

A simplified approach in the management of osteochondroma of the mandibular condyle

ABSTRACT

Osteochondroma of condyle is an exophytic lesion that arises from the cortex of bone and is capped with cartilage. It is one of the most common benign tumors of the bone. It usually appears in endochondral bones. In the mandible, it occurs most frequently at the condyle or coronoid processes. There has been ambiguity in understanding the nature of osteochondroma, whether it is neoplastic or just a reactive phenomenon. Here, we are presenting a case report of a 43-year-old male patient with a chief complaint of deviation of jaw toward the right side and progressive facial asymmetry for the past 1 year. There was an asymmetric prognathism of the lower jaw with ipsilateral open bite and contralateral crossbite. The patient was planned for surgery under general anesthesia. The tumor was dissected from its soft-tissue attachments, and then, complete excision of the tumor was done. Histopathological examination of the lesion showed a proliferation of bony and hyalinized cartilage-like tissues. Two-year postoperative follow-up was uneventful, and no second surgical intervention was required. Computed tomography scan after 2-year follow-up revealed no reoccurrence of lesion, and the patient's facial profile was significantly improved.

Keywords: Condylectomy, intermaxillary fixation, osteotomies

INTRODUCTION

Osteochondroma is an exophytic lesion that arises from the cortex of bone and is capped with cartilage.^[1] It is a common benign tumor of the axial skeleton which usually appears in endochondral bones. Osteochondromas have been reported in the skull base, maxillary sinus, zygomatic arch, and mandible.^[2] In the mandible, it occurs most frequently at the condyle or coronoid processes.^[3] Various theories of etiopathogenesis have been suggested for the formation of osteochondroma.^[4] Of these, most accepted is the Lichtenstein theory, which suggests that the periosteum may undergo metaplastic change to develop osteochondroma in condyle. Trauma is considered a possible triggering factor for this change.^[2,5-12] Based on its nature and its inherent tendency to reoccur, various treatment modalities are discussed in literature to treat osteochondroma. Factors to be considered for using any technique are location of tumor and fusion of tumor to adjacent structures. Some patients may require additional surgical intervention for facial asymmetry corrections, while some authors have suggested that guided

elastic traction on the maxilla-mandible arch bar does provide satisfactory results.^[5]

CASE REPORT

A 43-year-old male patient presented with a chief complaint of deviation of the jaw toward the right side and progressive facial asymmetry for the past 1 year [Figure 1]. There was no history of trauma or infection in and around the temporomandibular joint (TMJ) region or ear. The patient visited a local practitioner for the same problem and was suggested to have left TMJ ankylosis. For second opinion,

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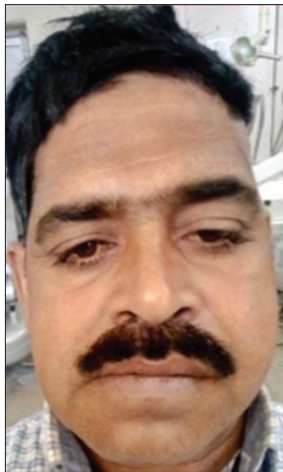


Figure 1: Preoperative photo of the patient showing facial asymmetry



Figure 2: Preoperative photo of the patient showing occlusal discrepancy

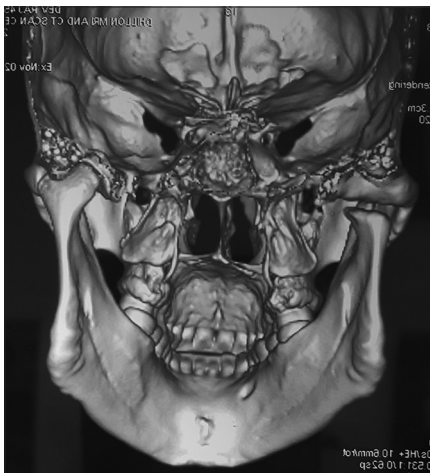


Figure 3: Preoperative three-dimensional computed tomography scan of the patient showing bony mass on the left condyle



Figure 4: Preoperative computed tomography scan of the patient showing bony mass toward the medial surface of the left condyle

he reported to the Department of Oral and Maxillofacial Surgery at Punjab Government Dental College and Hospital, Amritsar. The main concern of the patient was remarkable facial asymmetry with mandibular deviation toward the right side. Further, fullness of the cheek was noticed on the left side with flatness on the right side of the patient. In addition, the right side of the patient's lip line appeared to have an obvious downward slant. On palpation of the preauricular region, condylar movements on both the left and right sides were palpable with no associated tenderness or clicking. Lateral jaw movements were also found to be restricted. Further, inspection revealed that mouth opening (approximately 43 mm) was in the normal range. On biting teeth into occlusion, the midline was found to be deviated by 13 mm to the right of the maxillary dental arch midline, reflecting an asymmetric prognathism with ipsilateral open bite and contralateral crossbite [Figure 2]. The occlusal plane of maxillary arch was normal with no apparent cant. On radiographic examination, axial and coronal

computed tomography (CT) scans revealed an opaque mass that was located on the medial aspect of the left mandibular condyle extending medially and superiorly. There was no evidence of any fusion of the condylar head with articulating surface. The upper joint space and the joint disk were identifiable on radiograph [Figures 3, 4]. A clinical differential diagnosis was made which included condylar hyperplasia, osteoma, osteochondroma, and malignant tumors such as chondrosarcoma and osteosarcoma. Angiography of the patient revealed the availability of safe zone to operate within the area without damaging the nearby vessels [Figure 5]. Under general anesthesia, Al-Kayat and Bramley's incision was taken on the left side and a flap was reflected. The tumor mass was attached on the medial aspect of the left condylar head extending medially and superiorly. Osteotomy cut was given at the upper end of neck of condyle. Then, the tumor mass was excised and taken out in one piece [Figures 6, 7, 8]. The articulating disk had no fusion with tumor mass and appeared normal on exploration. Postsurgery CT scan after 2 year revealed no recurrence of lesion, and the patient's facial profile was significantly improved [Figure 9]. The teeth were brought into normal occlusion by applying traction forces on maxillomandibular fixation for 3 weeks. Active jaw



Figure 5: Preoperative angiography image of the patient showing nearby blood vessels

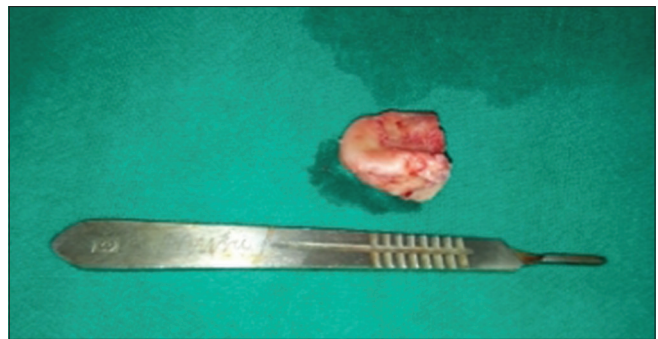


Figure 6: Bony mass excised from the left condyle



Figure 8: Two-year postoperative occlusion of the patient



Figure 7: Two-year postoperative follow-up image of the patient

exercises, including vertical jaw opening, lateral excursions, and protrusion, were performed 4–6 times/day, following release of intermaxillary ligation for the next 3 weeks. On the basis of the patient's history, clinical features, CT scan report, and histopathological examination, a diagnosis of osteochondroma was confirmed.

DISCUSSION

Clinically, the patient with osteochondroma may present with any combination of symptoms such as pain, hypomobility of

TMJ, partial or complete hearing loss, asymmetry, prognathic appearance, malocclusion with ipsilateral open bite, and contralateral as well as anterior crossbite. Our case presented with heaviness on the left side of the face with no pain but progressive facial asymmetry. Our case report emphasizes the importance of various diagnostic modalities such as CT scan and angiography for appropriate diagnosis and treatment planning and to avoid complications associated with surgery. Most condylar osteochondromas are located on the anteromedial surface of the condylar process and are adjacent to and extend up to the carotid and jugular vessels, and a broad exposure is obligatory. Therefore, angiography is a necessary tool.^[13-15] In our case because of angiography, we were able to identify the presence of space between bony mass and vascular structures and we were able to accomplish our subtotal condylectomy without the need to osteotomize the zygomatic arch. Diagnosis and treatment planning is essential in cases which present with facial asymmetry and malocclusion. In different situations, mandibular osteotomies, Le Fort 1 maxillary osteotomies, genioplasties, and lower border osteotomies might all be required.^[13-15] In our case, we achieved a desired occlusion by elastic traction forces with Maxillary-mandibular arch bar only, and no second surgical interventions such as jaw correction osteotomies were required. The excised mass was grayish white in color

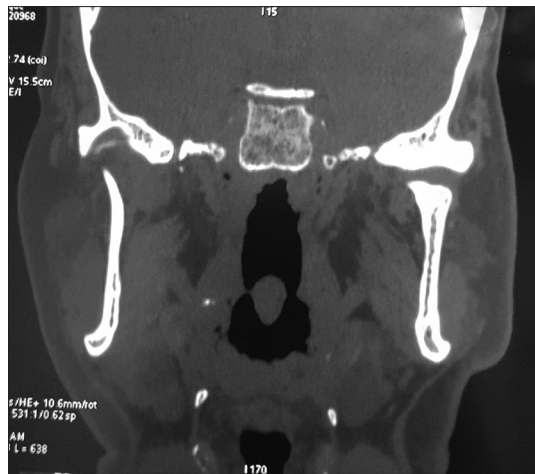


Figure 9: Two-year postoperative follow-up computed tomography scan (coronal view) of the patient

with smooth surface, which was bone like upon palpation. On histopathological examination, the lesion consisted of a proliferation of bony and hyalinized cartilage-like tissues corresponding to the so-called cartilage cap [Figure 10]. A conservative approach composed of excision of lesion and the involved portion of the condyle, reshaping the remaining condyle, and subsequent preservation of the disk should be preferred treatment when possible. It gives excellent results with regard to occlusion, facial appearance, range of mouth opening, and dynamics of the TMJ. It is best accomplished using all the diagnostic aids to excise the tumor as conservatively as possible, obtain the required occlusion, and also avoid second surgical procedure for esthetic and occlusal correction.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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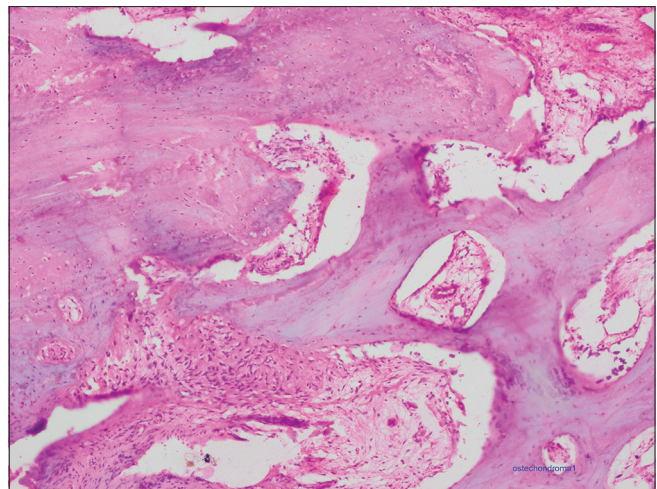


Figure 10: Image of resected specimen (hematoxylin and eosin stained) of osteochondroma showing cartilaginous islands of varying thickness along with fibrous tissue (perichondrium) present within the condyle and the cartilage showing areas of endochondral ossification

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