Osteochondroma of mandibular condyle: A clinico-radiographic correlation

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Abstract

Osteochondroma (OC) of temporo mandibular joint is a rare, slow growing, benign tumor that causes a progressive enlargement of the condyle, usually resulting in facial asymmetry, temporo mandibular joint (TMJ) dysfunction, limited mouth opening and malocclusion. Pain is rarely associated with this tumor. OC is composed of cartilaginous and osseous tissues. Radiographically, there is unilaterally enlarged condyle usually with an exophytic outgrowth of the tumor from the condylar head. We present a rare case of osteochondroma of right mandibular condyle in a 45-year-old male who reported with painless swelling over TMJ area and progressive limited mouth opening. Panoramic radiograph and computed tomography (CT) was performed for better evaluation of the pathological condition. This paper describes the clinico-radiographic features and differential diagnosis of OC.

Key words: Mandibular condyle, mandibular dysfunction, neoplasm, osteochondroma, temporo mandibular joint

INTRODUCTION

Osteochondroma (OC) is defined as an osteo-cartilagenous exostosis with cartilage capped exophytic lesion that arises from the bone cortex. It is one of the most common benign tumor of the axial skeleton, but is rarely associated with the facial bones. It has been described in the head, cranial base, jaw, maxillary sinuses, condyle, ramus, body, coronoid process and symphyseal mandibular region. The embryonic development of the temporo mandibular joint (TMJ), by the endochondral ossification, makes this area the most frequent facial site for OC. It represents approximately 35% to 50% of all benign tumors, and 8% to 15% of all primary bone tumors.

CASE REPORT

A 45-year-old male patient reported to the department with complaint of painless hard slow growing swelling on the right TMJ area and asymmetrical face since two years. He noticed reduced mouth opening and deviation of the jaw while opening and closing the mouth [Figure 1a]. There was no history of any trauma or ear infection. The medical history was non-contributory. The clinical examination revealed non-tender bony hard oval swelling on right TMJ measuring around 2 cm × 2 cm [Figure 1b], reduced TMJ movements, facial asymmetry with approximately 8 mm deviation of the midline to the right side, severe malocclusion, unilateral posterior cross bite on the right
side, 7 mm negative horizontal overjet and 30 mm mouth opening. No pain but clicking sound was observed on TMJ movements.

The Panoramic radiograph [Figure 2a] and open and close right TMJ view [Figure 2b,c] showed a well circumscribed oval-shaped mixed lesion having thin corticated rim. The lesion was attached to the neck of the right condyle. The coronal and axial computed tomograms showed a large hyperdense well defined cartilaginous/bone growth attached to the neck of the right condylar head. The lesion extended from the antero-medial surface of the condyle towards the glenoid fossa and sigmoid notch [Figures 3-5]. The serological investigations were within normal limits.

Based on history, clinical examination and radiographic findings, the diagnosis of osteochondroma of right TMJ was made with differential diagnosis of osteoma, benign osteoblastoma, chondroma, chondroblastoma. The patient due to phobia has refused surgical intervention and correction of malocclusion. Presently, he is under observation from last six months and no significant changes have been noted.

**DISCUSSION**

The neoplasms and pseudo tumors of the temporo mandibular joint (TMJ) are relatively uncommon. Their early identification is essential in order to provide timely treatment, which may have a dramatic impact on the patient’s life. The rare TMJ lesions are osteochondroma, osteoma, osteoblastoma, synovial chondromatosis, ganglion, synovial cyst, simple bone cyst, aneurysmal bone cyst, epidermal inclusion cyst, hemangioma, non-ossifying fibroma, Langerhans cell histiocytosis, plasma cell myeloma, and sarcoma. The bone or cartilage forming tumors such as osteoblastoma or condylar hyperplasia are the most...
common lesions of the mandibular condyle. They are easily identified as they lead to facial asymmetry and malocclusion. Conversely, the intraosseous condylar lesions are difficult to diagnose as their symptoms - painful or painless swelling, dull pain in the preauricular region, clicking sound and discomfort during mastication - are similar to the symptoms of temporo mandibular disorders (TMD). Therefore, these pathologies are often initially overlooked, as patients are treated conventionally for TMD.[2,4]

OC of TMJ is not a common lesion. The etiology is uncertain. Trauma and inflammation are thought to be the contributory factors.[1] There are controversies whether such lesions should be considered of developmental, neoplastic or reparative nature.[1–5] Porter and Simpson suggested that a genetic component might also be involved in the neoplastic pathogenesis due to somatic mutations found in chromosomes 8 and 11. Differently from long bones, the craniofacial OCs occur at older age and most frequently affecting women.[1,4]

The symptoms vary depending on the location of the tumor. The condylar OCs are frequently situated on the antero-medial surface of the condylar head. The TMJ osteochondroma causes a progressive enlargement of the condyle, usually resulting in facial asymmetry, prognathic deviation of chin, TMJ dysfunction, limited mouth opening, cross bite to the contra lateral side and malocclusion with open-bite on the affected side. Pain is rarely associated with this tumour.[1,2,4] The present case was also associated with similar features and was situated at antero-medial surface of the condyle. The growth of an OC is usually slow, causing gradual displacement and elongation of the mandible.[1,2,7]

The careful assessment of the patient’s history provides valuable information for the diagnosis and treatment of neoplasm of TMJ. The purpose for imaging of TMJ is to graphically depict clinically suspected disorders of the joint. The diagnosis of OC in the present case was based on clinical and radiographic findings. Imaging techniques are the valuable aid for accurately diagnosing and determining treatment for variety of diseases, and are supportive to clinical examination. Computed tomography (CT) helps in evaluating complex cases in the maxillofacial field and provides information that leads to more accurate and specific diagnosis of TMJ pathologies. CT scans can easily demonstrate the continuity of cortex and medulla of the bone tumor and is considered the best tool to demonstrate calcified cartilage.[1,4] Radiographically, OC manifests as a radiopaque lesion with distinct borders and is easily identified on panoramic radiograph and CT imaging.[2,3] In the present case, the radiopaque-radiolucent appearance of the lesion may be based on the amount of marrow tissues and proportion of calcification of the tumour. CT was useful in determining the margins of the OC. Scintigraphy may also be used to detect the presence of intense uptake in the lesion.[1,4] Histologically, the diagnosis of an OC includes chondrocytes of the cartilaginous cap arranged in clusters parallel to lacunar spaces. Most of the lesions show growing bone surrounded by cartilages.[1,2,4]

Differential diagnosis of TMJ lesions is not always
easy. Osteochondroma should be differentiated from unilateral condylar hyperplasia, osteoma, chondroma, chondroblastoma, benign osteoblastoma, giant cell tumor, myxoma, fibro-osteoma, fibrous dysplasia, fibrosarcoma, and chondrosarcoma.\(^{[1,2,7]}\) Inspite of the common clinical features, the definitive diagnosis should always be based on clinical, radiological and histological criteria.

Surgical treatment is the choice for condylar OC. The suggested surgical approaches are complete resection of the tumor using condylectomy, condylectomy with reconstruction, or selected tumor removal without condylectomy. The aim of OC treatment should be achieving the acceptable mouth opening, recover facial symmetry, establish facial harmony and occlusion.\(^{[1,2,4]}\)

**CONCLUSION**

Pain and dysfunction in TMJ region is a diagnostic challenge. TMD are usually diagnosed by thorough patient history, comprehensive clinical examination and radiographic imaging. These pathologies are often initially overlooked, as patients are treated by conventional means. Imaging techniques are the valuable aid for accurately diagnosing neoplasm like condylar OC.

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