CASE REPORT

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Osteochondroma of the Mandible: A Case Report with an Emphasis on Cone Beam Computed Tomography Features

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ABSTRACT A 74-year old woman was referred to Department of Oral and Maxillofacial Radiology and prosthetic rehabilitation. An enlarged mass in the right condyle was detected in panoramic radiography. Cone beam computed tomography (CBCT) revealed an osseous mass with abnormal peduncle adhered to the right mandibular condyle. In accordance with the radiological features of the osteochondroma, the cortex and medulla of the lesion were in continuity with parent bone structures. The coronal and sagittal sections of CBCT revealed that the lesion extends into the anterior and medial aspects of the condyle. In the present case, no surgical intervention was planned. Six months follow-up was scheduled because of the advanced age of the patient, adequate mouth opening, and the lesion was almost asymptomatic. Osteochondroma is very rare in craniofacial bones. Osteochondroma of the mandibular condyle should be considered in the differential diagnosis of the masses in temporomandibular joint region.

Keywords: Osteochondroma; mandibular condyle; cone beam computed tomography

Osteochondroma is known as the most common benign tumor of osteocartilagenous bones. It accounts for 20-50% of all benign tumors and 10-15% of bone tumors.[1] It is characterized by a cartilage-coated exophytic growth originating from the cortex of the bone. However, osteochondroma of craniofacial bones is rare due to intramembraneous origin of the most of the craniomaxillofacial bones. This rare entity is often seen in mandibular condyle or coronoid process. Osteochondroma can be seen in any area with endochondral ossification. The etiology still remains unknown and it may occur at any age.

The clinical findings of condylar osteochondroma include temporomandibular joint dysfunctions, facial asymmetry and malocclusion. Condylar osteochondroma should be distinguished from some pathologies that may occur in the temporomandibular joint region. Large osteophytes, hyperplastic condyle and chronic degenerative joint disease are among the differential diagnoses.[2-4] Osteochondroma is somehow irregular compared to a hyperplastic condyle. hyperplastic condyle is usually noticed during the growth and developmental period. Continuous growth after surface irregularities and skeletal growth should increase the suspicion of this tumor. The recurrence rate of osteochondroma has been reported as 1%. The risk of osteochondroma transformation to malignancy has been reported as very rare.[1,5]

In this case report, a condylar osteochondroma is presented with radiographic and clinical findings with an emphasis on cone beam computed tomography features.

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A 74-year old female patient was referred to the Department of Oral and Maxillofacial Radiology for prosthetic rehabilitation. Facial asymmetry was detected in extraoral examination. Clinical examination revealed deviation and minor pain during mouth opening. An enlarged mass in the right condyle was detected in panoramic radiography (Figure 1). A detailed temporomandibular joint examination was performed. A slight deviation to the left side was observed. No joint sound was detected. The mouth opening was 41 mm. A written informed consent form was obtained from the patient. Cone beam computed tomography (CBCT) was prescribed for detailed evaluation. In coronal CBCT images, an osseous mass with abnormal peduncle adhered to the condyle was detected in accordance with the radiological features of the osteochondroma at the head of the right mandibular condyle. The affected glenoid fossa was observed as deepened and sclerosed (Figure 2). The cortex and medulla of the lesion were in continuity with parent bone structures. The axial and sagittal sections of CBCT showed that the mass extends to the anterior and medial sides of the condyle (Figure 3, Figure 4).

The patient was evaluated with an oral and maxillofacial surgeon. Six months follow-up was recommended due to adequate mouth opening and advanced age of the patient. The patient showed no other symptoms and the mouth opening was still adequate after one year of follow-up.

FIGURE 1: Panoramic radiograph reveals an osseous mass on the right mandibular condyle (white arrow).

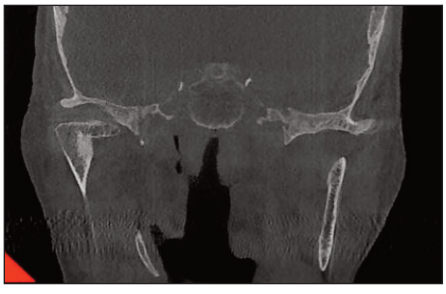

FIGURE 2: Coronal CB.

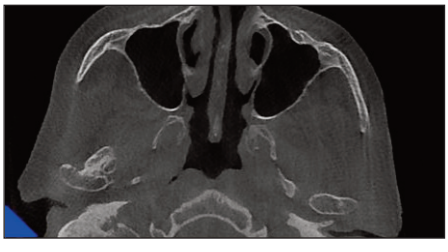

FIGURE 3: Axial CBCT image shows the anterior and medial extent of the lesion in the right mandibular condyle (white arrow).

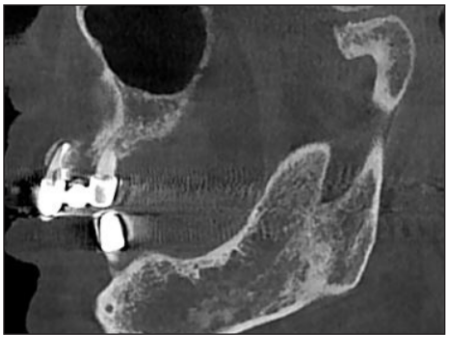

FIGURE 4: CBCT image shows the anterior extent of the osteochondroma in continuity with parent mandibular condyle.

DISCUSSION

Osteochondromas are rarely seen in facial bones.[6] Roychoudhury et al. reported that there were 98 mandibular condylar osteochondroma cases in the English literature until 2011.[7] With the increasing use of CBCT devices, osteochondromas in the mandible became more incidentally detected.

The etiology of these tumors still remains controversial. While some authors suggested that the lesions arise from the metaplasia of the periosteum, trauma was also suggested as an etiologic factor.[8,9] Osteochondromas often occurs at the anteromedial surface of the condyle where the lateral pterygoid muscle attaches. Therefore some authors claimed that tumors could be derived from the tendinous at-

tachment of lateral pterygoid muscle.[6] None of these theories are widely documented in the literature.

Osteochondroma is 1.5 times more common in women compared to men.[10] A female preponderance was suggested by previous reports.[11,12] Peroz et al. reported that the mean age for reported cases in maxillofacial region was 41 years.[12] Also Zhang et al. and Saito et al. suggested that the age of discovery of the lesions was fourth decade.[10,11]

Although it was reported that they often seen in anteromedial aspect, they may occur any site on the mandibular condyle.[11] Symptoms may depend on the location of the tumour.[1] Meng et al. reported that external auditory canal stenosis and hearing loss were present in two cases in which the tumor was located on the posterior-superior surface in 34 cases.[4] In the presented case, the tumor exhibited an anteromedial extension. The lack of extension in the superior and posterior directions may have caused the mouth opening not to be restricted too much. Excessive growth of the condylar osteochondroma may clinically show facial asymmetry, temporomandibular joint dysfunction, malocclusion (ipsilateral post open bite, contralateral cross bite), and loss of hearing.[4] Since osteochondroma is a slowly growing tumor, the condyle position may adapt to this condition and the clinical symptoms may be observed milder as in the present case.

Osteochondroma may often exhibit a pathognomic radiologic appearance. A continuity of the lesion with underlying bone structures is the characteristic feature of an osteochondroma.[1] The lesions can be fungal shaped or shaped according to the anatomical structures around them.[11] Mostly, a pedunculated mass can be observed. Diagnosis of osteochondroma or osteoma should be considered if clinical symptoms are present when condyle growth and irregularities are observed. Condylar hyperplasia should also be considered in the enlarged appearance of the mandibular condyle. However, while condylar hyperplasia is defined as growth with preservation of the normal contours of the condyle, irregular borders in osteochondroma are noticeable.[10]

Treatment of osteochondroma is individual. Small or asymptomatic lesions can be monitored, and only symptomatic treatment is recommended. Surgical resection of large and symptomatic lesions is recommended. In the present case, six months follow-up was scheduled because of the advanced age of the patient, adequate mouth opening, and the lesion was almost asymptomatic.

Diagnosis of condylar osteochondroma is performed by radiological and clinical examinations. Magnetic resonance imaging can be helpful to depict cartilaginous cap and to confirm the diagnosis.[11] Panoramic radiographs may exhibit the irregular condyler mass with varying densities due to calcification process of the tumour. Although panoramic radiographs may be useful for detecting prominent masses, CBCT should be requested for detailed evaluation. CBCT is a useful imaging method for the diagnosis of mandibular osteochondroma. Also, it helps the surgeon to plan surgical treatment before a possible operation by its superiority in hard tissue imaging. Although mandibular osteochondroma is a rare entity, it should be considered in the differential diagnosis of the masses in temporomandibular joint region.

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Conflict of Interest

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Authorship Contributions

Idea/Concept: *Damla Soydan Çabuk;* ***Design:*** *Emin Murat Canger;* ***Control/Supervision:*** *Emin Murat Canger;* ***Data Collection and/or Processing:*** *Damla Soydan Çabuk;* ***Analysis and/or Interpretation:*** *Damla Soydan Çabuk;* ***Literature Review:*** *Damla Soydan Çabuk;* ***Writing the Article:*** *Damla Soydan Çabuk;****Critical Review:*** *Emin Murat Canger.*

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