Osteochondroma of the mandibular condyle cured by conservative resection

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Abstract Osteochondroma (OC) is one of the most common benign tumors of the axial skeleton. However, it is rare in the facial skeleton and only a few cases have been reported to date. In this report, we describe the treatment of an OC on the left condyle in a 31-year-old Chinese female by conservative resection of the tumor into multiple fragments and preservation of most of the condylar area with minimal condylar reshaping. The postoperative cosmetic result was satisfactory.

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Introduction

Osteochondroma (OC) is one of the most common benign tumors of the axial skeleton that originates in the osseous tissues. It usually arises in osseous tissues and is commonly found near the ends of long bones, but rarely in the facial skeleton.1–3 Peroz et al4 described a series of 34 cases, in which they found that OCs of the mandibular condyle are usually diagnosed in adult patients (mean age: 40 years) and are located most often on the medial aspect of the mandibular condyle (57%), sometimes anteriorly (20%), and rarely in a lateral or superior position (<1%). The female-to-male ratio is 3:2.

Typical clinical features of condylar OC are progressive facial asymmetry, prognathic deviation of the chin, crossbite to the contralateral side, changes in condylar...
morphology, and malocclusion with open bite on the affected side.5–8

Because OC of the condyle is uncommon, only few cases have been reported to date. This case report describes an OC of the left condyle with restriction of mouth opening.

Case report

Case analysis

A 31-year-old Chinese woman presented at the Department of Oral and Maxillofacial Surgery, Xiangya Hospital, Central South University, complaining of a progressive, painful restriction of mouth opening for over 2 months. Her past history included two episodes (between 1997 and 2007) of left temporomandibular joint (TMJ) dislocation, which resolved without intervention. Subsequently, she noted clicking of the left TMJ during jaw movement. Clinically, the patient’s face showed slight asymmetry only, and her skin color was normal. There was a 4-mm deviation of the midline to the right side (Fig. 1). Her mouth opening was limited to 15 mm. There was no history of trauma in the region.

Imaging findings

A panoramic radiograph of the patient showed a radiopaque area on the left condylar region, which was of similar density to the adjacent bone (Fig. 2). Coronal, axial, and three-dimensional computed tomography images clearly demonstrated a lesion with cartilaginous structure developing from the condylar head. There was a pedicle between the condylar head and the lesion (Fig. 3).

Operative findings

On March 8, 2008 the tumor was resected under general anesthesia with endotracheal intubation. An extra-oral approach along the anterior border of the auricle was used, and the ascending ramus of the mandible was

Figure 1  The midline deviation to the left side can be seen before surgery.

Figure 2  A panoramic radiograph of the patient shows a radiopaque area on the left condylar region of similar density to the adjacent bone.

Figure 3  Coronal computed tomography cross section shows the margins of the osteochondroma.
exposed as far as the top of the condylar process (Fig. 4). A vertical osteotomy was then performed using a reciprocating saw from the pedicle to the condylar head. The entire tumor was removed, while preserving most of the condylar region and the disk. Fig. 5 shows osseous tissue resected from the lateral aspect of the mandibular condyle.

Histopathological findings

The size of the excised tumor was approximately $1.8 \times 1.2 \times 1.1$ cm (Fig. 5). Results of a histopathological examination revealed that the tumor of the left condylar process of the mandible was divided into three layers, namely, fibrous tissue (F), cartilaginous tissue (C), and cancellous bone (B) (Fig. 6). These findings are consistent with OC.

Postoperative course

At approximately 1 week postoperatively, the pain resolved and interincisal mouth opening exceeded 25 mm. 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 were 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 a 2 mm deviation of the midline to the right side Fig. 7).

One year after the surgery there was no evidence of recurrence, nor were any complications encountered (Fig. 8).

Discussion

OC of the mandibular condyle is a benign tumor. It may cause a gradual progressive shift in occlusion, with deviation of the midline of the chin toward the unaffected side. This results in facial asymmetry and malocclusion. It can also cause acute pain and limited mouth opening.5,6 However, the patient in this case presented with minimal facial
asymmetry, but with significantly limited mouth opening. The reason may be that the osseous tumor tissue within the condylar head impinged upon movement of the mandible. The standard recommended treatment is complete resection of the tumor with conservation of the surrounding bone. Conservative resection preserves most of the condyle area by performing tumorectomy in multiple fragments and minimal reshaping of the condyle by burring. 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. The choice of reconstructive option depends on the resulting defect. Options include free costochondral grafting, free flaps, orthognathic surgery, prosthesis, and sliding osteotomy.

However, conservative condylectomy with articular disk repositioning combined with orthognathic surgery is also an acceptable option for the treatment of condylar OC. Wolford et al. presented six patients with OC of the mandibular condyle treated with conservative condylectomy. No recurrence of the tumor was encountered in any of the cases after a mean follow-up of 51 months. In the series of 34 cases of OC of the mandibular condyle described by Peroz et al., 26 cases were treated with total condylectomy, whereas nine patients underwent conservative resection of the OC. No recurrence was reported among cases treated with condylectomy, whereas two recurrences were observed among the nine cases treated with conservative resection. Holmlund et al. prospectively studied five patients over 5 years of postoperative follow-up. All patients underwent surgical condylectomy and reshaping of the condylar neck was performed. The condylar neck was then positioned underneath the preserved TMJ disk. All the patients were free of recurrence at 5-year follow-up, and all had normal mandibular function and occlusion.

In our opinion, the choice of therapeutic method for OC of the condyle is dependent on the size and location of the tumor, as well as on the involvement of adjacent structures. In the present case, the tumor was pedunculated and situated on the anteromedial surface of the condyle, without invading the body of the condyle. Therefore, we opted for conservative excision of the tumor, preserving both the condyle and the disk. One-year follow-up suggests that conservative treatment was sufficient to cure the tumor and correct TMJ function.

Conflicts of interest
The authors have no conflicts of interest relevant to this article.

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