

Wilkes Stage IV Internal Derangement-An Osteochondromatosis of Condyle

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Abstract

Osteochondroma (OC) or osteocartilaginous exostosis is characterized by cartilage capped, osseous projection protruding from the surface of affected bone. OC is the most common tumor of skeletal bones. This benign tumor can occur as a part of autosomal dominant syndrome called osteochondromatosis. Here, we describe a case report with our view in managing the patient and giving best treatment with the help of knowledge gained by literature and experience.

Keywords: Osteochondromatosis, osteophytosis, trismus

INTRODUCTION

Osteochondroma (OC) is one of the most common benign tumors of the axial skeleton that originates in the osseous tissues located most often on the medial aspect of the mandibular condyle^[1] (57%), sometimes anteriorly (20%), and rarely in a lateral or superior position (<1%). The female-to-male ratio is 3:2.

The typical clinical features of condylar OC are progressive facial asymmetry, prognathic deviation of the chin, cross-bite to the contralateral side, changes in condylar morphology, and malocclusion with an open bite on the affected side. The lesion is usually discovered incidentally on radiographic examination or on palpation of a protruding mass in the affected area. Malocclusion^[2] in the form of a lateral open bite on the ipsilateral side and progressive facial asymmetry are common findings in most cases of condylar OC.

Pain may precede or accompany facial asymmetry in some cases. Because OC of the condyle is uncommon, only few cases have been reported to date. This case report describes OC of the right condyle with restricted mouth opening.

CASE REPORT

A 35-year-old woman approached our hospital with a pain in

the right preauricular area for 5 years and decrease in mouth opening for 6 months. On clinical examination, the patient had continuous, dull ache in the right temporomandibular joint (TMJ) and it increases while closing mouth. The patient gave a history of rheumatic fever during childhood and was under penicillin therapy till 4 years of age. No history of trauma was evident. On extraoral examination, facial symmetry was present. No bowing of mandible with restricted mouth opening, of 12 mm, was noted. No clicking sounds were heard while opening and closing mouth and mild deviation of mandible to the right side was evident on opening the mouth.

On palpation, mild tenderness was evident in the right preauricular area. No growth was evident. She gave a history of right TMJ lavage in the outside hospital for the same. Intraoral examination showed Class I molar relation with intact occlusion.

With the help of clinical features, we gave provisional diagnosis as TMJ arthritis/internal derangement/fibrous ankylosis and went on with further blood investigations and radiological

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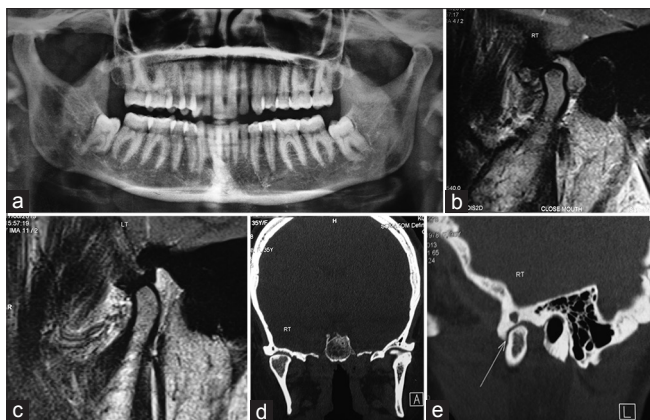


Figure 1: (a) Preoperative orthopantomography of the patient with decreased joint space in the right temporomandibular joint. (b) Magnetic resonance imaging image with posteriorly displaced articular disc in relation to right condyle in closed mouth. (c) Magnetic resonance imaging image of the left condyle with normal disc position in closed mouth. (d) Coronal section of computed tomography with osteophytes in the right condyle. (e) Sagittal section image of the right temporomandibular joint with decreased disc space



Figure 3: Image showing the passive mouth opening of 27 mm

investigations. Complete blood picture showed normal values. Orthopantomogram showed decreased joint space in the right joint [Figure 1]. Magnetic resonance imaging showed superior flattening of the mandibular condyle with anterior osteophytosis and with widened glenoid fossa and flattened articular tubercle, with advanced degenerative changes, joint effusion with secondary synovial osteochondromatosis of the right TMJ, and nonvisualization of the disc indicating complete tear.

With the help of these investigations, we came to diagnosis of Wilkes Stage IV internal derangement.^[3] With this diagnosis, we planned for condylar shave and reconstruction^[4] of disc with temporalis muscle.

Intraoperative procedure

Under nasoendotracheal intubation, an Alkayat-Bramley incision is placed in the right side, and the incision was

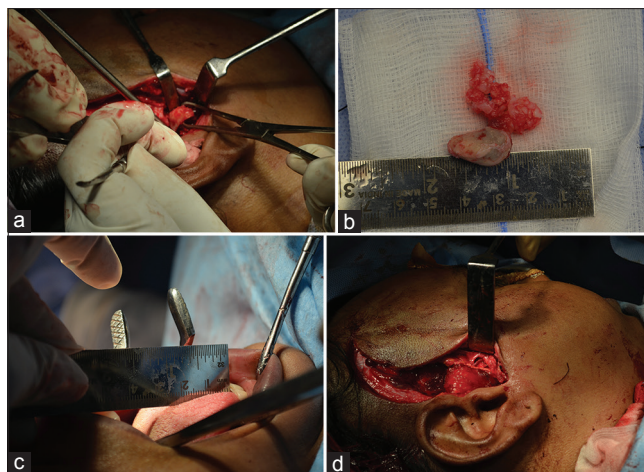


Figure 2: (a) Image showing the removal of the head of right condyle. (b) Image showing the image of excised cartilaginous growth along with the head of condyle, fibrous in texture. (c) Intraoperative achievement of mouth opening to more than 40 mm. (d) Covering of defect with temporalis flap

extended to temporal fascia. At the root of zygomatic arch, superficial fascia was incised anterosuperiorly at 45°. The periosteum was then incised to expose the zygomatic arch. Incision was made over the capsule and condyle and bony mass was exposed. The facial nerve was located at its normal anatomic position and it was preserved [Figure 2].

After exposing the condyle, we observed fibrous growth, which was shaved and sent for histopathological examination. A bony cut was placed and head of condyle is removed.

The excision site of the condylar region was curetted sufficiently to remove any remaining tumoral cells. Mouth opening was not achieved on the table, hence thought of following ankylosis protocol, and proceeded for ipsilateral coronoidectomy. Even then, we found mouth opening to be <30 mm and proceeded for contralateral coronoidectomy with the achievement of mouth opening around 44 mm. Reconstruction was done with temporalis muscle flap in the right TMJ. Finally, a drain was placed and all tissues were sutured with 3.0 Catgut and 5.0 Ethilon (skin).

Postoperative course

At approximately 1 week postoperatively, the pain resolved and interincisal mouth opening exceeded 25 mm [Figure 3]. The patient suffered a mild temporary paresis of the frontal and marginal rami of the left facial nerve, which resolved completely after 3 months. To redirect the mandible to its optimal position for normal function, guiding elastics were used for 1 week. Following removal of the appliance, 2 weeks of therapeutic rehabilitation, including jaw exercises, was carried out to increase the range of jaw opening and lateral movements. Three months postoperatively, the interincisal mouth opening had increased to 35 mm and the midline deviation had almost been corrected. There was no evidence of recurrence; no complications were encountered.

DISCUSSION

Several theories have been proposed to explain the pathogenesis of OC. In 1891, Virchow postulated the physal theory: a portion of the physal cartilage becomes separated from the parent tissue, then rotates 90°, and grows in a direction transverse to the long axis of the bone. He could not provide reasons for the separation and rotation of the detached physal cartilage. In 1920, Muller's periosteal theory^[5] states that exostoses are produced by small nests of cartilage derived from the cambium layer of the periosteum. Lichtenstein theorized that the periosteum has the potential to develop osteoblasts and chondroblasts. OC could develop by spontaneous or induced metaplasia of the periosteum to form cartilage that subsequently undergoes endochondral ossification.

The standard recommended treatment is complete resection of the tumor with the conservation of surrounding bone. Conservative resection preserves most of the condyle area by performing tumorectomy^[6] in multiple fragments and minimal reshaping of the condyle with bur. However, this is often technically difficult when the tumor is located in the medial part of the condyle and close to adjacent structures.

Therefore, it has been suggested that it is necessary to perform total condylectomy to achieve curative resection of the tumor, followed by secondary reconstructive surgery.^[7,8] The choice of reconstructive option depends on the resulting defect. Options include free costochondral grafting, free flaps, orthognathic surgery, prosthesis, and sliding osteotomy. In this case, we have given the patient with best possible treatment and feel happy to see a smile on the patient's face.

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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