (8).

Myositis ossificans traumatica is a benign, self-limiting and focal lesion manifesting as ossification of fibrous connective tissue following repeated episodes of trauma with muscle hematoma (9,10). It is caused by acute trauma (tooth extraction and injection of local anaesthetics) in the masticator muscles, chronic infection such as pericoronitis and surgery involving muscles. Masseter is the most commonly involved muscle of mastication in cases of myositis ossificans traumatica, but can also be seen in temporal, medial and lateral pterygoid muscles (10). Clinically it can be asymptomatic and often produces severe trismus (10), pain, tenderness, and limited movement of the affected muscle, with a soft swelling. Further, the swelling subsides followed by development of hard and tender mass within 1 to 2 months (7).

The pathogenesis of myositis ossificans traumatica starts with intramuscular haemorrhage followed by formation of vascular granulation tissue (9,10); maturation of granulation tissue results in fibroblastic proliferation with progression to the synthesis of osteoid and chondroid, usually within 1-3 weeks, although radiographic evidence of calcification may not appear until 3-6 weeks (7,9,10). On plain radiographs, typical myositis ossificans traumatica manifests as a well demarcated, calcified mass, with peripheral calcification along with central radiolucency. Computed tomography (CT) and magnetic resonance imaging (MRI) are useful for the evaluation of morphology and mineralization patterns (8). CT aids in defining the extraskeletal location, its extent and confirming the non-invasion of the surrounding normal tissues. CT is the modality of choice in diagnosing difficult cases and in planning of surgical resection.

Myositis ossificans traumatica is often treated by surgical resection, including excision of the ossification; but recurrence can occurs in some patients and those patients would be refractory to treatment (2,3,7). According to some researchers it is recommended that surgery should not be planned unless the lesion does not regress or it becomes a functional handicap because in 35% of cases spontaneous resolution of the lesion is seen over a period of several months (11). Various adjunctive management like bisphosphonates, nonsteroidal anti-inflammatory agents and radiation therapy have been used to prevent relapse of heterotopic bone formation after surgical removal (7).

Conclusion:

The aim of this case report is to present the diagnostic imaging aspects of myositis ossificans traumatica. Myositis ossificans traumatica should be considered as one of the important differential diagnosis in patients of maxillofacial trauma with severe limitation of jaw opening. CT is the modality of choice in diagnosing difficult cases and in planning of surgical resection.

Figure 1: Plain radiograph showing ill-defined radiopaque lesion adjacent to the ramus of left mandible.

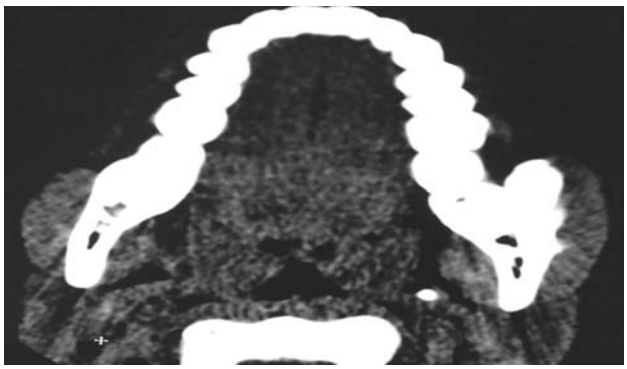

Figure 2a: Axial section CT image (soft tissue window) showing hyperdense lesion in the left masseter muscle abutting the angle and ramus of mandible.

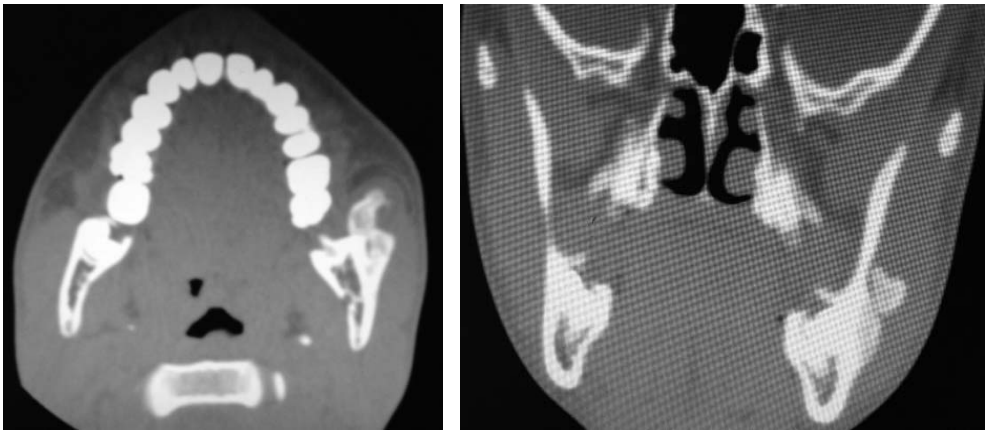

Figure 2b and 2c: Axial section (Figure 2b) and coronal reconstruction (Figure 2c) CT image (bone window) showing hyperdense lesion in the left masseter muscle abutting the angle and ramus of mandible.

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