

Case Report: Osteochondroma of the mandible



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ABSTRACT

Osteochondroma is an osseous protuberance with cartilaginous growth potential that usually forms at the ends of long bones such as knee, hip, shoulder and joints(1). Osteochondromas are one of the most common benign tumours of bone, approximately 35% to 50% of all benign tumors and 8% to 15% of all primary bone tumors (2). Only about 1% of these occur within the head and neck region (1). The most common sites of occurrence is coronoid process of the mandible and the mandibular condyle(3-5). Trauma and inflammation have been implicated as predisposing factors (6 ,7). Clinical features of condylar osteochondroma include facial asymmetry ,vertical elongation of the face on the affected side, malocclusion with cross-bite on the contralateral side and lateral open bite on the affected side, TMJ dysfunction symptoms such as pain Which may resemble those seen in patients with temporomandibular joint disorders (TMD) (2-8). Differential diagnosis of slow-growing tumors of the mandibular condyle include giant cell tumor, condylar hyperplasia, vascular malformation, osteoma and chondroma (9,10).

these lesions are radiopaque and are easily identified on computed tomography (CT)(11). Pre operative computed tomography scans (CT) are essential in the treatment planning of these tumours(12). Cone beam computed tomography (CBCT) is a good alternative modality for evaluation of mandibular condyle.in comparison to CT scans, CBCT provides geometrically accurate images and excellent spatial resolution with lower dose(13). These condylar tumors have been variably treated. Partial or total condylectomy, vertical ramus osteotomy and adjuvant orthognathic surgery are possible modes of treatment depending on cosmetic defect. Reconstruction plan depends on the case to case situation and can be performed by upward placement of sagittally or vertically splited ramus, locally available bone graft with attached medial pterygoid muscle, costochondral graft or a custom-made titanium plate(14). The aim of this case report is to describe clinical, radiographic features, differential diagnosis, histopathologic features and treatment of condylar osteochondroma.

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Case report

A 53-year-old female with facial asymmetry was referred to our maxillofacial radiology unit to take the ordered section of a painless hard swelling in the Right mandibular condyle utilizing CBCT. She had no history of facial trauma or ear infection. The clinical examination revealed an obvious facial asymmetry with the chin deviated to the left side, decreased jaw movement, unilateral posterior crossbite on the left side, open bite on the affected side and limited mouth opening (Fig. 1).



Figure (1). Extraoral examination showing mandibular asymmetry with the chin point deviated to the left

Panoramic and Postero-anterior (PA) radiographic examination showed a well defined bony overgrowth of the right condyle extending medially, mandibular asymmetry and deviation of the symphysis to the left side. The lesion had similar density to the adjacent bone. The left TMJ was normal in size and shape (Fig. 2).



Fig. (2). Panoramic radiograph showed a radiopaque area on the right condylar region with similar density to the adjacent bone. PA skull showed a well-defined bony overgrowth extending medially from the right condyle

CBCT showed:

1. Extensive hyperplasia in the right condyle
2. osteophyte and joint mice at the anterior part of the affected condyle
3. Erosion at the superior border of the right condyle
4. decreased anterior, posterior and superior joint space on the right side (Fig. 3).

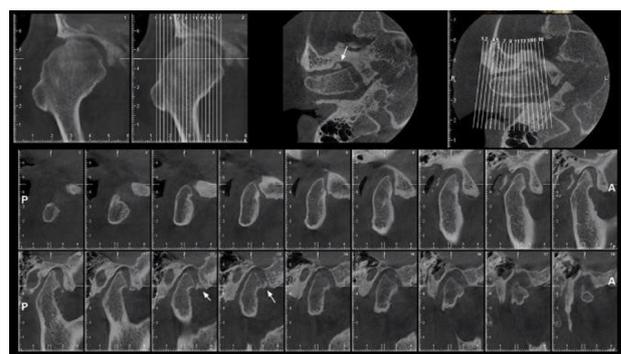
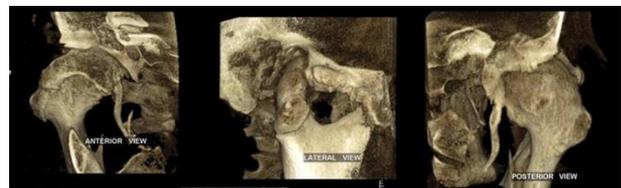


Figure3. CBCT image shows radiopaque lesion in the right condyle

Surgical treatment plan called condylectomy were performed under general anesthesia (Figure 4).

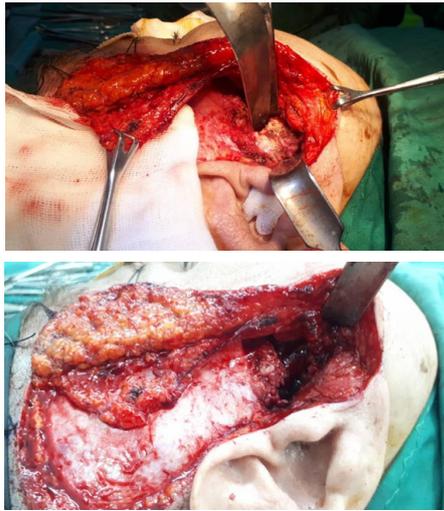


Fig4. photograph showing an osseous mass involving the right condyle

Histologic examination revealed hyaline cartilage cap with overlying fibrous perichondrium, transition zone between bone and cartilage shows endochondral ossification. This finding was consistent with osteochondroma, which was the final diagnosis of this lesion (figure 5).

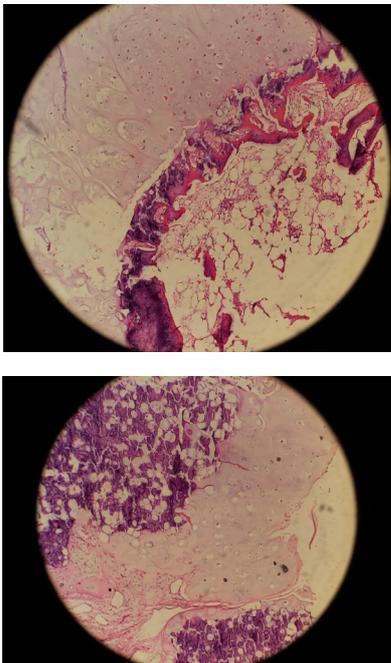


Figure 5. osteochondroma showing a fibrous perichondrium and chondroid matrix with chondrocyte in the lacuna.

Postoperative follow up was done after 2 months (Figure 6).

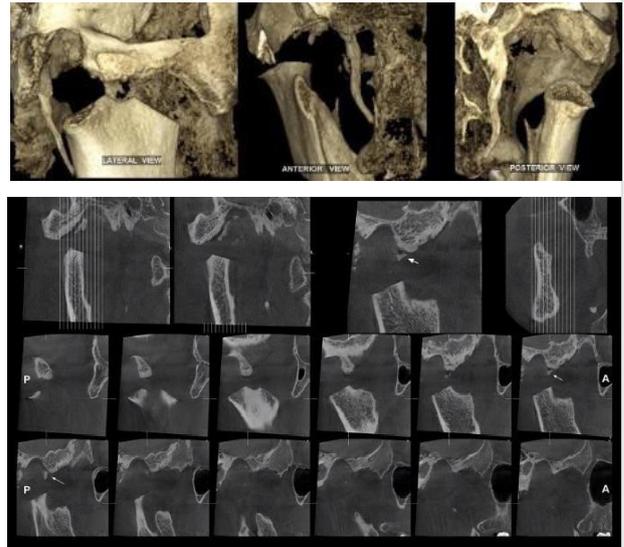


Figure 6. CBCT image After condylectomy

Postoperative follow up was done after 2 years (figure 7 and 8)



Figure 7. photograph images after 2 years



Figure 8. panoramic radiograph after 2 years.

Discussion :

Osteochondroma appear as an exophytic growth from the surface of the affected bone .Although frequently occurring in the axial skeleton, osteochondromas are rare in the maxillofacial region. It commonly arises in the growth process by endochondral ossification and rarely occurs in craniofacial bones. The mandible has cartilage precursors in the regions of condyle and coronoid and on either side of symphysis . Residues of these cartilages seems to give rise to osteochondromas.(15).

Pathogenesis of osteochondroma is not clear due to lack of cases. Most suitable theory of pathogenesis is that pluripotent cells of periosteum have the potential to differentiate into osteoblasts and chondroblasts, but the initiating factor is not clear. Neoplastic, developmental, reparative, and traumatic etiologies have been proposed(15).

Condylar osteochondromas are usually situated on the anteromedial surfaces of the condylar head (15). However , the lesion was found on anterior, superior and posterior surface of the condyle in this case.

Common clinical symptoms are pain, deformity, altered sensation and function associated with facial asymmetry. Other signs are malocclusion, increased normal height on the affected side and deviated path of jaw opening . It usually causes open bite on the affected side and crossbite on the contralateral side (2-8).the whole symptoms and signs were found in this case except for pain.

Mandibular condylar osteochondroma appears as a mixed-density mass on panoramic radiographs because of the cartilage component and bone , and the density increases with an increase as the tissue calcifies . CBCT brings to clinicians the possibility of evaluating complex cases in the maxillofacial regions and giving informations that leads to more accurate and specific diagnosis of some TMJ pathological conditions including osteochondroma. CBCT examination is essential for the differential diagnosis and treatment planning(16). Adjoining

structures such as the joint space, joint fossa, and joint capsule may affect the extension of the lesion by limiting its overgrowth(17). In this case, the presence of an exophytic lesion protruding from the affected condylar head to the anteromedial side suggested that its appearance was affected by the surrounding structure.

Benign tumors that develop in the mandibular condyle include osteochondroma, osteoma, chondroma, condylar hyperplasia, condylar giant cell tumor, fibro-osseous lesions, and vascular malformations(9 , 10). In this case, osteochondroma, osteoma, and chondroma were included in the differential diagnosis. Osteoma could be excluded because it usually appears as a pedunculated osseous mass on the mandibular condyle or neck, unlike the broad base seen in this case(18). Chondroma, a benign tumor that forms mature cartilage, is characterized radiologically by the presence of a mainly radiolucent and irregular mass, which can be distinguished from osteochondroma(19).

In cases of osteochondroma that the condylar head and neck require removal, a total condylectomy and simultaneous joint reconstruction is recommended by most surgeons, due to the benign nature of these lesions, the low likelihood of recurrence and the importance of the ramus height in TMJ function . It is important to highlight that surgical resection of osteochondroma can lead to complications such as: neuropraxia, fracture and arterial laceration(17). Follow-up was carried out in our case as the patient did not present any complication.

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