Giant Cell Tumor of the Masticator Space: Case Report

Melissa L Somers MD1, Scott A McLean MD PhD1, Frank Torres MD2
1 Department of Otolaryngology- Head and Neck Surgery  2 Department of Pathology
Henry Ford Health System, Detroit, Michigan

Abstract

• **Objectives:** Case report of a male with giant cell tumor epicentered in the masticator space and a review of diagnosis, management, and prognosis.

• **Study Design:** Case report and literature review.

• **Methods:** Review of the literature to assess cases of giant cell tumors, with particular attention to cases involving the temporomandibular joint.

• **Results:** Differential diagnosis includes extra-articular tenosynovial giant cell tumor, diffuse extra-articular tenosynovial giant cell tumor, or soft tissue giant cell tumor of low malignant potential.

• **Conclusion:** Few cases of giant cell tumors involving the temporomandibular joint have been reported. The management of these tumors involves surgical excision with close follow up to monitor for recurrence.

Introduction

• First mention of giant cell tumors involving tendon sheaths was by Jaffe et al in 1941(1).

• Some of these lesions have been observed to involve soft tissue with, or without, affecting the adjacent joint.

• Enzinger and Weiss developed the terms extra-articular pigmented villonodular synovitis and diffuse tenosynovial giant cell tumor (2).

• Rarely have these lesions been described in the head and neck.

• We report the case of a giant cell tumor with its epicenter located in the masticator space, which to our knowledge has not been previously reported in the literature.

Case Report

• 50 year-old male with no significant past medical history presented with complaints of otalgia and eustachian tube dysfunction.

• Physical exam demonstrated firmness in his left parotid tail. The remainder of the exam was unremarkable.

• CT scan revealed a heterogeneously enhancing 2.0 x 3.2 x 1.8 cm mass with its epicenter in the left masticator space (Figures 1 and 2). CT guided biopsy revealed giant cells.

• The patient underwent transcervical left total parotidectomy, during which, the mass was noted to be brown in color and was deep and separate from the deep lobe of the parotid. It was fixed superiorly and medially in the masticator space by extensive fibrous banding.

• The resected specimen was comprised predominantly by plump mononuclear cells that were admixed with multinucleated giant cells, few lymphocytes, focal foamy macrophages and hemosiderin laden macrophages. Some of the mononuclear cells also contained cytoplasmic granules of hemosiderin pigment (Figure 3). There was focal metaphastic bone formation, few clefts lined by the mononuclear cells, bands of dense collagen and very focal hyalinized stroma. No mitotic activity was noted and there was no evidence of necrosis or encapsulation of the lesion. Immunohistochemical staining was positive for CD68 and negative for cytokeratin.

Histopathology

Figure 3. Plump mononuclear cells with intracytoplasmic hemosiderin granules (Hematoxylin and eosin stain, 400x)

Discussion

• Differential diagnosis includes localized tenosynovial giant cell tumor, diffuse extra-articular tenosynovial giant cell tumor, or soft tissue giant cell tumor of low malignant potential.

• The World Health Organization describes tenosynovial giant cell tumors as soft tissue tumors composed of rounded mononuclear and osteoclastic giant cells that are typically located within joints and bursae or along tendon sheaths (3).

• The tumors commonly contain xanthoma cells, lymphocytes and hemosiderin (3).

• Tenosynovial giant cell tumors are further classified into localized tumors and diffuse tumors. Localized tumors grow as an encapsulated mass, which was not the case in our patient, and typically develop from the tendon sheaths of the hands and feet (3). Diffuse tumors typically grow as infiltrative masses and usually arise from the bursa or joint spaces near large weight-bearing joints (3).

• Diffuse tumors have higher recurrence rates than localized tumors. Extra-articular tumors are noted to have recurrence rates as high as 40-50% (2).

• The first cases of extra-articular diffuse giant cell tumors arising from the temporomandibular joint were described by Lapayowker et al in 1973 (4). The temporomandibular joint was usually preserved, but erosion of the bone adjacent to the joint was noted in the more advanced cases (4).

• Treatment of diffuse tenosynovial giant cell tumors is primarily surgical excision alone. Somerhausen et al reported a local recurrence rate of 33% for extra-articular diffuse giant cell tumors that were excised, mostly occurring in those with positive excision margins (6). Recurrence rates have been reported as high as 40 to 50 percent (2) thus close follow up is recommended. Due to the high recurrence rate, the patient is to undergo routine CT scan of the head and neck every 3 months with close surveillance.

• Radiotherapy as adjuvant therapy to wide surgical excisions has been investigated for diffuse giant cell tumors. O’ Sullivan et al investigated external beam radiation therapy in moderate doses (35 Gy in 15 fractions) as an adjunct to surgery for intra-articular giant cell tumors or for tumors with extensive extra-articular involvement (7). To our knowledge, there has not been enough investigation to support its use in diffuse extra-articular tenosynovial giant cell tumors involving the area adjacent to the temporomandibular joint.

References


