

Case Report

Osteoma of Mandibular Condyle as Cause of Acute Pain and Limited-mouth-opening: Case Report

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Abstract

In benign tumors in the mandibular condyle such as osteoma and osteochondroma, symptoms such as pain and limited-mouth-opening are rarely observed. Therefore, these tumors are often detected after the development of changes in occlusion and mandibular midline deviation. We encountered a very rare patient with mandibular condyle osteoma who showed acute pain and markedly limited-mouth-opening.

Key words: Osteoma—Condyle—Acute pain—Limited-mouth-opening

Introduction

Osteoma is a benign tumor composed of both cortical and cancellous bone that increases in size by continuous formation of bone^{1,6}. It is essentially restricted to the maxilla and mandible, and is rarely, if ever, diagnosed in other bones^{4,5}. In Gardner syndrome, multiple osteomas are present in the alveolar bone of the maxilla or mandible. Osteoma is a slow-growing, asymptomatic, usually solitary lesion which affects mainly young adults^{2,8}. Osteoma occurring in either the condyle or condylar process may result in morphologic and functional disturbances, including facial asymmetry and temporomandibular joint

(TMJ) dysfunction. It is rare for osteoma of the condyle to cause acute pain and limited-mouth-opening.

Case Report

A 5X-year-old man noticed spontaneous pain in the left temporomandibular joint on September 1, 200X and visited a local dental clinic on September 3. Soft laser therapy was performed, but no relief of pain was achieved. On September 5, he was referred to our hospital. Diffuse swelling and marked pain were observed in the left preauricular area. However, tenderness and heat sensation were

absent in this area, and skin color was normal. Interincisal mouth-opening was 15 mm.

Although no treatment was given at this time, both swelling and pain disappeared 4 days later.

Image Findings

Orbito-ramus projection radiography revealed an area of well-delineated dense opacity on

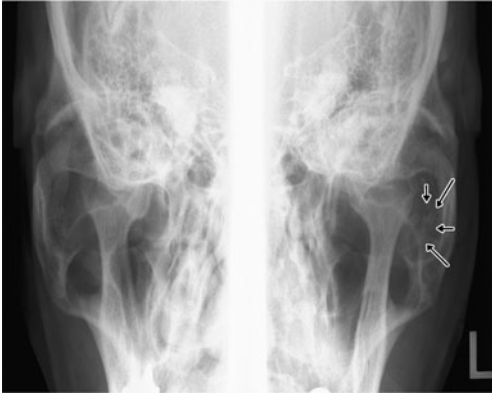


Fig. 1 Orbito-ramus projection radiograph
Some well-delineated radiopaque images on the lateral side of the left mandibular condyle (arrows).

the lateral aspect of the left mandibular condyle (Fig. 1). This did not appear, however, in the orthopantomogram.

Non-contrast CT images obtained at initial examination showed a poorly-delineated mass lesion in contact with the lateral margin of the left mandibular condyle, with well-delineated,

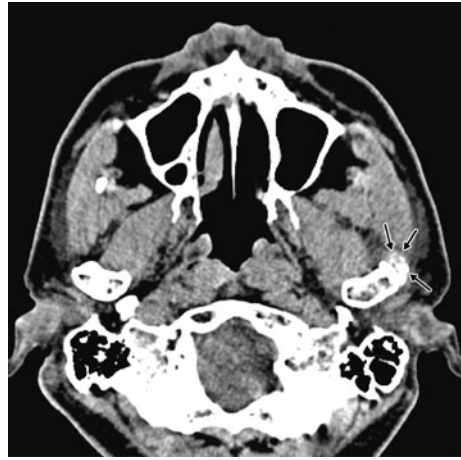


Fig. 2 Non-contrast CT (axial image)
A poorly-delineated mass lesion in contact with the lateral margin of the left mandibular condyle and well-delineated and variously-sized high density compartment inside the lesion (arrows).

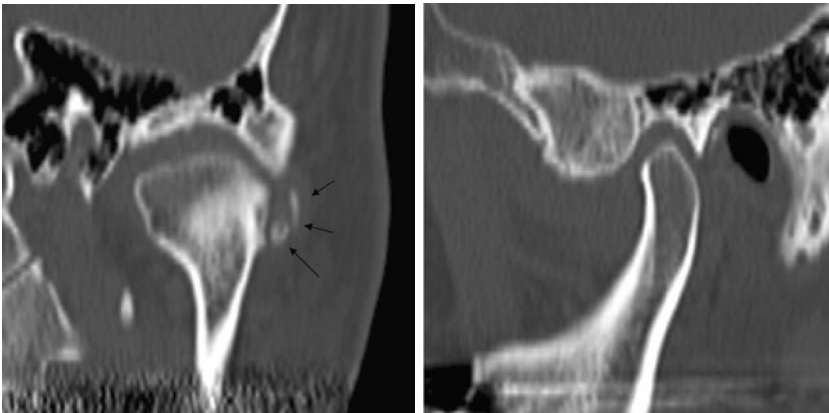


Fig. 3 Multiplaner reformation (MPR) image of CT
Left photograph is coronal view. Right photograph is sagittal view.
A coronal MPR images revealed well-delineated and variously-sized high density compartment on the lateral side of the left mandibular condyle (arrows). Sagittal MPR images showed neither a high-density area in the joint space nor definite abnormal findings in bone inside the condyle.

high density compartments of various sizes inside. The lateral pterygoid muscle and masseter muscle on the left side were swollen compared with those on the right side (Fig. 2). No contrast-CT examination was performed.

Coronal multiplanar reformation (MPR) images also revealed well-delineated, high density compartments of various sizes on the lateral aspect of the left mandibular condyle. Sagittal MPR images, however, revealed neither these compartments in the joint space, nor definite abnormal findings in bone inside the condyle (Fig. 3).

MR images obtained 4 days after initial examination revealed the disappearance of the swelling in the lateral pterygoid and masseter muscles observed by CT at the first visit, and the presence of a hypointense mass with internal hyperintense elements on the lateral aspect of the left mandibular condyle (Fig. 4).

Operation Findings

On November 20, the tumor was resected under endotracheal general anesthesia. As the photo taken during the operation shows, there was osseous hard tissue capsulated by connective tissue in the area where the lesion

had been observed by preoperative imaging. Part of the hard tissue was in contact with the mandibular condyle and upper joint compartment (Fig. 5).

Figure 6 shows osseous hard tissue resected from the lateral aspect of the mandibular condyle.



Fig. 5 Operation view
Osseous hard tissue capsulated by connective tissue (arrows).

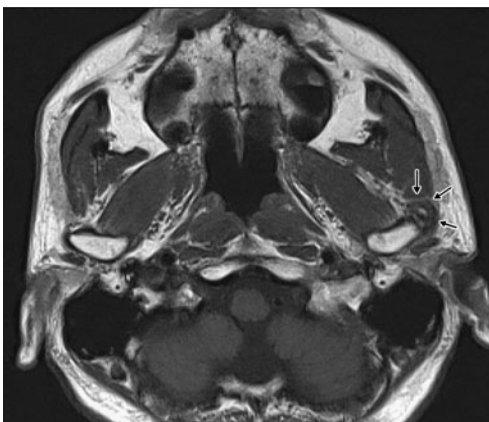


Fig. 4 MR image: T1W (TR/TE 380/11)
Presence of a mass lesion on the lateral side of the left mandibular condyle (arrows).

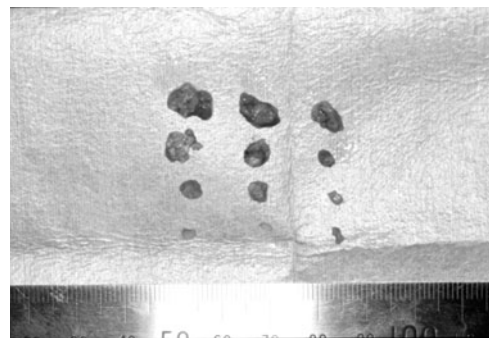


Fig. 6 Resected osteoma
Osseous hard tissue resected from the lateral side of the mandibular condyle.

Histopathological Findings

Figure 7 shows a pathological specimen after H-E staining. The lesion consisted of spongy osseous hard tissue contained in a capsule composed of coarse fibrous connective tissue. This tissue showed cell components in the lacunae, a clear lamellar structure, and trabeculae formation. The medullary cavity was dilated and contained a mature fat medulla. At the trabecular base on one side, slightly basophilic fibrous cartilage containing small cells with a round nucleus was observed, and this was continuous with the trabeculae. In one area, collagen fiber bundles formed a tendon-like structure, showing continuous transfer.

Based on these findings, a diagnosis of cancellous osteoma was made.

Postoperative Course

At postoperative week one, the pain disappeared, and interincisal mouth opening exceeded 50 mm. The patient did not develop facial palsy. No recurrence was observed, and recovery was good at one year postoperatively.

Discussion

Osteoma of the condyle may cause a slow, progressive shift in occlusion, with deviation of the midline of the chin toward the unaffected side⁷. This results in facial asymmetry and malocclusion such as cross-bite². However, no facial asymmetry or malocclusion was observed in this patient. In osteoma and osteochondroma in the mandibular condyle, acute pain or limited-mouth-opening is rarely observed. In our patient, CT at initial examination revealed swelling of the lateral pterygoid and masseter muscles. This suggests that the acute symptoms seen here resulted from inflammatory changes in the TMJ.

Osteomas in the bones of the jaw are uncommon. They may arise from the surface of bone as a polypoidal or sessile mass (periosteal osteoma), or may be located within the medullary bone (endosteal osteoma)⁴. There are 2 types of osteoma: central osteoma, arising from increase in cancellous bone, and peripheral osteoma, arising from increase in cortical bone, with the latter being the most common³. Accordingly, osteomas occurring in the condylar process can be classified into

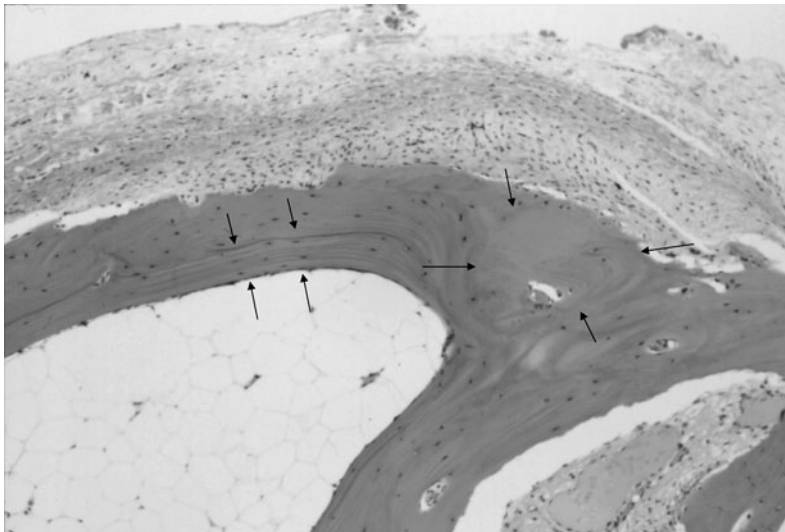


Fig. 7 Findings on histopathological specimen (H-E Stain)

Spongy osseous hard tissue showed cell components in the lacunae, a clear lamellar structure, and trabeculae formation (arrows).

2 types: those which proliferate and cause replacement of the condyle by osteoma, and those which appear as a pedunculated or osseous mass on the condyle or neck of the mandible^{2,6)}. In the case reported here, some osteoid hard tissue encapsulated by connective tissue was observed in the lateral aspect of the condyle.

Radiographic images revealed that the osteomas were circumscribed masses, of similar density to normal bone, and of approximately 5 mm in size. At their centers, such masses may exhibit a mixed radiolucent-radiopaque appearance, depending on the amount of marrow tissues present. Smaller endosteal osteomas are difficult to differentiate from foci of condensing osteitis, focal chronic sclerosing osteomyelitis, or idiopathic osteosclerosis⁴⁾.

A large osteoma of the condyle resulting in pain, facial asymmetry and malocclusion such as cross-bite may require condylectomy, whereas small, asymptomatic lesions may only require periodic observation. In the present case, even though no condylectomy was performed, the patient's pain and limitation of mouth-opening disappeared.

Histologically, an osteoma consists of either a normal-appearing dense mass of lamellar bone with minimal marrow tissue (compact osteoma), or of trabeculae of mature lamellar bone, with intervening fatty or fibrous marrow (cancellous osteoma). This case represents the latter entity, as evidenced by the wide spread of the bone marrow cavity and mature fatty marrow inside¹⁾.

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