

# Unilateral Condylar Hypoplasia: A Case Report

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## ABSTRACT

We report a case of unilateral condylar hypoplasia in an 18-year-old male patient who presented with progressive facial asymmetry, clicking and tenderness of the temporomandibular joint. Clinical examination, conventional radiographs, and 3dimensional computed tomography images revealed hypoplasia of the condyle on the left side. Early diagnosis by correlating clinical and imaging features is paramount in the management of these patients.

**Keywords:** Condylar hypoplasia, Condylar aplasia, TMJ

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## INTRODUCTION

Condylar hypoplasia is a bone disease characterized by the decreased development of one or both the mandibular condyles.<sup>1</sup> It presents as progressive facial asymmetry which is usually asymptomatic. Condylar hypoplasia may be congenital or acquired and each of these may present as unilateral or bilateral entity.<sup>2</sup> Early diagnosis and management of this condition is the key for satisfactory results in such patients.

## CASE REPORT

A 18 year-old patient reported to the Department of Oral Medicine and Radiology with complaints of progressive facial asymmetry since childhood and clicking sound from left Temporomandibular Joint (TMJ) since last 3 years associated with mild tenderness over the joint since last 1 month. Pre-natal, natal and post-natal history was uneventful and patient was unable to recall any episode of trauma associated with the mandible.

Extra-oral examination revealed gross facial asymmetry of the lower third of the face with deviation of the mandible to the left side.(Fig. 1) There was evident reciprocal clicking of the TMJ on the left side with associated tenderness on palpation of the left TMJ. Inter

incisal mouth opening was 42 mm. Intra oral examination revealed generalized plaque and calculus and a missing 26, owing to the extraction which the patient had undergone 2 years back. The mandibular midline was shifted to the left side. Panoramic radiograph (Fig.2) revealed a poorly developed condylar head on left side associated with a short condylar neck and an overall decrease in the height of the ramus of the mandible on left side. The antegonial notch was more prominent on the left side as compared to the right side. Lateral cephalogram (Fig.3) revealed comparative difference in the height of the mandibular ramus and body of left and right side. TMJ views (open and close) confirmed the findings of panoramic radiograph.(Fig.4) The condylar head on left side was small in size with flattened articular surface. There was increase in the intra-articular space and condylar neck was stunted. Conventional computed tomography (CT) was advised for the patient to decide on further course of management. Coronal sections of CT (Fig. 5) revealed a significant reduction in the size of the condyle and the ramus of the mandible on left side as compared to the right side. Axial CT sections (Fig. 6) were suggestive of the altered shape of the condylar head and an increase in the intra-articular space on the left side. Three dimensional CT reconstructions (Fig. 7 and 8) revealed a decrease in both height and length of the mandible on left side with evident deviation towards left side. There was no evidence of bony or soft tissue ankylosis associated with the TMJ on any side. The patient was referred to the Department of Oral and Maxillofacial surgery and orthodontics and maxilla facial orthopaedics for further management.



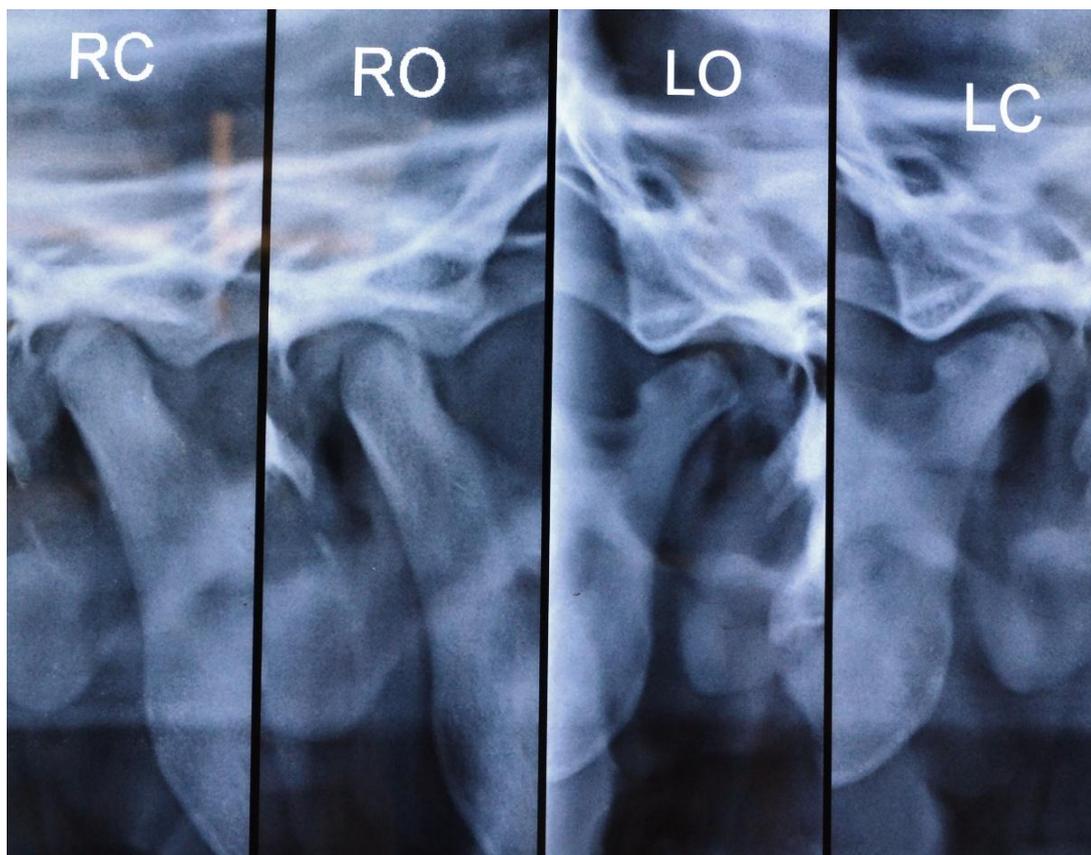
**Fig. 1:** Extra-oral photograph of the patient showing facial asymmetry of the lower third of the face with deviation of the mandible to the left side.



**Fig. 2:** Panoramic radiograph showing a poorly developed condylar head on left side associated with a short condylar neck and an overall decrease in the height of the ramus of the mandible on left side. The antegonial notch was more prominent on the left side as compared to the right side.



**Fig. 3:** cropped view of Lateral cephalogram showing comparative difference in the height of the mandibular ramus and body of left and right side.



**Fig. 4:** TMJ views (open and close) showing small condylar head on left side with flattened articular surface and an increase in the intra-articular space.

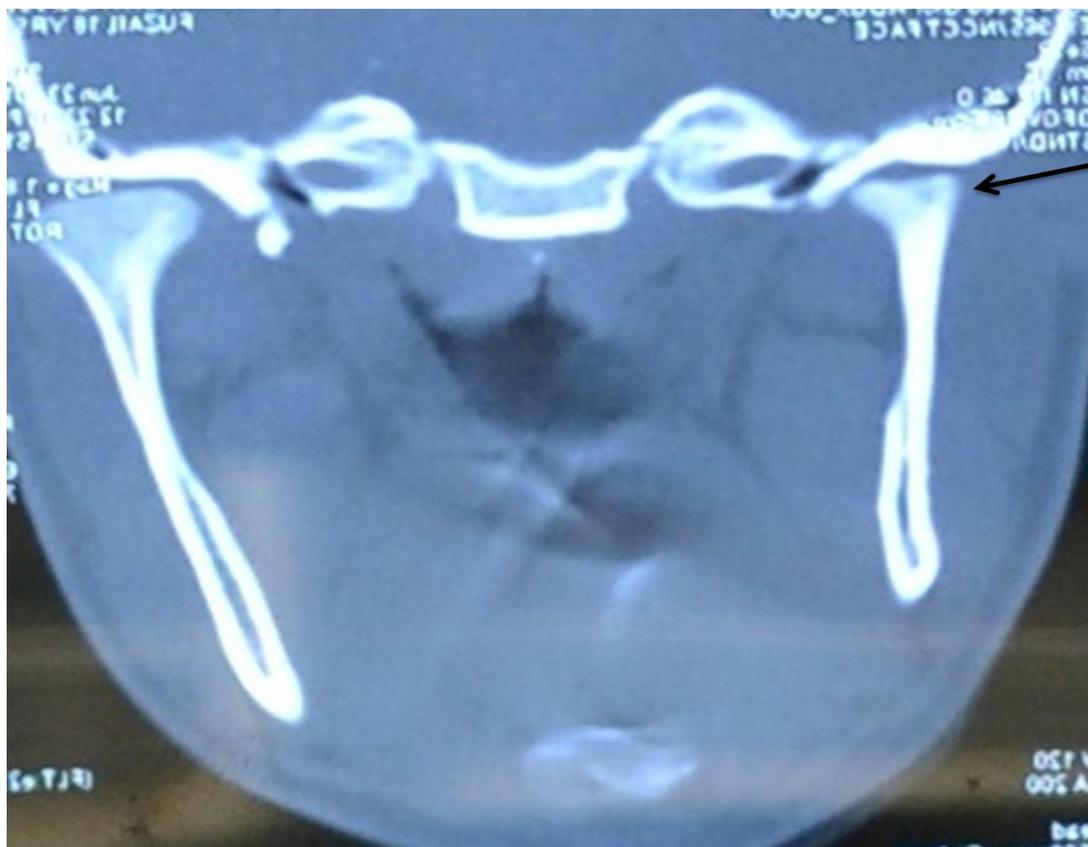


Fig. 5: Coronal sections of CT showing a significant reduction in the decrease in the mediolateral width of the condyle on left side as compared to the right side.

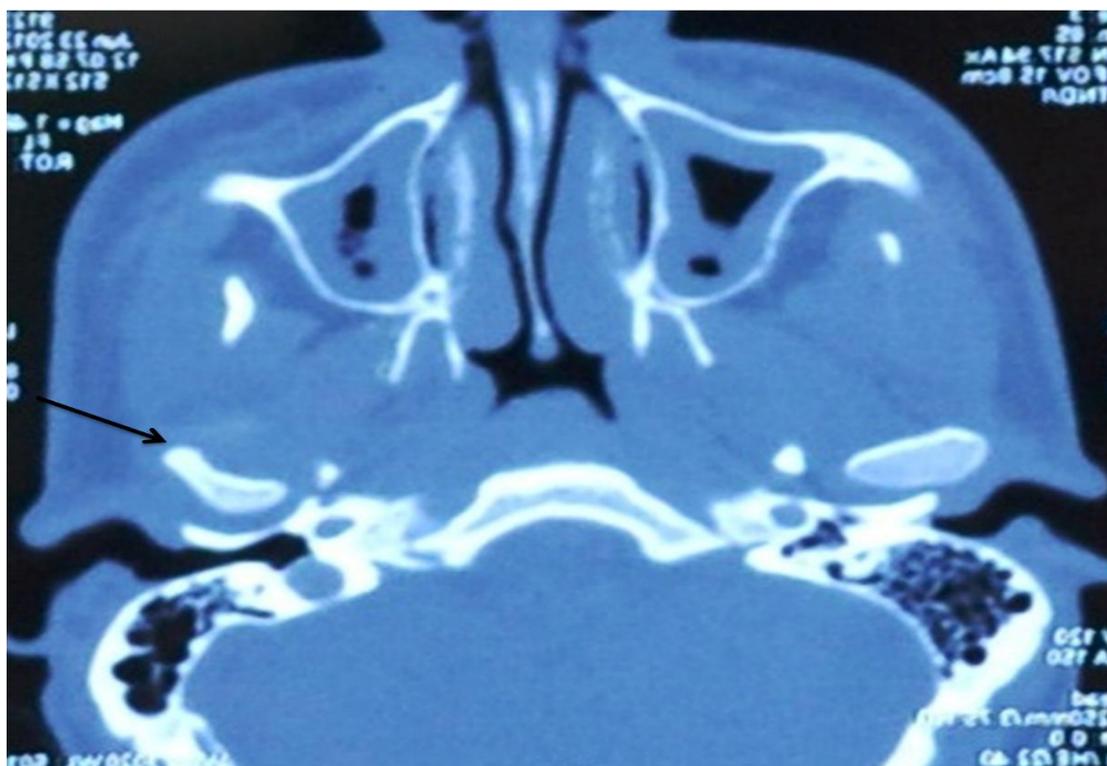
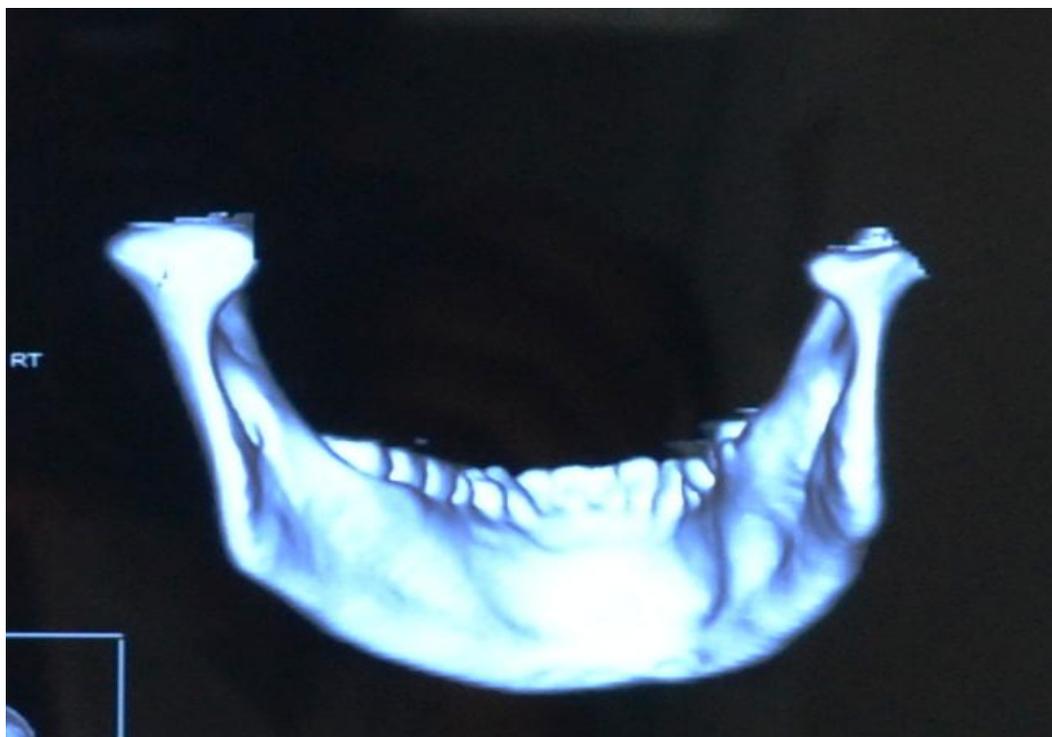


Fig. 6: Axial CT sections showing altered shape of the condylar head and an increase in the intra-articular space on the left side.



**Fig. 7: Three dimensional CT reconstruction of the mandible seen from the lingual side showing overall decreased size of the condylar head and ramus of the mandible**



**Fig. 8: Three dimensional reconstruction in the sagittal plane comparing right and left side of the mandible.**

## DISCUSSION

Developmental disturbances involving the TMJ may result in anomalies in the size and shape of the condyle. Condylar hypoplasia, hyperplasia, and bifid condyle are commonly observed developmental disturbances of TMJ.<sup>3</sup> Condylar hypoplasia is associated with an absent condyle in severe cases and a short and poorly formed condylar head in milder cases. It may be either congenital or acquired. Congenital condylar hypoplasia presents at birth and is often associated with syndromes of head and neck. The most commonly observed

syndromes associated with condylar hypoplasia are Hemifacial microsomia, Treacher Collins syndrome and Hallermann-Steiff syndrome.<sup>4-6</sup> Congenital hypoplasia that is idiopathic in origin is characterized by unilateral or bilateral underdevelopment of the condyle beginning early in life. Acquired condylar hypoplasia occurs as a result of interference of the normal development of the condyle due to trauma, infection, radiation, endocrine disorder, mucopolysaccharidosis or systemic arthropathy.<sup>7-9</sup> Both congenital and acquired condylar hypoplasia may be unilateral or bilateral. There have

been previous reports of aplasia or congenital condylar hypoplasia without any syndrome, family history or any history of trauma.<sup>10</sup> The present case presented as unilateral, non-syndromic, congenital hypoplasia of the left condyle.

In cases of condylar hypoplasia, affected side fails to grow downward and forward leading to three-dimensional asymmetry. The mandibular skeletal midline deviates to the affected side, a lack of vertical growth on the same side produces a cant of the occlusal plane, and mandibular retrognathia is seen as a result of the hypoplasia. The lower border of the mandibular corpus and angulus on the contralateral side is usually flattened. The severity of the deformity depends on the degree of hypoplasia or agenesis of the tissues involved, and the more severe the deformity, the greater the probability that it will worsen with growth.<sup>11</sup>

The diagnosis is arrived at by a correlation of the clinical findings with the radiological findings. Plain film radiography is generally inadequate for assessing disorders of the TMJ. Three dimensional imaging in form of conventional CT OR cone beam computed tomography (CBCT) must be considered in the investigation of the osseous morphology of the temporomandibular joint. Moze et al<sup>12</sup> have highlighted the importance of CBCT in arriving at a diagnosis for the patient of unilateral condylar hypoplasia.

Treatment consists of surgical shortening of the unaffected side of the mandible or lengthening of the affected side. Presurgical orthodontic therapy helps optimize results. In growing patients, orthopedic treatment with functional appliances is often helpful in correcting deformities or in reducing the worsening of deformities with growth.<sup>13-15</sup> If the facial asymmetry develops progressively during orthopedic treatment, mandibular distraction osteogenesis or surgical reconstruction of the temporomandibular joint with a costochondral graft of the remaining ramus tissue may be considered.<sup>11</sup> After the patient has stopped growing, skeletal deformities can be corrected only by double jaw surgery and/ or genioplasty or unilateral mandibular augmentation.<sup>16</sup>

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