Unilateral Aplasia of Mandibular Condyle: A Rare Case Entity

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ABSTRACT  
Aplasia of the mandibular condyle is extremely rare when not seen in association with or as a part of any syndrome. The incidence is estimated to be 1 in 5,600 births. Growth disturbances in the development of the mandibular condyle may occur in utero late in the first trimester and may result in disorders, such as aplasia or hypoplasia of the mandibular condyle. We report a case of aplasia of left mandibular condyle along with hypoplasia of right condylar head in a 20-year-old female patient. The patient reported to the clinic with the complaint of proclined upper front teeth, wanting to improve her esthetics. Clinical, conventional radiography and computer tomographic studies revealed the complete absence of condyle on the left and hypoplasia of the head of mandibular condyle on the right side. The etiology was unknown and on the basis of history, clinical study and radiological examination it was suggested to be of developmental origin.  

Keywords: Mandibular condyle, Condylar hypoplasia, Condylar aplasia.  

INTRODUCTION  
Aplasia of the mandibular condyle without any other facial malformations is extremely rare, but has been reported previously (Prowler and Glassman, 1954). It is one of the several manifestations of varying expression in syndromes including hemifacial microsomia, Goldenhar syndrome and Treacher Collins syndrome.1-3 The incidence is estimated to be 1 in 5,600 births, with Treacher Collins syndrome even more rarely seen (Godin et al 1990).1 When not seen in conjunction with any other developmental anomalies, aplasia of the mandibular condyle is an extremely rare condition.4 The literature also suggests Proteus syndrome, Morquio syndrome and auriculocondylar syndrome, which can demonstrate condylar malformations 5-6 and condyle agenesis.7-8 In each of these conditions, in addition to condylar aplasia, there are other facial or skeletal malformations. In the present report, a patient with hypoplasia of head of right mandibular condyle and aplasia of left mandibular condylar head is studied.  

CASE REPORT  
A 20-year-old female patient reported to the Outpatient Department of Chhattisgarh Dental College and Research Institute, Rajnandgaon, with the chief complaint of unesthetic appearance due to protruded upper anteriors. The condition has been present since childhood, but due to unfavorable socioeconomic conditions, the patient has not sought assistance previously. Clinical history revealed that patient has been born at home but the delivery was uneventful and there has been no history of trauma or hospitalization or infection to the ear or surrounding tissues.  

Clinical examination revealed bilaterally symmetrical mandible with prominent angles and severely retruded chin presenting the appearance of bird facies. Her facial profile was convex and there was incompetent upper lip with absence of lip seal. Inflammation of marginal gingival in lower anterior region was present (Figs 1 and 2). Condylar head was not palpable on either side during opening or closing movements.  

Another relevant feature noted was limping of left leg which was reported to be present from childhood without any history of trauma or infections in that area.  

No other important clinical, extraoral or intraoral findings were observed. After clinical examination, a radiographic examination was indicated for further evaluation of the case.  

Panoramic examination revealed a small, deformed condylar head and short neck on the right side with increased thickness of the ramus on the same side. On the left side, there was a complete absence of the condyle. Antegonial notch of both sides were prominent with that on the right side more accentuated (Fig. 3). The results of the preliminary radiographic examination led to a CT study. Helical slices of 1 mm thickness with 1 mm of table feed, without any gantry inclination both open and closed mouth in axial and coronal planes were obtained. CT study revealed shallow left TMJ space with thin condyloid process and complete absence of head of condyle on the left side. Right side condyloid head is of reduced dimension while joint space is within normal range. TMJ movement is
present bilaterally in both opening and closing. There was no evidence of bone erosion or destruction, the bone density was also reported as normal (Figs 4 and 5).

Extraoral radiographs prescribed were AP view of pelvis, PA view of chest and lateral view of cervical spine to detect the cause of limping and rule out any other associated disorders. The chest PA view report was normal. AP view report suggested congenital bilateral hip dislocation. Lateral view of cervical spine indicated mild cervical spondylosis.

Her vital signs were in the normal range. The other biochemical tests performed were liver function test, serum acid phosphatase, serum alkaline phosphatase, serum calcium and serum phosphorous. All the values were within normal range.

On the basis of clinical and radiological examinations, the diagnosis was suggested as agenesis of condylar head of the left side and hypoplasia of head of condyle of the right side. The patient was referred to maxillofacial surgeon for cosmetic surgical treatment.

**DISCUSSION**

On the basis of clinical examination alone, it was suggested that the case was that of developmental defect of mandible, possibly hypoplasia of both the condyles. This was opined since the maxilla was of normal morphology and size clinically and the mandible was extremely retrognathic presenting the appearance of bird facies with proclined maxillary anteriors. Further, the mandibular condyles were not palpable on opening and closing movements. Since there was no history of any trauma or surgery, the case was clinically inferred as bilateral hypoplasia of mandibular condyle.

Further, the radiological picture based on OPG and CT scan revealed that though the normal development of condyles was hampered on both sides, the left side presented the picture of total aplasia of condylar head with hypoplasia of the right condyle.

Condylar hypoplasia of varying degrees from minimal to almost complete may occur because of abnormal growth and development of the condyle. During growth of the condyle in the human fetus both prenatal and postnatal, the primitive joint within Meckel’s cartilage (before the malleus and incus form) functions briefly as a jaw joint, with mouth-opening movements having started at 8 weeks postconception, well before development of the definitive temporomandibular joint (TMJ) (Table 1). When the TMJ forms at 10 weeks, both the incudo-malleal and definitive jaw move in synchrony, for about 8 weeks during the fetal stage. Both are moved by muscles supplied by the same mandibular division of the trigeminal nerve.10
The TMJ develops from initially widely separated temporal and condylar blastemata that grow toward each other. Between the 10th and 12th weeks postconception, the accessory mandibular condyle cartilage develops as the first blastema, growing toward the lateral developing temporal blastema. Thus, in this case where there is complete aplasia or agenesis of the left condylar head, the defect probably occurred as a developmental defect before tenth week postconception when the mandibular condyle cartilage would have started its development. The TMJ of the newborn child is quite mobile. Only after eruption of the permanent dentition at 7 years does the articular tubercle begin to become prominent; its development accelerates until the 12th year of life. When the condyle is absent, there is no well-defined fossa or tubercle. In this case too the CT study depicted a shallow joint space and underdeveloped glenoid fossa and articular tubercle. Hence, it can be stated that the defect on the left side is definitely has occurred in the prenatal period and is of developmental in origin. The most common cause of condyle alteration is mechanical trauma during active growth, although other causes may include inflammation in the TMJ area, rheumatoid arthritis and radiotherapy. Parathyroid hormone-related protein deficiency also affects bone formation and chondrocyte differentiation, which leads to condyle malformation. In case of this patient, no history pointing to that direction has been detected, additionally, no syndrome can be associated as there are no other positive findings. So if we take into consideration the defect on the right side in the absence of any other etiological factor or family history, it can safely be said the hypoplastic defect is also of developmental in origin.

In conclusion, it can be said that it is a rare case of left condylar total aplasia/agenesis and right condylar hypoplasia not related to any clear pathological disorder. This is a case of unknown etiology, it was thoroughly examined and, based on clinical and radiographic findings, we suggest that this case is of developmental origin.

**REFERENCES**


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**Table 1:** Classification of the congenital deformities and developmental abnormalities of the mandibular condyle in the temporomandibular joint

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<thead>
<tr>
<th>Classification of congenital deformities and developmental abnormalities of the mandibular condyle in the temporomandibular joint</th>
<th>Hyperplasia or aplasia of the mandibular condyle</th>
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<tr>
<td>Hypoplasia or aplasia of the mandibular condyle</td>
<td>Primary condylar aplasia and hypoplasia</td>
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<td>Mandibulocervical dysostosis (Treacher Collins syndrome)</td>
<td>Mandibulofacial dysostosis (Mandibulofacial dysostosis)</td>
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<td>Hemifacial microsomia (first and second branchial arch syndrome)</td>
<td>Oculoauriculoventral syndrome (Goldenhar syndrome)</td>
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<td>Oculoauricolodysplasia (Hallermann-Streiff syndrome)</td>
<td>Hurler’s syndrome</td>
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<td>Hurler’s syndrome</td>
<td>Secondary condylar hypoplasia</td>
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<td>Hyperplasia</td>
<td>Bilifidity (double mandibular condyle, double-headed condyle)</td>
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