

Osteochondroma of the mandibular condyle

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ABSTRACT

Osteochondroma is one of the most common benign tumors of the axial skeleton, but is rarely found in the facial bones. When present, the tumor is most often reported to affect the mandibular coronoid process. Osteochondroma of the mandibular condyle is extremely rare. A case is presented of a massive osteochondroma of the mandibular condyle leading to facial asymmetry and disturbed occlusion. The diagnosis was confirmed by radiological and histological examination.

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An osteochondroma, also known as an osteocartilaginous exostosis,¹⁻⁴ is a benign, cartilage-capped osseous growth that projects from the surface of the bone, usually near its growth center. Although the average osteochondroma is predominantly osseous, the lesion is considered as one of the cartilaginous tumors since the bony mass is produced by progressive endochondral ossification of its growing cartilaginous cap. As most of the craniomaxillofacial bones develop by intramembranous ossification, osteochondromas are relatively infrequent in head and neck lesions.¹ These tumors can occur singly or as a part of an autosomal dominant syndrome known as osteochondromatosis.^{4,5} Osteochondroma is one of the most common benign tumors of the axial skeleton,⁴⁻⁸ representing 35-50% of all benign bone tumors and 8-15% of all primary bone tumors^{4,7} but is rarely found in the facial bones.^{2,5,8} When present, the tumor is most often reported to affect the mandibular coronoid^{6,9} process as it is of the embryonic cartilaginous origin.⁶ Osteochondroma of the mandibular condyle is extremely rare.⁶⁻⁹ The other sites where osteochondromas have been reported are at the skull base, in the posterior maxilla, maxillary sinus, ramus, body and symphyseal region of the mandible.^{7,10} Differentiating osteochondroma from chondroma,

condylar hyperplasia, chondrogenic intracondylar lesion, and osteocartilaginous exostosis may be difficult at times.⁸ Osteochondroma of the mandibular condyle grows slowly, and therefore, symptoms may develop over a long period. These symptoms include occlusal disturbances, facial asymmetry restricted mandibular movements, pain with varying intensity, clicking, popping, and crepitation of the affected joint⁵ and changes in the condylar morphology.⁸ The treatment of a condylar osteochondroma involves primarily resection, and in large lesions where functional or cosmetic deformity results, immediate reconstruction.⁵

Case Report. A 32-year-old woman reported to our hospital, complaining of a palpable mass in the left condylar region for the past 6 months. She gave a history of subluxation of the jaw 3 years back. The patient was concerned regarding the progressive facial asymmetry and reduction in the mouth opening for the past 6 years. She related an undocumented episode of mandibular trauma 6 years previously as the initiating factor in the development of her facial asymmetry. Clinical examination revealed an apparent facial asymmetry with the deviation of the mandible towards

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Figure 1 - Photograph showing midline deviation and restricted mouth opening.

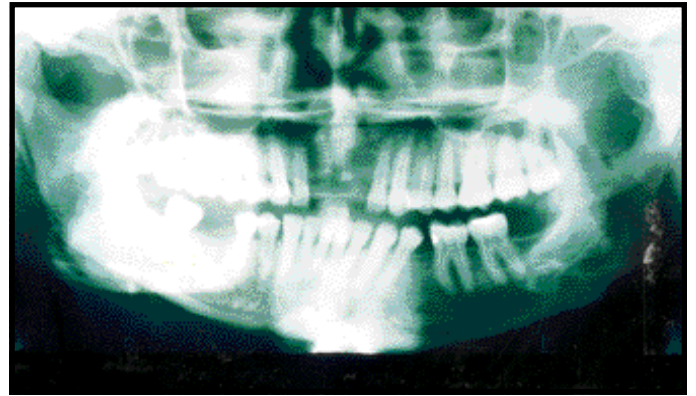


Figure 4 - Orthopantomogram showing an enlarged globular head of the left mandibular condyle, with a spur formation at the neck of the condyle.



Figure 2 - Photograph showing posterior open bite.

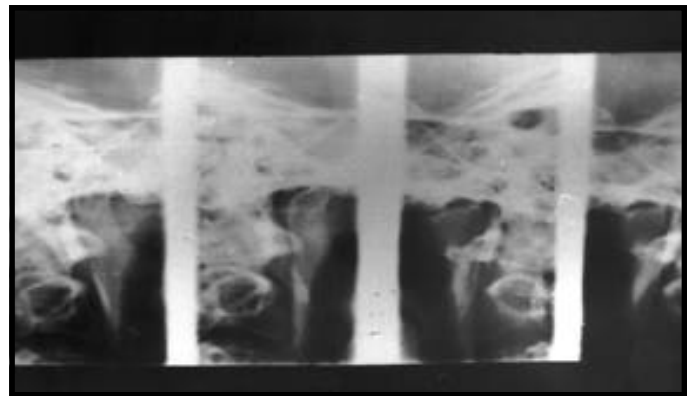


Figure 5 - Open and closed temporomandibular joint views showing the enlarged left mandibular condyle.



Figure 3 - Old photograph of the patient taken 8 years ago showing apparent symmetry of the face.

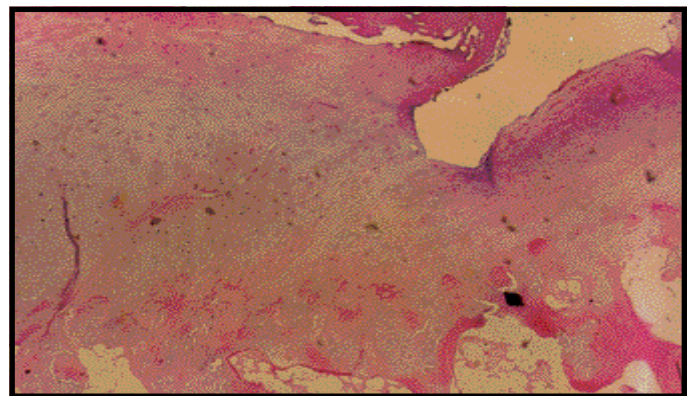


Figure 6 - Histological section under low power showing cancellous bony trabeculae and abundant marrow tissue.

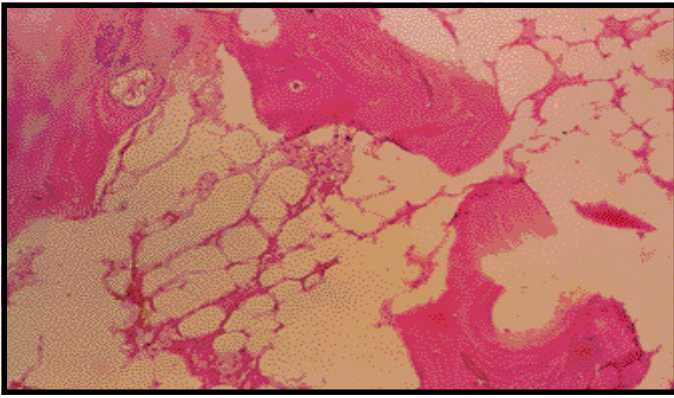


Figure 7 - Histological section under high power view showing chondrocytes.

the right side. Temporomandibular joint (TMJ) examination revealed a firm, non tender mass palpable on the left condylar region. Clicking sound was present in the left TMJ. Interincisal opening was reduced to 25mm, with a shift of dental midline to the right side (Figure 1) and a posterior open bite on the left side (Figure 2). An old photograph (Figure 3) of the patient taken 8 years ago reveals an apparently symmetrical face, proving the fact that the asymmetry of the face developed slowly over a period of time. Panoramic radiographs revealed a globular condylar head on the left side, and spur was noticed at the neck of the condyle (Figures 4 & 5). Surgical resection of the condyle was undertaken. Histopathology revealed cancellous bony trabecula radiating from the neck of the condyle. The bony trabecula enclosed abundant marrow tissue formed by fat cells. The surface of the head of the condyle was being replaced by hyaline cartilage of varying thickness (Figures 6 & 7), confirming to the histological picture of an osteochondroma.

Discussion. Cartilage-capped^{1,11} tumor like, exophytic growths of bone, termed osteochondroma, have been considered as developmental malformations, hyperplasia, or neoplastic disorders. Their pathogenesis has been subjected to many debates. However, the view of aberrant foci of epiphyseal cartilage on the surface of the bone is currently favoured.¹² The pathogenesis of mandibular condyle lesions is speculative. It is still uncertain whether this lesion is developmental, neoplastic, or reparative. Trauma and inflammation have been specifically implicated either as initiating or as predisposing factors for mandibular condyle osteochondromas.⁹ In previous reports, some patients have experienced mandibular trauma resulting in facial asymmetry.^{12,13} Osteochondromas are frequently seen in the 2nd and 3rd decades of life. They are more common in men, with a male to female predilection of 1.6 to one. The clinical findings associated with osteochondromas of the mandibular condyle usually develop over the

course of several months to years. Patients with osteochondromas most commonly present with the following features: facial asymmetry, disturbed occlusion^{6,9} posterior apertognathia on the affected side, crossbite on the unaffected side, palpable, painless temporomandibular area mass,⁹ together with limitation of mouth opening and mandibular movement.⁶ The differential diagnosis of such lesions of the mandibular condyle should include osteoma, chondroma, condylar hyperplasia, giant cell tumor, myxoma, fibro osteoma, fibrous dysplasia, fibrosarcoma, chondrosarcoma and metastatic disease.⁹ Several methods have been suggested for the treatment of condylar osteochondromas. These include resection through condylectomy, condylectomy with reconstruction or selected tumor removal without condylectomy.¹¹ By providing extra space and exposure, condylectomy enables easier and safer removal of the lesion when the medially located vascular structures (for example, internal and external maxillary arteries) are concerned.³ Approximately 75% of the patients with osteochondroma develop solitary lesions and 25% have multiple lesions. The solitary lesions develop sarcomatous changes in approximately one percent of the cases.⁹ However, all reported condylar osteochondromas have been histologically benign, and malignant transformation has not been observed. The general recurrence rate of osteochondromas is approximately 2%^{3,12} and there is only one recurrence of condylar osteochondroma reported in the literature, which occurred after one year after its excision in multiple pieces.³

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Abstract

Solitary osteochondromata of the spine are very rare benign tumors. We report 3 cases. Because of the high incidence of neural tissue compression, their early detection and radical excision is mandatory.