Case Report

Osteochondroma of Mandibular Condyle

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Abstract :

Osteochondroma, also known as osteocartilagenous exostosis is regarded as the most common benign tumour of bone, accounting for approximately one third of benign bony lesions. However, this process only rarely affects the craniofacial bones. Osteochondroma is not a true neoplasm but is thought to represent a developmental or hamartomatous process of bone. This lesion may present in a solitary fashion or as multiple osteochondromas as part of an inherited syndrome that results in disturbances of skeletal growth and development. The following report describes an unusual case of osteochondroma of left mandibular condyle.

Journal of Dental Sciences & Research 1:2: Pages 57-66

Introduction:

Osteochondroma is an exophytic lesion that arises from the cortex of bone and is capped with cartilage. It is frequently found in general skeleton but is rare in condylar region of mandible, accounting for approximately one third of benign bony lesions¹. The pathogenesis of osteochondroma is still controversial. They have also been considered to be a part of an inherited syndrome². The most commonly accepted view is a mataplastic change of periosteum and the osteochondral layer in condyle leading to production of
cartilage which subsequently ossifies. Differentiation between osteoma, osteochondroma and hyperplasia may be difficult at times. The most common clinical symptoms are malocclusion, with unilateral posterior open bite on the affected side and cross bite on the contra-lateral side and progressive facial assymetry. Females are most commonly affected than males. Surgical treatment of this lesion has been condylectomy, the risk of recurrence is a disadvantage when only excision of the lesion is performed.

**Case report:**

A 30 year old woman reported to Department of Oral and maxillofacial surgery with chief complaint of progressive assymetry of face, difficulty in mastication and limited mouth opening, the patient gave history of ear surgery when she was at the age of 12yrs, which was done to remove a grain entrapted in the left ear, after few months she started noticing a very mild assymetry of lower jaw. Assymetry started worsening after she had a trauma to the left face when she was at the age of 15 years. The patient general condition was within normal, mandibular movements were painfull. Clinical examinmation showed facial assymetry with mandibular deviation to the right. There was hard palpable mass felt at left preauricular region. The mandibular dental midline was deviated 5 cm to the right when corelated with maxillary dental midline, reflecting assymetric prognathism. Interincisal mouth opening was 18 mm. A cross bite was present on the contralateral side lateral mandibular movements were restricted. Localised joint pain was noted on palpation, no lymphonde was palpable.

A panaromic radiograph showed a well defined bone like radiopaque mass on left condylar head and increase in the length of condyle. The axial and coronal CT scan revealed a broad based
opaque mass more towards posteromedial region of left mandibular condyle. Provisional diagnosis of osteochondroma was made, patient was posted to surgery under G.A. left condylectomy was performed through pre-auricular and retromandibular incision. Maxillomandibular fixation was done to retain the occlusion for 2 weeks followed by functional physiotherapy for 3 weeks. Active range of jaw motion exercises including jaw opening including lateral excursion and protrusion was performed 4-6 times per day.

Tumour was spheroidal in shape attached to superior and medial part of condyle. Its surface was slightly irregular, the specimen was sent for histopathological examination which confirmed the diagnosis of osteochondroma which was not conclusive as the cartilagenous layer was not present in this case. Diagnosis was chiefly made on the basis of clinical and radiological aspects.

Discussion:

Osteochondroma is one of the most common benign condylar tumour together with chondroma and osteoma, however this is most frequently found on the metphyseal region of long bone (femur, tibia etc) and unusual on the skull. Osteochondroma associated with langergiedion syndrome is accompanied by learning difficulties, redundant skin, multiple exostosis, characteristic facial features and cone shaped phalanges. Sarcomatous changes can occur as the probabality of the degeneration of the single lesion increases with the number of lesions. Osteochondromas are frequently seen in general skeleton, but are rare in mandibular condyle. Radiographically most reports describe osteochondromas as a mushroom shaped bony enlargement capped with cartilage on the condyle surface, the panoramic radiographs of 12 cases of mandibular condyle
osteochondromas were reviewed, the final diagnosis of all cases were based on pathology. Osteochondromas may arise on different areas around the mandibular condyle and present diverse appearances on panoramic radiograph.

A rare case of 46 year old Japanese woman affected by osteochondroma of mandibular condyle presented clinically with facial asymmetry, malocclusion, and a palpable hard mass in the right TMJ. Radiologically the lesion was visualised as a radiopaque mass in the same region, without any destructive features. Three dimensional computed tomography was employed to know the stereographic extension of the lesion which developed from anterior portion of the condylar neck, and extended to the condylar head, patient underwent tumor excision and condyloplasty under a clinical diagnosis of benign TMJ tumor. Histologically it was confirmed as osteochondroma of the mandibular condyle with the presence of a cartilage cap, which is characteristic feature of osteochondroma.

Osteochondroma most commonly seen metaphyseal region of long bones is also seen in ribs, scapulae, clavicles, and vertebrae, as well as the mandible rarely affecting coronoid process, symphysis, posterior maxilla, maxillary sinus, and zygomatic arch, with slowly changing occlusion, progressive facial asymmetry, and limited and painful mandibular movements. The pathogenesis of osteochondroma has been the subject of much debate. The most commonly accepted view is mataplastic change of the periosteum and or the osteochondral layer in condyle, leading to production of cartilage, which subsequently ossifies. The cause of osteochondroma is unclear, but trauma has been considered as a possible factor. Histologically, osteochondroma needs to be distinguished from
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osteoma, benign osteoblastoma, chondroma, and chondroblastoma, the criteria of osteochondroma includes the presence of clusters of chondrocytes in the cartilagenous cap, arranged in parallel, oblong, lacunar spaces, similar to those of normal epiphyseal cartilage\textsuperscript{6}. However the radiographic appearance of osteochondroma can usually be pathognomonic, the lesions generally have a pedunculated stalk or sessile base\textsuperscript{4}. Differential diagnosis of solid lesions of the condyle should include condylar hyperplasia, osteoma, chondroma, gaint cell tumour, fibro-osteoma and metastatic disease\textsuperscript{4}.

The treatment of osteochondromas of the mandibular condyle includes total condylectomy. In several cases local resection of the lesion was done. the upper and lower compartments of the temperomandibular joints were accessed through an auriculotemporal approach, the disc, which adhered to the lesion at the anterior aspect of the condyle was resected, there was no evidence of ankylosis en bloc resection of the tumour was done, reshaping of the resection borders was performed to enable improved function\textsuperscript{6}. In most reported cases subcondylar resection was employed followed by intermaxillary fixation for 3-4 weeks supported by physiotherapy to retrain the masticatory musculature\textsuperscript{6}. Some authours think that condylar reconstruction is needed to avoid occlusal problems and to normalize mandibular functions\textsuperscript{7,8}.condylar reconstruction could be performed through several different methods such as with or without glenoid prothesis. Metal prosthesis have proven to be biocompatible and functional but have increased the costs. Another alternative includes a free autogenous bone graft, i.e. iliac crest graft\textsuperscript{9}. Costochondral graft\textsuperscript{10,11,12,13} Sternoclavicular joint graft\textsuperscript{8,14}. The surgical approach
has been preauricular, auriculotemporal submandibular and intraoral approaches, as well as combined approaches have been used.

**Conclusion:**

Though osteochondroma is commonly seen in long bones it has a significant presence in oral and maxillofacial region most commonly affecting mandibular condyle, where the cause could be the trauma to the temperomandibular joint. Many anatomical variations of the lesion in condyle are seen through different radiological methods of interpretations, diagnosis can be through the clinical and radiological assessment, conclusive would be histological where the striking feature is presence of cartilagenous cap, which in our case was absent, could be due to long history of lesion which would have lead to ossification of the same, various approaches and treatment protocol is employed to resect the lesion. We employed sub sigmoid condylectomy. Finally after surgical protocol patient should be subjected to IMF and long period of physiotherapy with the guidance and further management of occlusion by orthodontist, secondary orthognathic procedures may be performed depending on the type of case.

**References:**


Pre-operative Photographs

Fig. 1: Front profile
Fig. 1a: Right profile
Fig. 1b: Worms view

Fig. 2: Pre-op Occlusion
Fig. 3: OPG
Fig. 3a: Magnified Lt. Condyle

Fig. 3b: Coronal CT

Intra-operative Photographs

Fig. 4: Pre-auricular exposure of TMJ
Fig. 4a: Resected Lt. Condyle
Post-operative Photographs

Fig.5: Post-Op Front view

Fig.5a: Rt. view

Fig.6: Post-op occlusion.

Fig.7: Histological picture