INTRODUCTION

Osteochondroma or osteocartilaginous exostosis is an exophytic lesion that arises from the cortex of the bone and is cartilage-capped. It is one of the most common benign tumors of the axial skeleton but extremely rare in the condyle. Forssell et al. reviewed 26 reported cases of osteochondroma and subsequently Henry also added a case to the literature.[1,2] They have excluded several case reports because of misdiagnosis and others due to lack of clinical details. Nwoku and Koch in a review of 3200 head and neck tumors in their institution included an osteochondroma of the mandibular condyle but have not given any histopathological or surgical details.[3] Skull base, maxillary sinus, zygomatic region and mandible osteochondroma have been reported.[4] The condyle or coronoid are the most common site in the mandible.[5] Subsequently, we report a comprehensive case of a giant osteochondroma of the mandibular condyle removed via extended preauricular incision to the temporomandibular joint (TMJ).

CASE REPORT

A 23-year-old male presented with complaints of progressive facial asymmetry, difficulty in speech and mastication secondary to restricted movement of the mandible [Figure 1]. The patient also experienced intermittent pain in the right TMJ region. He reported progressive reduction in the vertical opening and increasing asymmetry of the face. The patient did not have any episode of trauma, and his medical history was noncontributory. Clinical examination revealed marked facial asymmetry with the mandible deviated to the left. The mandibular midline was deviated, indicative of asymmetric prognathism. Lateral movement to the right side was totally restricted. Significant dental compensations were evident. There was no translation of the right mandibular condyle, and positive tenderness of the left temporalis muscle was also noted on palpation. Preoperative calcium and alkaline phosphatase levels were within normal limits.

Radiographic findings

Panoramic radiograph revealed a large radiopaque lesion of the right mandibular condyle, with the condyle resembling a mushroom and extending in front of the articular eminence. The ramus and mandible were elongated with a shift in the midline. Slight bowing of the body of the mandible was also observed radiographically on the right side. Left condyle and joint space were apparently normal. Computed tomography scan (CT) showed a large radiodense lesion on the right side of TMJ both in the coronal and axial sections. The lesion was clearly seen both in the plain and contrast images, extending on the right side up to the pterygoid plate medially and almost up to the carotid canal posteriorly measuring 33 mm mediolateral and 27 mm anteroposteriorly. The neck of the condyle was also enlarged and was found to be gradually merging with the vertical part of the ramus. CT scan reported tumor of the right condyle head [Figure 2].

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Surgical treatment

Surgical removal of the enlarged condyle via preauricular approach was planned. Subsequently, with an extended preauricular incision placed through the skin and subcutaneous tissues to the level of the temporal fascia was carried out. Skin flap was extended by blunt dissection superoinferiorly and with preservation of the superficial temporal vessels by pushing it anteriorly. Vertical incision was placed in the temporal fascia and blunt dissection was carried out anteriorly until exposing the lateral part of the fossa and the enlarged condyle was exposed after opening the lateral ligament. With dissection, TMJ was exposed up to the neck of the condyle and internal maxillary artery on medial side was protected with condylar retractor. The bone was osteotomized and removed using a surgical bur [Figure 3]. The lesion including the condyle was removed and sent for histopathological examination. Postoperative recovery was uneventful and his mouth opening was fairly good. The patient has been regularly followed up every month for the initial 3 months and then once in 3 months with periodic radiographs. During the latest visit of the patient, it was observed that his facial appearance and mouth opening had returned back to normal and he had been symptom-free [Figures 4 and 5].

Histopathology

The entire specimen was decalcified in 10% formic acid and then processed for histopathological examination. Histopathology showed chondrocytes of the cartilaginous cap arranged in clusters in parallel, oblong lacunar spaces, similar to that of the normal epiphyseal cartilage along with regular bony trabeculae. There was no evidence of cartilage islands in underlying bony trabeculae. These features were suggestive of osteochondroma. Considering the size of the lesion, the diagnosis of giant osteochondroma was made [Figure 6].
DISCUSSION

Review of the reported cases of the osteochondroma of the mandibular condyle showed a mean age of occurrence at 42 years, with a female predilection.[1] However, the present case is in conjunction with the osteochondromas of the axial skeleton as it had occurred at the age of 23 in a male patient. Further, the patient presented with a solitary lesion similar to majority of patients, though the presence of multiple lesions can occur on a hereditary basis.[2] Commonly, patients present with hypomobility of TMJ, asymmetry, mandible lower border bowing, malocclusion and pain. Radiographically on CT show corticomedullary lobulated outgrowth and partially calcified cartilaginous cap which is seen better on magnetic resonance imaging. Histologically, chondrocyte lines up to the surface and cartilage ossifies in the inner surface of the cartilaginous cap to form cancellous bone which merges with the bone.[6]

This condition needs to be distinguished from condylar hyperplasia both radiographically and histopathologically especially in the mandible.[7] TMJ radiographs in condylar hyperplasia may demonstrate abnormalities in the condylar head and/or neck regions in that the head is usually larger and the neck longer on the affected side. The presence of a continuous germinative layer of undifferentiated mesenchymal cells and hypertrophic cartilage in adulthood are the histopathological features of condylar hyperplasia.[8] Further, Slootweg and Müller have described four histological types of condylar hyperplasia.[9] The consistent finding of cartilage remnants or islands in the bony trabeculae is common to all types of condylar hyperplasia. Our case did not reveal any such cartilaginous islands or undifferentiated mesenchymal germinative cell layer histopathologically and radiographically condylar neck is not long as seen in condylar hyperplasia cases; therefore, we confirmed the diagnosis of osteochondroma histopathologically and radiographically. The differential diagnosis considering congenital, infectious and metabolic disease categories were eliminated using patient history. Other benign neoplasms such as osteoma, osteoblastoma, chondroma and chondroblastoma were excluded with support from histopathology reports. Kaneda et al. have reported a case of giant osteochondroma of the mandible.[10] Considering the size of the presenting lesion, this case was also considered to be a giant osteochondroma. The preferred surgical treatment of an osteochondroma has been condylectomy, although, in several cases, excision of only the lesion has been performed. The surgical approach to the TMJ for the removal of the osteochondroma generally has been preauricular; however, submandibular and intraoral approaches as well as combined approaches have been used.[11] In this patient, we had to perform condylectomy, because the enlargement of the condyle was up to the neck of condyle. Approximately, 2% of the osteochondromas in Dahlin’s series were recurrent. Failure to remove the entire cartilaginous cap and overlying periosteum are suggested as the common cause for recurrence. Among patients presenting with the solitary form, 3.3% showed malignant changes.[12] However, no recurrence or malignant changes of osteochondromas of the mandibular condyle have been reported so far. Our patient is on follow-up for the past 1 year. He is symptom-free and his postoperative radiographs show no recurrence of the tumor. During the follow-up visits of the patient, it has also been observed that his facial appearance and mouth opening had returned back to normal.

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Conflicts of interest

There are no conflicts of interest.

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