Using Conservative Condylectomy for Management of a Large Osteochondroma of the Mandibular Condyle With 6-Year Follow-up

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Abstract: Osteochondroma is a hamartomatous proliferation of cartilaginous tissue, which is the most common benign tumor of the long bones, but is relatively rare in the maxillofacial region. Most cases of mandibular condylar osteochondroma manifest with facial asymmetry or malocclusion with limited temporomandibular joint movements. Several approaches for management of this lesion have been proposed, as conservative condylectomy technique. This procedure has been suggested a valid approach to minimize facial asymmetry, contributing to the recovery of occlusion associated with no local tumor recurrence, and without condylar reconstruction procedure. Therefore, this article aims to describe a clinical report of a true osteochondroma of the mandibular condyle in a 35-year-old patient who was successfully treated using conservative condylectomy procedure.

Key Words: Bone tumor, craniomandibular disorders, facial asymmetry, osteochondroma, mandibular condyle, surgical management

Osteochondroma, also known as osteocartilaginous exostosis, is considered as a hamartomatous proliferation of cartilaginous tissue. This lesion is the most common benign proliferation of the long bones, but is relatively rare in the maxillofacial region, usually occurring in the mandible. Osteochondroma of the mandible is often developed in the coronoid process, followed by the condyle with fewer than 50 cases reported worldwide.¹⁻³

Osteochondroma is almost painless and grows slowly, causing limited movement of the mandible. Therefore, malocclusion in the form of a lateral open bite on the contralateral side and progressive facial asymmetry are common findings in most cases of condylar osteochondroma.⁴ Thus, literature reveals this lesion should be removed because of this dysfunction and the possibility of malignant transformation.⁵

Several surgical approaches have been suggested for the treatment of condylar osteochondromas.⁶⁻⁷ If total condylectomy is performed, immediate or delayed condylar reconstruction usually with a costochondral graft or total joint prosthesis should be done. On the other hand, literature reveals a conservative condylectomy technique, which is suggested a valid approach to minimize facial asymmetry, contributing to the recovery of occlusion associated with no local tumor recurrence and without condylar reconstruction procedure.⁸⁻¹⁰ Thus, this article aims to describe a clinical report of a true osteochondroma of the condyle in a 46-year-old patient who was successfully treated using conservative condylectomy procedure.

CLINICAL REPORT

A 46-year-old man was referred to the Oral and Maxillofacial Surgery Division, “Dr. Mario Gatti” Municipal Hospital of Campinas, São Paulo, Brazil. The patient presented with complaint of increasing asymmetry of his facial features over a period of 7 years (Fig. 1). Clinically, the mandible deviated 10 mm to the left side. Mouth opening was limited to 32 mm. The opening pattern was an uncorrected deviation to the right side without pain in the right temporomandibular joint (TMJ). Protrusive movement and lateral excursions were restricted. In occlusion, right posterior open bite and cross-bite on the left side were present.

Panoramic radiographic examination showed an irregularly shaped lesion in association with the right condylar head. Computed tomography (CT) scans showed a large irregular calcifying mass in the area of the right condyle, which was growing in the anterior-medial direction (Fig. 2). At the same time, whole-body scintigraphy was carried out, in which an increased activity in the right TMJ was found (Fig. 3). Because of the slow growth, benign osteoma or osteochondroma was considered likely.

The TMJ was accessed by a preauricular approach under general anesthesia. The condyle and tumor were dissected subperiosteally. The lesion extended medially and anteriorly deep into the infratemporal fossa, where it formed a pseudoarticulation with the base of the skull. A conservative condylectomy below the head but high in the neck of the condyle was performed (Fig. 4). A lesion...
around 22 mm in height was excised, the condyle was reshaped, and the articular disk repositioned. It was easily removed in 1 piece. Occlusion was restored and stabilized by an occlusal splint. The postoperative course was uneventful, with a painless range of movement; the range of mouth opening increased to 45 mm, assisted by muscle exercises at 6 weeks postoperatively. The patient has been free of recurrence for 6 years, demonstrating good functional and aesthetic stability (Fig. 5).

Histopathologic examination of the specimen revealed a thickened cartilaginous cap over the head of the condyle and islands of cartilaginous material within the mandibular bone, confirming the diagnosis of osteochondroma.

DISCUSSION

Osteochondroma usually develops in the metaphysis of long flat bones, but rarely occurs in the oral and maxillofacial area, where it is generally associated with the coronoid process or the condyle. Osteochondromas are pedunculated or sessile lesions that generally grow away from the native site of growth, usually along the muscles and tendons attached to the native bone, but the cellular origin of this process is still controversial. These lesions continue to grow even after the patient attains skeletal maturity and usually manifest during the fourth decade with a mean age of 38.5 years and has a marginal female predilection of 1.2:1.0 to 1.5:1.0. Most cases of condylar osteochondroma manifest with facial asymmetry or malocclusion (ipsilateral posterior open bite, contralateral cross bite) with limited TMJ movements. These conditions may also be found in unilateral condylar hyperplasia and other differential diagnoses including osteoma, chondroma, giant cell tumor, myxoma, fibro-osteoma, fibrous dysplasia, fibrosarcoma, and chondrosarcoma. For these reasons, fewer than 50 cases of true osteochondroma affecting the mandibular condyle have been described in the English literature, because the clinical presentations of these conditions are similar. In addition, malignant change is rare in solitary osteochondromas, approximately 2% of cases. Thus, literature reveals this lesion should be removed because of this dysfunction and the possibility of malignant transformation.

Despite the common clinical features, a definitive diagnosis should always be based on clinical, radiological, and histological criteria. Conventional panoramic radiography and CT may help to delineate the anatomy of the lesion and surrounding structures. In addition, scintigraphy may be performed to detect the intense uptake in the lesion. The lesions usually point away from the joint space and can have a pedunculated stalk or sessile base, such as that found in this clinical report and observed by other authors. Several surgical approaches have been suggested for the treatment of condylar osteochondromas, including complete resection of the tumor, condylectomy with reconstruction, or selected tumor removal without condylectomy. Wolford et al reported a series of cases successfully treated by conservative condylectomy, which is a local resection just below the condylar head, reshaping of the remaining condylar neck, and repositioning of the articular disk. Therefore, the treatment of choice in this clinical report was conservative condylectomy, obtaining acceptable mouth opening ranges with reestablishment of the occlusion and the facial symmetry, such as found by other authors. When facial asymmetry persists after surgery, orthognathic surgery should be recommended for its correction.
In this clinical report, there has been no local recurrence, and dental occlusion was reestablished without further treatment after 6 years of follow-up. These findings are in accordance with reports from Wolford et al, Holmlund et al, and Friedrich et al arguing in favor of conservative condylectomy. In conclusion, conservative condylectomy should be the first option line for management of osteochondroma of the mandibular condyle.

REFERENCES