

Case Report

A case with bifid mandibular condyle causing mandibular dislocation

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Abstract. Bifid Mandibular condyle is a rare case, which is usually diagnosed after radiological examination or after physical examination of a patient who refers with temporomandibular joint disorders and pain. It is usually unilateral. A bifid mandibular condyle and mandibular dislocation were diagnosed in a 6-year-old boy who presented difficulty in closing his mouth. The patient had a history of trauma, due to a fall while running three months ago. Extracondyle was found to be located bilaterally close to the superomedial region of the zygomatic arch and was seen to be stuck at the temporal fossa. In this case, the extracondyle pulled the real mandibular condyle to the anterior by settling at zygomas' superomedial region. In this case, bifid mandibular condyle was the reason for mandibular dislocation.

Key words: Bifid mandibular condyle, mandibular dislocation, bifid condyle, temporomandibular joint

1. Introduction

Bifid mandibular condyle is considered to be a rare pathology of the temporomandibular joint. Since it was first reported by Hrdlicka in 1941 (1), very few cases have been encountered. Although the etiology of the disorder has been attributed to developmental and traumatic reasons (2) in some cases, the exact etiology is still unknown. In most of the cases, the bifid mandibular condyle reported in the literature is unilateral and predominantly located on the left temporomandibular joint (3). Bilateral mandibular condyle represents an uncommon subgroup of bifid mandibular condyles (4, 5).

2. Case report

A 6 year old boy referred to our clinic, he had severe open bite and only mandibular first molar were in contact. Mouth opening was 20 mm. According to the history of the patient, the symptoms started three months ago, after a fall during running. He had a trauma to the mandible and he was not able to close his mouth since this event. The patient had previously referred to another clinic with the same symptoms one month ago and mandibular reduction was performed under general anesthesia; however,

since this procedure was unsuccessful, the patient referred to the Gaziantep University Plastic Surgery Clinic. The clinical and radiological examination of head and neck region showed that there was no fracture or other pathologies at the joint, mandibula and zygoma (Fig. 1).



Fig. 1. Preoperative anterior view of the patient showing open bite deformity.

The patient and family had no systemic disease history. A panoramic radiography was performed and bilateral bifid mandibular condyle was diagnosed (Fig. 2). Computed tomography was performed to diagnose any pathology of the temporomandibular joint.

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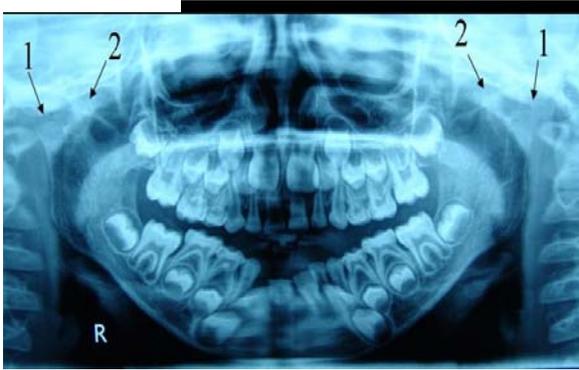


Fig. 2. The panoramic radiograph displaying the pathological extramandibular condyles.

Bilateral bifid mandibular condyle and anterior displacement of the mandibular condyle were confirmed (Fig. 3). Closed reduction under general anesthesia was planned for the anterior dislocation of the temporomandibular joint. After failure of the repositioning procedure, transecting the origins of the medial and lateral pterygoid muscles was performed for correction of the open bite deformity.

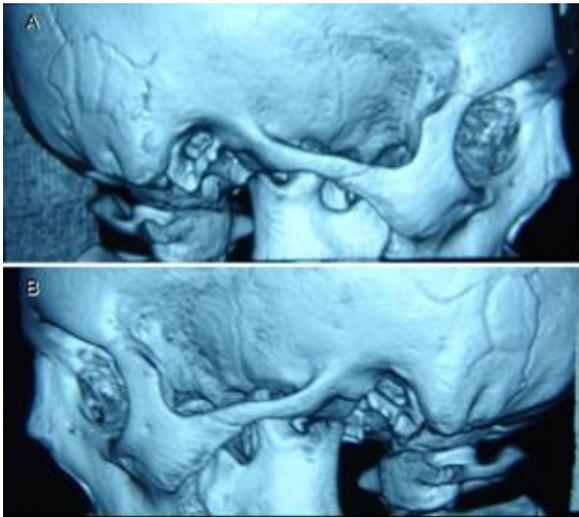


Fig. 3. The 3-dimensional computed tomography sections exhibiting the bifid mandibular condyles. A, right lateral view. B, left lateral view.

However, normal occlusion and temporomandibular joint reduction were not achieved following transecting of the origins of the pteryoid muscles. We thought that any intervention to the pathological extra condyles may interfere with the development of the mandible, so we left the bifid condyle in place. Eminectomy was performed in order to correct the occlusion. Normal occlusion was achieved with the help of eminectomy of the temporal bone. An occlusal splint, a soft diet, anti-inflammatory medication and physiotherapy were

applied post-operatively. The open bite deformity was recurred at the follow-up examination at the third postoperative week. Closed mandibular reduction was performed to the patient; however, the procedure was unsuccessful. A re-operation and removal of the extracondyle was suggested. However, the patient's family refused this procedure.

3. Discussion

Bifid mandibular condyle is a rare anomaly of the temporomandibular joint. In a prevalence study including X-Rays of 50.080 patients that was performed in Brasil by Menezes et al., they had found the prevalence of bifid mandibular condyle to be 0.018% (9/50.080) and of these, 22% were bilateral. No trauma or mandibular fracture was detected in these patients (6). A retrospective study performed using panoramic radiographs from 10.200 patients undergoing dental treatment has been reported by Miloglu et. al. In this article the frequency of the bifid mandibular condyle was found %0,3 in a Turkish patient population (7). Daniels and Ali reviewed that a total number of cases of bifid mandibular condyle in the literature had been found more than 50 cases (4). In Daniels and Ali meta-analysis, it has been reported that there were 84 bifid mandibular cases in the literature that included cadaver studies, case series and case reports. Of these, 17.85 % (15/84) were bilateral (4). Bifid mandibular condyle in the left temporomandibular joint is seen twice frequently as that in the right joint (3). Although the male/female ratio is approximately 1,5:1, no predilection for any age group has been observed for this disorder (4). Although not confirmed, acquired factors such as infections and irradiation may also play a role in the etiology (4). The exact etiology of this entity is still unknown, that it may be traumatic or developmental (8,9). In their meta-analysis that was performed in 2004, Antoniadis et al. found that there were histories of condylar trauma in 25% of the cases (8). Our case also had a history of trauma. However, it is not possible to explain the smooth contours of this bilateral anomaly by trauma. Furthermore, the patient's family did not report any symptoms of fracture, such as pain and swelling. The patient was referred to our institution because of the open bite deformity. No sign of mandibular condyle fracture was detected in the radiological examination. We thought that this anomaly in our patient's condyles was neonatal and that it is a factor that renders the dislocation of mandible

easier and re-reduction of this bone more difficult.

Up to date, only one case of bifid mandibular condyle has been reported to have presented with mandibular dislocation (10). However, a positive correlation between bifid mandibular condyle and mandibular dislocation has not been considered. In our case, the anteriorly-placed extracondyle had displaced to the superomedial part of the zygoma, also by the effect of trauma. As a result of this extracondyle displacement, the real condyle had extruded from the glenoid fossa and displaced through anteriorly.

Anterior, posterior, lateral and superior dislocations of the condyle have been encountered. Except anterior dislocation, the others are very rarely seen. In 1969, Allen and Young divided the lateral extrusions of the condyle into two (11). According to this, type 1 is lateral dislocation and type 2 is superolateral dislocation. All type 1 and type 2 condyle dislocation cases were examined by Bu et al. in 2007 (12). According to this metaanalysis of reductions performed after dislocation in 16 days at the latest, in 4 out of 17 cases in which lateral dislocation had been performed, complete reduction could not be achieved (12). Our case presented to our clinic 3 months after the trauma and the reason for the mandibular dislocation was found to be the existence of an extracondyle in bifid condyle that showed a dislocation resembling type 2 dislocations.

Closed reduction is a first line option to be attempted in treatment of mandibular dislocation. However, in late cases, open reduction and muscle transection are among other treatment options. In chronic dislocation older than three months muscle contraction occurs. For this reason, it could not be reduced by closed reduction to the temporomandibular joint. Muscle transections during the operation were not enough. The mandibular joint could be reduced by eminectomy. However, temporomandibular joint dislocation recurred at the 3rd postoperative week. During the operation, the extracondyles were not removed so as to provide joint reduction and to prevent inefficiencies in mandibular development. We believe that the extracondyles may induce to recurrence of the mandibular dislocation.

As a conclusion, bifid mandibular condyle is a predisposing factor for mandibular dislocation. The range of motion of the temporomandibular joint is limited due to the extra condyle, and therefore, anterior replacement of the condyle is more likely to occur.

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