



# Bilateral condylar fracture mimicking bifid condyle - A case report

Bifid kondili taklit eden bilateral kondil kırığı: Olgu sunumu

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## ABSTRACT

Mandibular fractures are one of the most common fractures of the midface region. Unilateral fractures of the condyle are three times as common as bilateral fractures. Bilateral condylar fracture without any other fracture is rare. Sagittal split or vertical fractures of the head of the condyle are uncommon injuries and are easily missed on routine radiographs. The diagnosis of condylar fractures is based on clinical features and radiological investigations. Radiographic images need to be interpreted carefully and correlated with clinical features to avoid misdiagnosis. Condylar fractures are usually managed conservatively or with closed or open reduction whereas bifid condyles are a developmental anomaly. We describe here a case of bilateral condylar fracture with a unique radiological presentation as bilateral bifid condyles.

**Keywords:** Bilateral condylar fracture, bifid condyle, vertical fracture

## ÖZ

Mandibüler kırıklar, orta yüz bölgesinde karşılaşılan en yaygın kırıklar arasındadır. Tek taraflı kondil kırıklarına çift taraflı kırıklara nazaran üç kata kadar daha çok rastlanılmaktadır. Herhangi bir diğer kırık olmaksızın çift taraflı kondil kırıkları nadiren görülmektedir. Kondil başının sagittal yarılması ya da dikey kırıkları yaygın olmayan yaralanmalar olmakla birlikte rutin radyografik incelemelerde kolaylıkla gözden kaçırılabilir. Kondil kırıklarının tanısı, klinik özellikler ve radyolojik incelemeler sonucunda konulur. Yanlış tanıyı önlemek amacıyla radyografik görüntüler dikkatli bir şekilde yorumlanmalı ve klinik özellikler ile bağdaşmalıdır. Kondil kırıkları genellikle konservatif yollarla ya da açık veya kapalı redüksiyon ile tedavi edilirken bifid kondiller gelişimsel bir anomalidir. Bu çalışmada bizler, çift taraflı bifid kondilleri taklit eden emsalsiz bir radyolojik görüntüye sahip bilateral kondil kırığı olan bir olguyu sunmaktayız.

**Anahtar Kelimeler:** Bilateral kondil kırığı, bifid kondil, dikey kırık

## INTRODUCTION

Mandible, due to its frontal location in the maxillofacial skeleton is highly susceptible to injuries. Mandibular fractures are one of the most common fractures of the midface region. Parasymphyseal fractures are encountered most often followed by condylar and subcondylar fractures (1). Condylar fractures constitute about 25%-50% of fractures of the mandible (1). Unilateral fractures of the condyle are three times as common as bilateral fractures.

Bilateral condylar fracture without any other fracture is rare (2). Muhammed et al. conducted a study which showed that the frequency of condylar fracture is highest in the age group of 21-30 years where males and females had equal predilection (50%) while the frequency increased to 55% in females in the 11-20 years age group (1). It has been demonstrated that condylar fracture is common in children younger than 14 years of age with an increased incidence in children younger than 6 years of age (1).

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The diagnosis of condylar fractures is by thorough history, clinical and radiographic examination. The basic principles of management include fracture reduction, restoration of dental occlusion, fixation and control of post-operative infections or complications (3). We describe

here a case of bilateral condylar fracture with a unique radiological presentation as bilateral bifid condyles. No such reports are available in the current literature.

### CASE REPORT

A 21 year old male patient reported to the dental hospital a day after a road traffic accident. Patient had a fall and landed on the chin following which there was bleeding from both the ears. He complained of pain in the area of TMJ on the right and the left sides and difficulty in mouth opening. On extra-oral examination, slight asymmetry was noted over the right and left TMJ areas. Lacerations were seen over the upper lip and the symphysis region. Mouth opening was restricted at 20 mm (Figure 1). Palpation revealed tenderness over the TMJ bilaterally. Intra-oral examination revealed ecchymosis in the floor of the mouth. Derangement of occlusion was not seen. Radiographic examination was done. OPG showed fracture of the right and left condyles with mesial displacement of the condylar heads. This gave an appearance of bilateral bifid condyles (Figure 2). TMJ open and closed view was done to check for the displacement of the condylar head during functional movements. Minimal movement of the condyle with respect to the articular eminence was seen which reiterated the restriction in mouth opening. Bifid appearance of the condylar heads was also apparent (Figure 3). A diagnosis of bilateral sagittal fracture of the condylar head was given. The patient was treated with intermaxillary fixation with modified arch bar to be kept in place for 3 weeks (Figure 4).



Figure 1. Extra-oral photograph showing 20 mm of mouth opening.

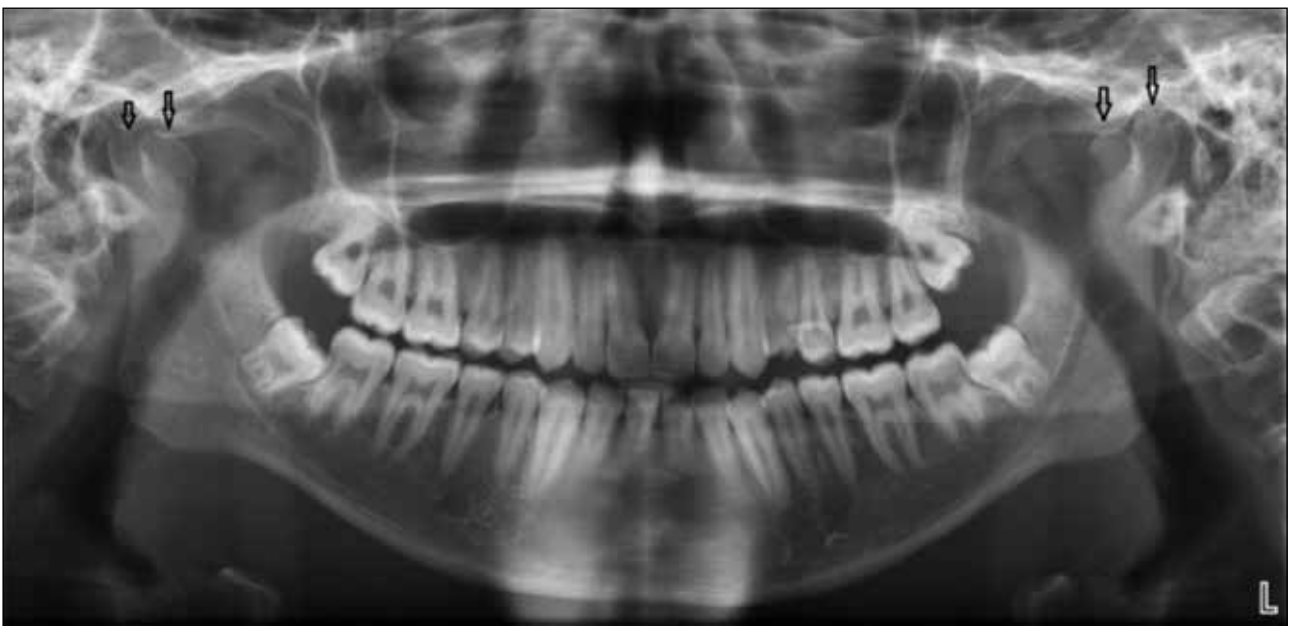


Figure 2. Orthopantomograph showing fracture of the right and left condyles giving an appearance of bifid condyles. (arrows).

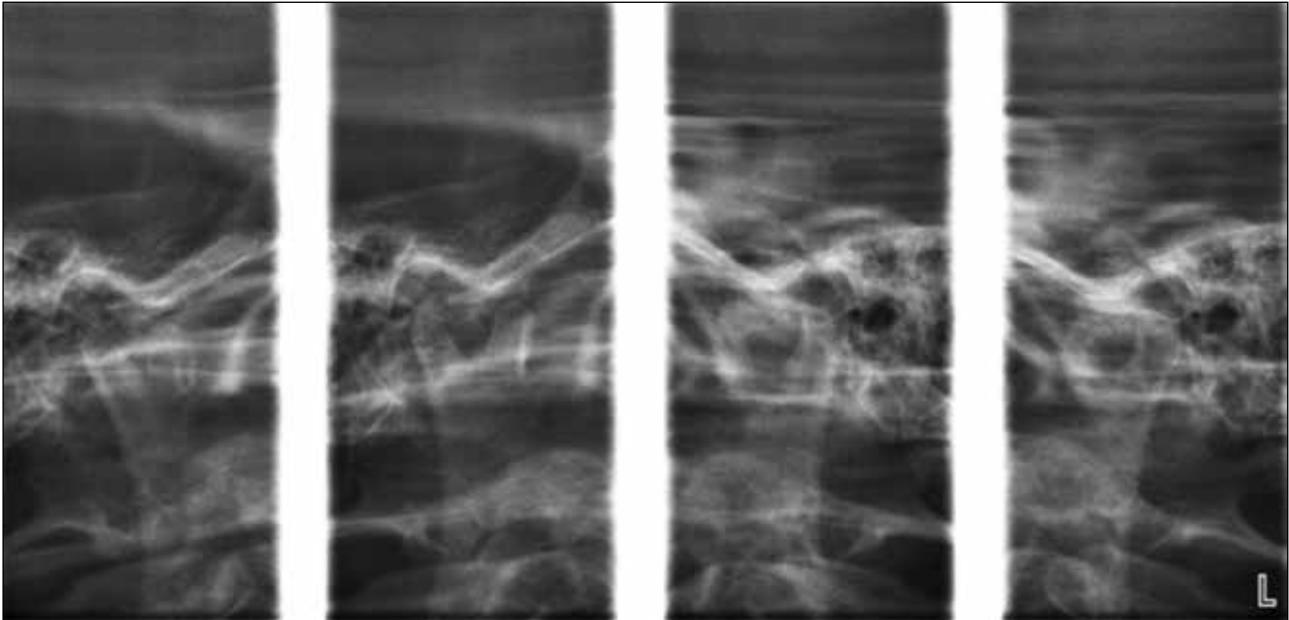


Figure 3. TMJ open and closed view showing bifid appearance of the right and left condyles.



Figure 4. Photograph showing maxillomandibular fixation.

## DISCUSSION

Fractures of the mandibular condyles are often met injuries of the maxillofacial skeleton. In current literature increased incidence of condylar fractures is seen in males. This may be attributed to the fact that in our social and economic set up males are more frequent drivers and are more involved in altercations, physical contact and sports (4). Sawazaki conducted a study which showed that males were more prone to have fractures of the mandibular condyle when compared to women with a male to female ratio of 3:1.5 (5). Sagittal split or vertical fractures of the head of the condyle are uncommon injuries and are easily missed on routine radiographs. Various authors have classified fractures of the mandibular condylar process. Kukula in his study mentions the most widely accepted classification as given by Yamaoki which is summarized in Table 1 along with the accompanying features of condylar fractures (6).

Table 1. The most widely accepted classification of condylar fractures and the accompanying features of condylar fractures (6)

Sl. No	Types of fracture	Accompanying features of condylar fractures
1.	Breaking off the head of the condylar process (above the attachment of lateral pterygoid muscle).	1. Displacement of fragments drawing the stump of the condylar process aside at the kept contact of the articular head with the articular acetabulum.
2.	Breaking the neck of the condylar process.	2. Fracture-subluxation. When the head of the condyle is leaning out from the articular cavity at an angle of 40 degrees and the surfaces of fragments touch one another.
3.	Breaking at the base of the condylar process, running obliquely backwards and downwards.	3. Fracture-dislocation. The head of the mandible is displaced beyond the articular cavity and tilted back from long axis in original position at an angle not bigger than 40 degrees; the contact of the surface of the fracture can be kept.
4.	Sagittal split of the condylar process.	4. Total detachment of the process with displacement of the smaller fragment into nearby tissue.

The diagnosis of condylar fractures is based on clinical features and radiological investigations. Classical clinical features like pain and swelling in the preauricular region on the side of fracture, trismus, malocclusion with premature closure on the fractured side with slight posterior open bite on the normal side, anterior open bite in case of bilateral fracture with displacement, problems in abduction and adduction of the mandible, restricted forward movement of the mandible, deviation of the mandible to the affected side on opening the mouth maybe seen (4,7). Most of these features were concurrent with our case. The timing and methodology of treatment are widely debated. Condylar fractures can be treated with open or closed reduction. With regard to fracture fixation various methods have been reported ranging from external fixation to rigid internal fixation (7). The absolute indications for open reduction were given by Zide and Kent in 1993 as displacement into the middle cranial fossa, impossibility of obtaining adequate occlusion with closed reduction, lateral extracapsular displacement and invasion by foreign body (8).

Intra-articular fractures are best managed conservatively with short term intermaxillary fixation followed by rehabilitation. A similar closed line of treatment was instituted in our case. But the protocol for extra-articular fractures differs. Surgical treatment of such fractures is seen to have a better prognosis yielding better results in terms of occlusion, masticatory function, mouth opening and bone morphology. However conservative management is preferred as surgery is technically demanding and risks the damage to facial nerve and development of unsightly scars (9). Recovery of mastication, on the basis of adaptive processes of TMJ is achieved by closed functional therapeutic regimen (CTR) as done in our case (10). Conservatively treated patients show an increased incidence of restriction in translation movement (10). Physiotherapy should be focused on rotational movement components and mouth opening exercises in the immediate post-operative phase (10). Current literature does not give an unequivocal answer to the method of management of mandibular condylar fractures. Every method has risks of complications which should be carefully considered before initiating treatment for individual cases. It is also necessary to pay attention to the rehabilitation of the patient as it plays a major role in the long term success of the treatment.

In this case report we have described bilateral antero-posterior splitting of the condylar head. Although this fracture does not seem to be reported elsewhere, it may be possible that these fractures are under reported and remain undetected.

## CONCLUSION

A clinician should always assess any injury to the face, especially to the mandibular region clinically and radiographically for damage to the condylar region. In our case the radiographic appearance of the fractured condyles mimicked that of a developmental anomaly and the correlation with the history and clinical features enabled an accurate diagnosis. Clinicians should be aware of such radiographic features indicative of underlying pathology and investigate the same thoroughly.

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