



Chondroblastoma of the TMJ: A case report

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ABSTRACT

Chondroblastoma is a highly destructive tumor, derived from immature cartilage cells, typically occurring in epiphyses of the long bones of adolescents and young adults. Those occurring in the temporal bone and TMJ area are likely to mimic TMJ symptoms. We describe the clinical presentation, radiographic features, differential diagnosis, and treatment for this unusual tumor. The relevant literature on the subject is reviewed, and recommendations for appropriate diagnostic investigation applicable for tumors in this region is presented.

Key words: Chondroblastoma, TMJ, Condylectomy.

Introduction

Chondroblastomas are rare tumors. They are typically located in the epiphysis of long bones and are most commonly seen between the ages of 15 and 20 [1], although a typical locations such as the pelvis and thorax are seen in older patients. It is very rare in craniofacial bones accounting 6.4% of all chondroblastomas [2.] Chondroblastoma usually offers in the second decade of life, with a 2:1 male predominance, and causes localized swelling and pain that is managed with surgical resection and reconstruction [3,7]. Tumors of the temporomandibular joint (TMJ) are rare. Chondrogenic tumors of the mandible are extremely uncommon; further, it has been reported that chondrogenic neoplasms are far more often malignant than they are benign [6]. Chondroblastoma was first characterization in detail in 1931 by Codman [4] who reported 9 cases of an entity that he mentioned to as "giant cell chondromatous tumor of the epiphysis". Radiographically, the lesion typically presents as a round -to -ovoid

expansive radiolucency. Microscopically, the tumor cells resemble chondroblasts, chondroid foci are frequently observed, and multinucleated giant cells are often present [5]. The tumor usually arises in the squamous portion of the temporal bone and affects the floor of the middle cranial fossa and temporomandibular joint. Chondroblastoma is histologically benign, but is clinically aggressive. A complete surgical resection of the tumor is the gold standard for management [12]. We describe one case of chondroblastoma is located in the temporomandibular region.

Case Report

A 45 -year -old men was referred for right temporomandibular joint pain and limitation of mouth opening. Visual inspection is determined by the asymmetry of the face due mon in women, although there are no other obvious gender differences in the characteristics the disease.

Visual inspection is determined by the asymmetry of the face due to swelling in the right parotid-masticatory area. Physical examination showed a maximum interincisal opening of 32 mm. In the history of the limitation period of 2 months. There was no remarkable medical history, family history, or history of head and neck injuries. On MRI pictures presented is determined by the tumor in the projection of the lateral pterygoid muscle. Figure 1. Swelling in the palpation of a hard -elastic consistency. The patient did not receive proper treatment. At 08/12/2015, the patients underwent surgery for removal of the tumor with preauricular approach. Figure 2.

Condyles mandible saved. Figure 3. Removed specimen was sent to histopathological examination. During surgery and post surgery complications has not been determined. Histological studies revealed reactive bone fragments, fibrous stroma, cell proliferation derived from chondroblasts. Figure 4. Necrosis and high mitotic activity is not detected. Clinical, radiological and pathological diagnosis "Chondroblastoma" confirmed. After surgery, the patient showed no notable complications, such as temporo -mandibular disease that involved pain, joint sounds, or facial nerve weakness. Figure 5.



Figure 3. Intraoperativ view.

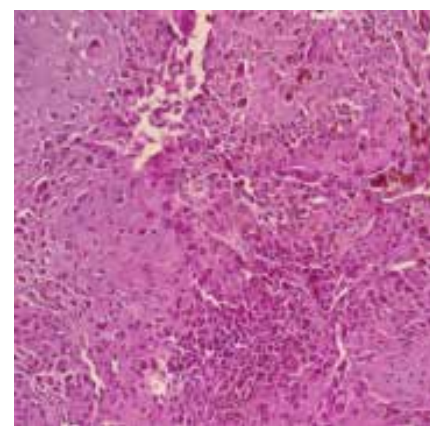


Figure 4. Histopathology.



Figure 1. MRI of TMJ.



Figure 2. Preauricular approach.



Figure 5. Post operative view after 1 m.

Discussion

There are few reports of chondroblastoma that arise in the skull and facial bones. As for the craniofacial region, most cases involved the temporal bone, and approximately 13 cases of its occurrence in the temporomandibular joint have been reported [1 7,18,19,20] of which two involved extraosseous lesions without bone invasion [8,9]. Chondroblastoma is more com of

Although chondroblastomas are typically identified in adolescents and young adults, with 80% of the affected patients being 10–20 years old, the presented 45-year-old man in this case is over the upper age limit, with an atypical localization of the tumor.

Local pain is the most important symptom of chondroblastoma in the extremities [11], but in cases of mandibular condyle, facial swelling is more prominent than pain. In this patient, her complaints included restriction of mouth opening and malocclusion. Radiographically, chondroblastoma in the extremities tend to appear as sharply delineated, round-to-ovoid radiolucencies with a thin sclerotic margin. Radiopaque structures are commonly identified on CT scan. The appearance of chondroblastomas is variable in MRI and various patterns of enhancement, either peripheral, homogenous or heterogenous, have been seen with the use of gadolinium [10]. There is usually low intensity on T1 images, and low to high intensity on T2 images and our case displayed similar findings consistent with previous reports. The differential diagnosis should include giant cell tumor, chondromyxoid fibroma, chondrosarcoma, and clear cell chondrosarcoma, because chondroblastomas sometimes have an atypical appearance, particularly the aneurysmal form.

A chondroblastoma is composed primarily of immature chondroblasts with focal “chicken-wire” calcification, multinucleated giant cells, polygonal cells and acidophilic cytoplasm with the chondroid matrix [12, 13]. Immunoreactivity to S-100 has been widely used to assist in the differentiation of chondroblastomas from other pathological identities as S-100 positivity is present in 90% of chondroblastomas, and only 13% of giant cell tumors [14].

When located in the long bones, curettage has a 90% success rate. Curettage is recommended when infiltration of bone is limited or has not occurred [15]. When located in the temporal region, with possible expansion to the cranial base, wide resection can be difficult. The surgical approach should be the mastoid region, and preauricular region. Complete surgical resection is the standard procedure for the treatment of a TMJ chondroblastoma. In our case the lesion was approached with a preauricular incision. Hatano et al. [16] concluded that complete excision of the lesion was necessary, and that the conservative treatment of tumors invading the temporomandibular joint using curettage alone resulted in a recurrence rate of 55%.

Radiation therapy is no longer recommended, ex-

cept for unresectable tumors, because of the risk of developing a chondrosarcoma. Malignant degeneration to chondrosarcoma is likely rare but has been previously reported and some authors have suggested that lesions with an intratumoral aneurysmal bone cyst may behave more aggressively. Postoperative follow-up should be both clinical and radiologic, using MRI to detect any recurrence.

Conclusion

In this report, the authors describe a case of chondroblastoma in the temporomandibular joint. Treatment has been successful, and no recurrent findings or postoperative complications, including functional restrictions, have occurred in the one year following complete tumor excision.

Conflict of Interest

There is no conflict of interest to declare.

References

- [1] Blaauw G, Prick JJ, Versteeg C: Chondroblastoma of the temporal bone. *Neurosurgery* 22: 1102, 1988.
- [2] Inwards, C.Y. (2007) Update on Cartilage Forming Tumors of the Head and Neck. *Head and Neck Pathology*, 1, 67-74. <http://dx.doi.org/10.1007/s12105-007-0015-4>
- [3] Flowers C H, Rodriguez J, Naseem M, Reyes M M, Verano A S. MR of benign chondroblastoma of the temporal bone. *AJNR Am J Neuroradiol.* 1995;16(2):414–416. [PubMed]
- [4] Codman EA. Epiphyseal chondromatous giant cell tumors of the upper end of the humerus. *Surg Gynecol Obstet* 1931;52:543.
- [5] Salzer M, Salzer-Kuntschik M, Kretschmer G. Das benign Chondroblastm. *Arch Orthop Unfallchir* 1968;64:229–44.
- [6] Chaudhry AP, Robinovich MR, Mitchell DF. Chondrogenic tumors of the jaws. *Am J Surg* 1961;102:403–11.
- [7] Al -Dewachi H S, Al -Naib N, Sangal B C. Benign chondroblastoma of the maxilla: a case report and review of chondroblastomas in cranial bones. *Br J Oral Surg.* 1980; 18(2):150–156. [PubMed]
- [8] Spahr J, Elzay RP, Kay S, Frable WJ. Chondroblas-

toma of the temporomandibular joint arising from articular cartilage: a previously unreported presentation of an uncommon neoplasm. *Oral Surg Oral Med Oral Pathol.* 1982; 54(4):430-5.

- [9] Bui P, Ivan D, Oliver D, Busaidy KF, Wilson J. Chondroblastoma of the temporomandibular joint: report of a case and literature review. *J Oral Maxillofac Surg.* 2009; 67(2):405-9.
- [10] Ishikawa E, Tsuboi K, Onizawa K, Hara A, Kusakari J, Noguchi M, Nose T. Chondroblastoma of the temporal base with high mitotic activity. *Neurol Med Chir (Tokyo)* 2002; 42:516-520.
- [11] Unni KK. Benign chondroblastoma. In: Unni KK, editor. *Dahlin's bone tumors: general aspects and data on 11,087 cases.* Philadelphia, PA: Lippincott-Raven; 1996. p. 47-57.
- [12] Watanabe N, Yoshida K, Shigemi H, Kurono Y, Mogi G. Temporal bone chondroblastoma. *Otolaryngol Head Neck Surg* 1999; 121:327-330.
- [13] Bian LG, Sun QF, Zhao WG, Shen JK, Tirakotai W, Bertalanffy H. Temporal bone chondroblastoma: a review. *Neuropathology* 2005; 25:159-164.
- [14] Cheng S, Ng T, Gomes L, da Cruz M. Temporal bone chondroblastoma. *Otol Neurotol* 2009;30:688-689.
- [15] Dahlin DC, Ivins JC: Benign chondroblastoma: A study of 125 cases. *Cancer* 30:401, 1972.
- [16] Hatano M, de Donato G, Falcioni M, Sanna M. Chondroblastoma of the temporal bone. *Acta Otolaryngol.* 2011; 131(8):890-5.
- [17] Varvares MA, Cheney ML, Goodman ML, Ceisler E, Montgomery WW. Chondroblastoma of the temporal bone. Case report and literature review. *Ann Otol Rhinol Laryngol.* 1992;101(9):763-9.
- [18] Goga D, Fassio E, Fetissov F, Jan M: Chondroblastoma of the temporomandibular region. *J Oral Maxillofac Surg.* 1999;57(10):1270-2.
- [19] Kondoh T, Hamada Y, Kamei K, Seto K. Chondroblastoma of the mandibular condyle: report of a case. *J Oral Maxillofac Surg.* 2002; 60 (2):198-203.
- [20] Gaudet EL, Jr, Nuss DW, Johnson DH, Jr, Miranne LS, Jr. Chondroblastoma of the temporal bone involving the temporomandibular joint, mandibular condyle, and middle cranial fossa: case report and review of the literature. *J Craniomandib. Pract.* 2004; 22(2):160-8.

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