

## TRIFID MANDIBULAR CONDYLE: REPORT OF A RARE CASE

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### ABSTRACT

The incidence of bifid/trifid condyle is very rare. In most cases, it is an incidental finding on radiograph as only few cases have been reported with the symptoms of temporomandibular joint disorder. In the current era of advanced imaging modalities, the evaluation of such cases has become easier to accomplish. The present case of a 24 year old female describes the findings of trifid condyle on one side and bifid condyle on the other side associated with the history of trauma at 3 years of age. The patient had presented with no major complaints except for a slight reduction in mouth opening.

### INTRODUCTION

The presence of extra heads on the mandibular condyle which can be in the form of bifid (two heads) or trifid (three heads) or tetrafid (four heads) is a very unusual and rare finding.<sup>1</sup> The morphology may range from just a simple groove to separate condylar heads. As most of the cases are asymptomatic, this finding is usually diagnosed as an incidental finding on a radiograph.<sup>2</sup> Symptomatic patients present with the signs and symptoms of temporomandibular joint disorders like restricted mandibular movements and pain in the preauricular region. However with advancements in the field of imaging there has been an upsurge in the number of reported cases. Although, the exact aetiology is unknown, some circumstances such as trauma, teratogenic drug use, genetics, infection and exposure to radiation may be responsible for these variations.<sup>3</sup> This report presents a case of trifid mandibular condyle on one side and bifid condyle on the other side with a history of childhood trauma.

### CASE REPORT

A 24-year-old female reported with the chief complaint being a slight reduction in opening of her mouth. The past medical history and family history was non-contributory. The patient was born by a normal vaginal delivery. Examination revealed reduced mouth opening of approximately 15 mm, right and left lateral movement of 5 mm, and protrusive movement of 3mm (**Figure 1**). Temporomandibular joint (TMJ) examination revealed no

joint sounds, no tenderness of masticatory musculature and no bony pathology. Lateral profile revealed slight retrusion of the chin (**Figure 1**). There was no facial asymmetry with no deviation. Panoramic radiograph revealed bilateral bifid mandibular condyles with the articulation of articular eminence within the cleft between bifid condyles, reduced length of the ramus bilaterally, and a deep bilateral antegonial notch (**Figure 2**). There was no lytic or sclerotic lesion involving mandibular condyles, glenoid fossa, and articular eminence. For a more detailed evaluation as well as to rule out any TMJ pathology, three-dimensional (3D) CT reconstruction was performed. Reformatted axial, sagittal and coronal CT images showed bifurcated mandibular condyles **on both sides** (**Figure 3**). There was no evidence of any other bony pathology with normal contours of the articular surfaces. 3D reconstructed images on the right side showed bifurcated right mandibular condyle and a tubercle over bifurcation area may be suggestive of one or more rudimentary condylar heads (**Figure 4**) on the left side images showed trifurcated condylar heads (**Figure 4**). There was reduced ramus length bilaterally with deep antegonial notch. As there was no gross deformity, no functional impairment and the patient was not willing to undergo treatment, it was decided to follow up on a regular basis.

### DISCUSSION

The term “bifid” and “trifid” means two and three condylar heads. The occurrence of these anomalies is the

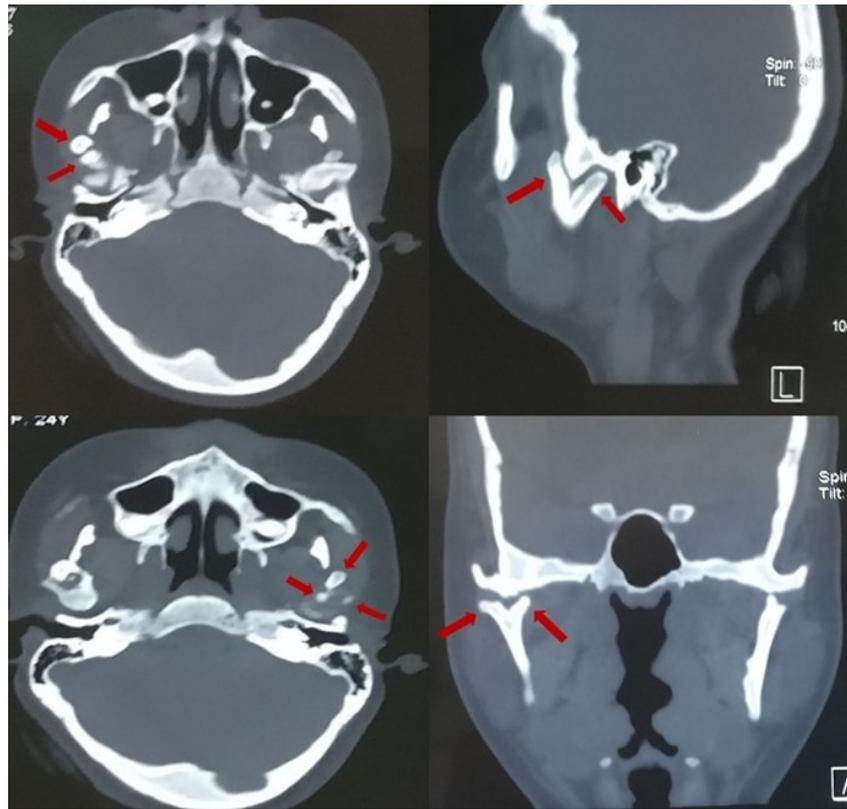
**Figure 1:** Photograph showing reduced mouth opening & retruded chin



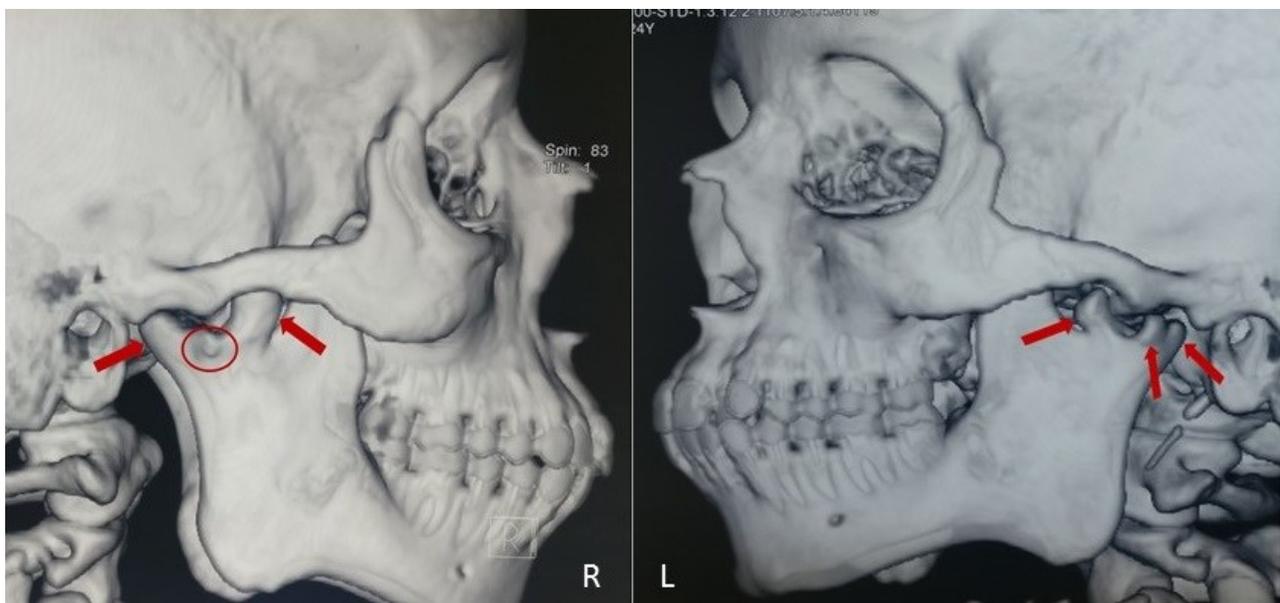
**Figure 2:** Panoramic radiograph showing bilateral bifid condyle (shown by arrows), reduced ramus height, deep antegonial notch



**Figure 3:** Axial, sagittal & coronal sections of CT scan showing bifid mandibular condyle (shown by arrows)



**Figure 4:** 3D reconstructed view showing bifid right mandibular condyle & trifid left mandibular condyle



a variation of the same clinical entity. The exact etiology and pathogenesis of this anomaly is not clear but most accepted theories postulate trauma as the origin.<sup>4,5</sup> Trauma to the growth centres of the mandibular condyle may lead to deficient remodelling and subsequently result in these types of morphological variations.<sup>5,6,7</sup> In addition, teratogenic drug use, genetics, infection and exposure to radiation may be responsible for these types of variations.<sup>8</sup> Only 8 cases of trifold mandibular condyle were found in the literature (Table 1)<sup>9,10,11,12,13</sup> Most of the cases include a previous history of trauma which led to the anomaly of bifid and trifold mandibular condyle hence it can be postulated that trauma is the most common aetiology behind this altered morphogenesis. Antoniadis et al mentioned that the literature revealed previous history of trauma in 25% of the bifid mandibular cases.<sup>5</sup> Sahman et al reported one case of tetrafid condyle which was totally asymptomatic.<sup>1</sup> Dennison et al suggested that the terminology of bifid mandibular condyle is used when segments of condyle are situated anteriorly and posteriorly in the sagittal plane and that it is not a pathological lesion nor the result of trauma rather it is a structural adaptation of mandibular condyle.<sup>17</sup> So its exact pathogenesis is still not elucidated. Condylar splitting may range from shallow groove to distinct heads of mandibular condyle. In our case, right mandibular

condyle was bifid but there was a well-defined tubercle in the condylar notch region which might be the origin of one more condylar head but it had not developed completely. Whereas on the left side there were 3 distinct condylar heads. Symptoms shown by these types of cases vary from case to case with predominant patients being asymptomatic and are diagnosed as an incidental finding on the radiograph. However, symptomatic cases present with the symptoms of temporomandibular joint disorder such as restricted mandibular movements, joint sounds, pain, deviation of mandible, facial asymmetry, and ankyloses.<sup>4,18,19</sup> Our patient presented with no other functional abnormalities except reduced mouth opening and restricted lateral excursion of the mandible. There was no facial asymmetry. When these types of incidental findings are seen on a panoramic radiograph and there are symptoms of joint sounds, restricted movements with asymmetry then all possible radiographic diagnosis for morphological anomalies of mandibular condyle should be evaluated and various conditions such as degenerative diseases involving TMJ, ankylosis, benign tumours and primary or metastatic malignant neoplasms should be ruled out by higher imaging modalities such as CT and MRI. No treatment is required in asymptomatic cases. Whereas symptomatic cases are managed conservatively when it

**Table 1: Literature Review of Trifold Mandibular Condyle**

Author	Age/ Sex	Side	Previous history of trauma	Symptoms
Artvinli & Kansu <sup>9</sup>	25/F	L	Yes, at 3 years of age	Incidental finding, deviation of mandible to left side
Antoniades et al <sup>10</sup>	15/M	L	Yes, at 5 years of age	Restricted mandibular movements, mandibular hypoplasia, snoring
Cagirankaya & Hatipoglu <sup>11</sup>	52/F	R	No	Incidental finding, deviation of mandible to right side
Sezgin & Kayipmaz <sup>12</sup>	31/F	R	Yes, at 11 years of age	Incidental finding, deviation of mandible to right side
Jha et al <sup>13</sup>	6/F	R	Yes, at 4 years of age	Restriction of mandibular movements
Warhekar et al <sup>14</sup>	37/F	R	Yes, at 3 months of age	Facial asymmetry, clicking on right side, deviation of mandible to right side
Prasanna et al <sup>15</sup>	26/F	R	No	Facial asymmetry, deviation of mandible to left side, mandibular hypoplasia
Rana & Dhaliwal <sup>16</sup>	17/M	R	Yes, at 7 years of age	Restricted mandibular movements, deviation of mandible to right side,

comes to TMJ disorders. Therapy may consist of analgesics, anti-inflammatory agents, muscle relaxants, physiotherapy and splints. Patients with a severely restricted mouth opening and ankyloses are treated with surgical modalities. Since our case had no gross functional abnormalities, facial asymmetry except reduced mouth opening and was not willing to undergo treatment, she was kept under a follow up plan.

### CONCLUSION

Clinicians should be aware of the morphological variations of mandibular condyle which may be observed during routine radiographic examination. Appropriate imaging modalities should be used to rule out other disorders involving TMJ. In general, asymptomatic cases do not require any treatment and should be kept under routine follow up and the patient should be informed about these variations. Symptomatic cases can be treated conservatively.

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