

## Chondrosarcoma of the Temporomandibular Joint: A Case Report and Review of the Literature

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### Abstract

Chondrosarcoma is a malignant tumor characterized by cartilaginous formation. It is rare and representing approximately 0.1% of all of head and neck neoplasms. It's very rare in the temporomandibular joint (TMJ). We report a case of a 54-year-old patient who presented for 6 years, chewing pain of the TMJ and a left pre-auricular swelling. The imagery (X-ray radiography, Computed tomography and Magnetic resonance imaging) showed widening of intra-articular space, heterogeneous formation measuring 43, 1 x 32, 9 x 24, 5 mm and a 9 mm bone interruption next to the base of the skull, calcifications, an osteolytic and osteocondensing aspect of the temporal bank and the condyle head. The clinical and radiological diagnosis was a tumor of the left TMJ. The patient underwent, an exeresis in a single block of the tumor carrying the peritumoral tissues, resection of the condylar neck and the mandibular fossa preserving the facial nerve. Histological examination showed chondrosarcoma from grade I to II. The postoperative course was uncomplicated with open mouth and no pain. Follow-up for 10 months did not show signs of recurrence or dysfunction in the TMJ.

**Keywords:** Chondrosarcoma; Temporomandibular Joint

### Introduction

Chondrosarcoma is a malignant tumor whose stroma produces cartilage tissue [1]. It is the third most common malignant bone tumor after myeloma and osteosarcoma, representing 10 - 20% of primary bone tumors. Chondrosarcoma is a primary bone tumor whose commonly occurs in the pelvis, ribs, femur and humerus, but rare disease of the head and neck region, representing approximately 0.1% of all of head and neck neoplasms [2]. It's very rare in the temporomandibular joint only about thirty cases have been reported. We report a case of chondrosarcoma in the left temporo-mandibular joint.

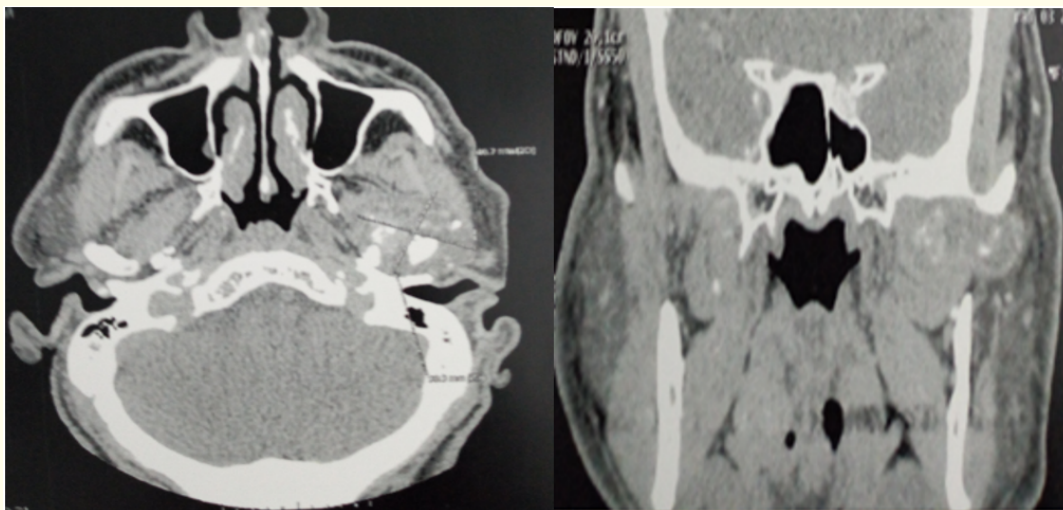
### Case Report

A 54-year-old patient with history of cholecystectomy in January 2017 had been suffering 6 years for chewing pain of the TMJ. On examination, he had an asymmetric face with a left pre-auricular swelling and laterodeviation at mouth opening, no facial paralysis, no inflammatory sign of the skin, no limitation of mouth opening or cervical adenopathies. On X-ray radiography widening of left joint space and intra-articular calcifications. Computed tomography (CT) showed a hypodense process centered on the left TMJ with some calcifications measuring 38 x 20 mm, an osteolytic and osteocondensing aspect of the temporal bank and the condyle head and a presence of intraparotid ganglia. Magnetic resonance imaging (MRI) revealed a formation at the level of the well-limited left-wing TMJ on either side of the rising branch. This formation is in heterogeneous T2-weighted imaging (WI) high-intensity signals, low-intensity signals T1-WI heterogeneous measuring 24,5 mm of height x 32,9 mm of diameter x 43,1 mm of transverse diameter. It is low intensity signals heterogeneous diffusion. No bone abnormality in the mandible against a 9mm bone interruption next to the base of the skull. The routine biological

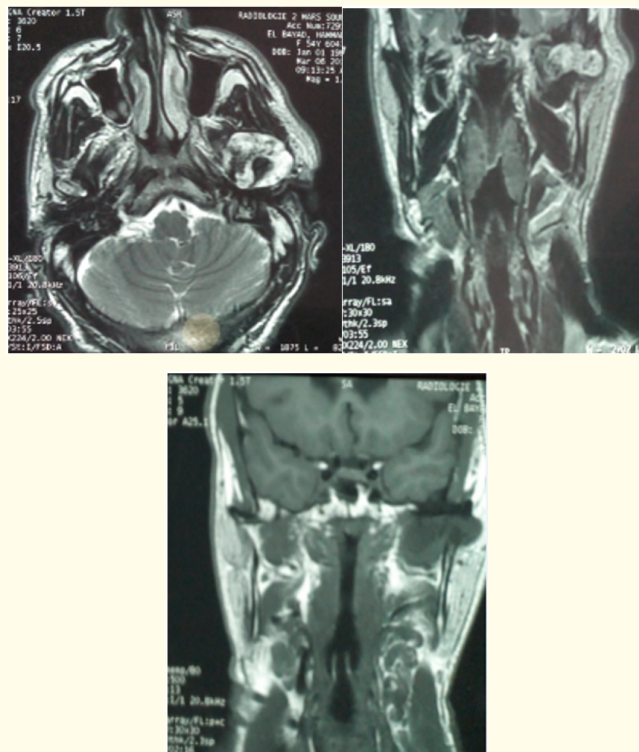
checkup did not note any abnormality. The clinical and radiological diagnosis was a tumor of the left TMJ. An intraoperative pathological examination of the mass was done that showed a well-differentiated chondrosarcoma. The patient underwent under general anesthesia by process of Gillies, an exeresis in a single block of the tumor carrying the TMJ, the peritumoral tissues, resection of the condylar neck and the mandibular fossa, preserving the facial nerve. Histological examination showed calcified and ossified cartilaginous proliferation and consisted of lobules of variable size made of often unicellular stalls with chondrocytes of small size or moderate size, rounded or stellate, seat of discrete nuclear atypia with rarely binucleation. No observed figure mitosis. These cells are encased within a chondroid substance, homogeneous rarely myxoid. Aspect of a well-differentiated chondrosarcoma from grade I to II. The postoperative course was uncomplicated with open mouth and no pain. Follow-up for 10 months did not show signs of recurrence or dysfunction in the TMJ.



**Figure 1:** Panoramic radiography showed widening of left joint space and intra-articular calcifications.



**Figure 2:** Computed tomography (CT). (A) Axial and (B) coronal CT scans with soft tissue setting showed a hypodense process centered on the left TMJ with some calcifications measuring 38 x 20 mm, an osteolytic and osteocondensing aspect of the temporal bank and the condyle head.



**Figure 3:** Magnetic resonance imaging (MRI) (A) Axial and (B, C) coronal revealed formation at the level of the well-limited left-wing TMJ on either side of the rising branch. This formation is in heterogeneous T2-weighted imaging (WI) high-intensity signals, low-intensity signals T1-WI heterogeneous measuring 24,5 mm of height x 32,9 mm of diameter x 43,1 mm of transverse diameter. It is low intensity signals heterogeneous diffusion. No bone abnormality in the mandible against a 9mm bone interruption next to the base of the skull.



**Figure 4:** Photograph of patient. Post-operative scar was noted in the left preauricular region.

Discussion

Chondrosarcoma is a malignant tumor originating in cartilaginous cells. It represents 10 - 20% of all primary bone tumors and approximately 0.1% of all head and neck neoplasms. The frequency order of mandibular CHS is the molar region, and the symphysis and the coronoid process may be involved more frequently. The TMJ involvement is extremely rare. We have listed only 32 cases in the English literature since 1966 to 2018 (Table 1).

Study	Publication year	Age (yr)	Sex	Symptom	Treatment	Follow-up (mo)
Gingrass [8]	1954	46	F	SPT	Surgery	ND
Lanier, <i>et al.</i> [9]	1971	48	F	SPT	Surgery	Few
Sudo, <i>et al.</i> [10]	1972	ND	ND	P	Surgery+RT	ND
Richter, <i>et al.</i> [11]	1974	75	M	SP	Surgery	12
Tullio and D’Errico [12]	1974	17	F	S	Surgery	ND
Kato, <i>et al.</i> [13]	1975	ND	ND	SPT	Surgery	18
Kato, <i>et al.</i> [13]	1975	ND	ND	SPT	Surgery	4
Nortjé, <i>et al.</i> [14]	1976	40	M	SPT	Surgery	24
Cadenat, <i>et al.</i> [15]	1979	60	F	SP	Surgery	6
Morris, <i>et al.</i> [16]	1987	29	F	S	Surgery+RT	6
Murayama, <i>et al.</i> [17]	1988	30	M	SPT	Surgery+RT+Chemo	3
Wasenko and Rosenbloom [18]	1990	49	F	SP	Surgery	ND
Nitzan, <i>et al.</i> [19]	1993	36	F	SPT	Surgery	84
Merrill, <i>et al.</i> [20]	1997	50	F	T	Surgery	18
Giraud, <i>et al.</i> [21]	1997	ND	ND	S	Surgery+RT	ND
Sesenna <i>et al.</i> [22]	1997	60	F	ST	Surgery	60
Ichikawa <i>et al.</i> [23]	1998	66	F	ST	Surgery	36
Batra <i>et al.</i> [24]	1999	65	M	S	Surgery	ND
Mostafapour and Futran [2]	2000	31	F	S	Surgery	ND
Mostafapour and Futran [2]	2000	52	F	S	Surgery+RT	6
Angiero, <i>et al.</i> [25]	2007	64	F	SP	Surgery	96
Yun, <i>et al.</i> [26]	2008	29	F	T	Surgery	ND
Oliveira, <i>et al.</i> [27]	2009	11	F	S	Surgery+Chemo	36.5
Gallego, <i>et al.</i> [28]	2009	54	M	SPT	Surgery+RT	16
Garzino-Demo, <i>et al.</i> [29]	2010	65	F	SP	Surgery	108
González-Pérez, <i>et al.</i> [30]	2011	57	ND	SP	Surgery	24
Ramos-Murguialday, <i>et al.</i> [31]	2012	45	M	S	Surgery	36
Abu-Serriah, <i>et al.</i> [32]	2013	48	M	P	Surgery	6
Giorgione, <i>et al.</i> [33]	2015	56	M	SPT	Surgery+RT	ND
MacIntosh, <i>et al.</i> [34]	2015	31	F	ST	Surgery	336
Kyungjin Lee, <i>et al.</i> [35]	2016	47	F	ST	Surgery+RT	8
Kenji Fukadaa, <i>et al.</i> [36]	2017	78	F	SP	Surgery	84
Our case	2018	54	M	SP	Surgery	10

Table 1: Reported cases of chondrosarcoma of the temporomandibular joint.

The delay ranging of an average diagnostic in a review of TMJ tumor masses, is from 13 months to 8 years with often misdiagnosis [2]. In our case the delay was 6 years. The patient had benefited symptomatic treatment with analgesics and anti-inflammatories for TMJ dysfunction. Although the delay in the management of the tumor was operable and the patient has evolved well, this could be explained by the grade of CHS.

The symptoms most often found are, a preauricular swelling, followed by spontaneous pain as well as pain during mastication, whereas trismus and laterodeviation at mouth opening are quite rare. As Mostafapour and Futran pointed out, CHS is generally more painful than enchondroma [2]. For our case the symptoms were pain, swelling and laterodeviation at mouth opening.

Conventional radiographs may often afford evidence of chondrosarcoma. Pathognomonic signs are the presence of an irregular erosion of the condyle with calcifications localized within the articular space. However, they do not provide adequate information on the extension of the lesion; therefore, other imaging modalities such as CT or magnetic resonance imaging should be performed to confirm the diagnosis and to complete the preoperative workup [2].

Because of the rarity that maxillomandibular CHS represents, there are no specific treatment protocols outlined. This explains that treatment modalities are the ones that have been previously used for CHS and sarcomas of other regions.

Surgical therapy represents the gold standard for primary treatment of this neoplasm. Resection must be as wide as possible, and the presence of large healthy tissue margins (2 to 3 cm) seems to positively affect prognosis and chances of recurrence [2,6].

Other treatment modalities include intralesional resection and curettage along with radiation therapy. These modalities are not curative and have been described for large lesions that cannot possibly be treated with surgery only [5].

Cryotherapy has been described for grade I lesions [37,38]. This treatment may provide advantages from a functional point of view but not as many from the oncologic one.

In all 17 cases reported in the literature and in the present case, CHS was treated by surgery. In a few cases, surgery implied hemimandibulectomy [12,14]. But more frequently a simple condylectomy was performed like in our case.

In our case condylectomy was performed.

Although resection seems the surgical technique of choice for maxillomandibular CHSs, a high percentage of recurrence has been described with surgery alone [11]. Therefore, a combination of surgery and radiation therapy and/or chemotherapy has been proposed. However, results on recurrences and survival still appear controversial. Radiation therapy alone is not effective, but its use along with surgery seems to increase survival rate and local control of the disease. More specifically, adjuvant radiation therapy in TMJ CHS has led to a long survival period and the same holds true for the case presented here as well [16,34].

### Conclusion

We report a case of chondrosarcoma of the temporomandibular joint. It's a rare malignant tumor. it poses a problem of diagnosis. There are no specific treatment protocols outlined. in our case, the patient was treated only by surgery. After one year, there is no recurrence.

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