Case Report

JRAD Journal of Research and Advancement in Dentistry

J Res Adv Dent 2017;6:3:189-192.

Unilateral Condylar Hypoplasia: A Case Report and Discussion

Saurabh Jain[1*] Shailaja Jain[2] Mridul Khanduri[3]

[1]Reader, Department of Orthodontics and Dentofacial Orthopedics, Himalayan Institute of Dental Sciences, Paonta Sahib, India.
[2]Reader, Department of Orthodontics and Dentofacial Orthopedics, Uttaranchal Dental and Medical Research Institute, Dehradun, India.
[3]Professor and Head, Department of Orthodontics and Dentofacial Orthopedics, Uttaranchal Dental and Medical Research Institute, Dehradun, India.

ABSTRACT

Background: We report a case of unilateral condylar hypoplasia in an 9-year old female patient who presented with progressive facial asymmetry with a normal range of mandibular movements. Clinical examination, conventional radiographs and 3dimensional computed tomography images revealed hypoplasia of the condyle on the right side. Early diagnosis by correlating clinical and imaging features is paramount in the management of these patients.

Keywords: Unilateral Condylar Hypoplasia, facial asymmetry, condylar hypoplasia.

INTRODUCTION

Condylar hypoplasia is defined as underdevelopment or defective formation of the mandibular condyle.[1,2]. 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. Hypoplasia of condyle is very rare, when not seen as a part of a syndrome. We are presenting a rare case of Non Syndromic condylar hypoplasia and its management. According to Shafer et al [3] ,congenital hypoplasia that is idiopathic in origin is characterized by unilateral or bilateral underdevelopment of the condyle,beginning early in life.

We report a case of unilateral condylar aplasia on the right side in a 9-year-old female. The patient reported to the department with a chief complaint of underdeveloped lower jaw. Clinical examination, conventional radiographs and 3D CBCT images revealed right condylar head flat and smaller in size and right coronoid process smaller in size and a normal condyle on the left side. The TMJ segment of right side was smaller and lying at inferior level as compared to left TMJ.

CASE REPORT

A 9 old female presented to the Department of Orthodontics and Dentofacial orthopedics,Uttaranchal Dental and Medical Research Institute,Dehradun, with a chief complaint of asymmetry of the lower third of the face and underdeveloped lower jaw, which was first noticed during childhood. At the anamnesis, there was no history of any trauma or any systemic diseases. There was no family history of the present problem. The patient was in good general health and did not give history of auricular infection or trauma to craniofacial region. History of presenting illness revealed that the deviation of chin to the right side of face first became apparent during early childhood and is progressively increasing in severity. Clinically, there was an obvious deviation of mandibular midline towards the right side of mandible in rest occlusion position. The range of mandibular movement was, however, normal.

EXTRAORAL EXAMINATION

Received: Mar. 11, 2017: **Accepted:** May. 4, 2017
***Correspondence Dr. Saurabh Jain.**
Department of Orthodontics and Dentofacial Orthopedics, Himalayan Institute of Dental Sciences, Paonta Sahib, India.
Email: saurabh_jain82@rediffmail.com

pISSN 2278-0076
eISSN 2321-9270

Fig 1: Intraoral and Extraoral photographs.

Fig 2: Extraoral photographs – SMV view and Cant of occlusion.

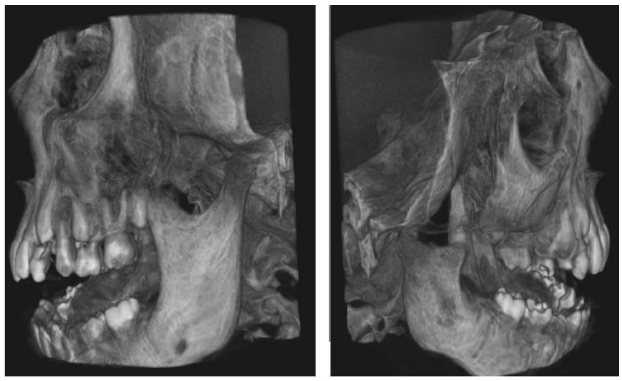

Fig 3: CBCT Scan images.

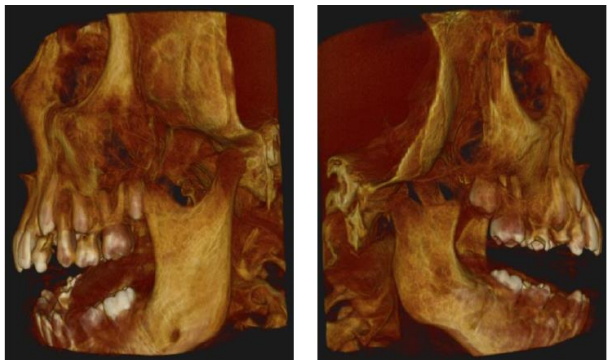

Fig 4: CBCT scan images.

Clinically, frontal view of face showed asymmetry at the lower third of face, flatting of the face on the right side with shifting of mandibular midline towards right. Left side condyle was not clearly palpable. The rest of the face showed no abnormalities. There was no shortening of right body of mandible. There was no defect of auricle or pre auricular area and no facial nerve paresis or paralysis. Opening of mouth was normal (interincisal distance 38mm). There was a deficiency of vertical growth on the right side.

INTRA ORAL EXAMINATION

Intra oral examination revealed Angle's Class I molar relation on both sides in mixed dentition and well aligned teeth in upper and lower arches. There was dental caries with respect to the deciduous teeth and collapsed bite on the right side due to extreme decay of deciduous teeth. The lower midline is visible shifted to the left side and there are no dental crossbites seen. Cant of occlusion is tilted upwards to on the right side compared to the left which is exaggerated due to the collapsed bite on the right side.

RADIOGRAPHIC FINDINGS

Panoramic radiograph with OPG and lateral cephalogram revealed missing normal condyle on the right side, shortening of condylar neck, ramus and normal body of mandible of the right side. There was marked antegonial notch on the right side. Cephalometric analysis revealed that the patient showed Class II skeletal pattern with retruded mandible and vertical growth pattern. Dental analysis showed normal inclinations of incisors. PA cephalometric analysis showed slight reduced development on the right side of maxilla and prominent reduced development of the right side of the mandible.

CBCT revealed hypoplasia of mandibular right condylar and coronoid process with deviation of mandibular midline to right side. Right TMJ revealed right condylar head to be flat and smaller in size and the right coronoid process to be smaller in size. The sigmoid notch on right side was shallow as compared to left side. Articular surface of glenoid fossa was relatively flatter on right side as compared to left side. The distance between articular surfaces (Articular surface of mandibular

condyle and articular surface of glenoid fossa) appears normal without any evidence of bony ankylosis. Antegonial notch on right side appears deeper and irregular in outline as compared to left. Maxilla and associated mid facial structures showed no more deviations from normal apart from a DNS of the nasal septum.

Radiographic Impression was that of Hypoplasia of mandibular right TMJ with hypoplastic condylar and coronoid process. Deviation of mandibular midline to right side is noted with Right TMJ at inferior level than left.

DISCUSSION

The congenital deformities and developmental abnormalities of the mandibular condyle can be classified as hypoplasia or aplasia, hyperplasia, and bifidity. Hypoplasia or aplasia of the mandibular condyle indicates underdevelopment or nondevelopment associated mainly with various craniofacial abnormalities. These may be either congenital or acquired.[4] Hypoplasia of the mandibular condyle without any other facial malformations is an extremely rare condition.[5] The main goals of treatment of acquired condylar hypoplasia in children are to establish a normal facial appearance and to provide effective function. A coordination of the interceptive orthodontic treatment and the surgical approach is needed to achieve these goals. The most important factor in the treatment of children is the elimination of late deformities or at least a minimization of these deformities.[6-8] Early detection and prompt treatment are imperative to restore esthetics and thus provide psychologic benefit to these patients.

The treatment options could range from hybrid appliances using functional jaw orthopedics and distraction osteogenesis at early stages and surgical treatment options in adult hood after the cessation of the growth.

In view of the fact that there could be asymmetries of the masseter and temporal muscles because of the pathology of the skeleton, neuromuscular activity of these muscles need to be studied by electromyography (EMG). The restoration of neuromuscular function is to be accomplished by using an upper acrylic plaque with soft material on the occlusal surfaces, which will be designed to encourage the patient to bite in a correct position.[9]

To correct overbite and midline and to enhance posterior vertical alveolar development on the right side and thereby correct the occlusal cant a functional hybrid appliance is proposed .This treatment plan will facilitate conservative approach to the skeletal problem utilizing the growth potential of the patient. Any residual ramal height deficiency could then be corrected with distraction osteogenesis.

A hybrid functional appliance with an asymmetric working bite is proposed in this case for the correction of the deformity on the right side as the patient is in a growing stage and to reduce the severity of the deformity.[10]

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Wright EF and Flaggert JJ. Acquired condylar hypoplasia: case report. Pediatric Dentistry 1993;15:427-8.

2. Hovel JH: Condylar hyperplasia. Br J Oral Surg 1963;1:105.

3. Shafer, WG, Hine, MK, Levy, BM. in: A Textbook of Oral Pathology. ed 3. Saunders, Philadelphia, PA; 1974:649

4. K. Kaneyama, N. Segami, and T. Hatta. Congenital deformities and developmental abnormalities of the mandibular condyle in the temporomandibular joint. Congenital Anomalies 2008;48:118–25,

5. S. Ozturk, M. Sengezer, S. Isik, D. Gul, and F. Zor. The correction of auricular and mandibular deformities in auriculo-condylar syndrome. Journal of Craniofacial Surgery 2005;16:489–92.

6. Epker BN, Fish LC. Dentofacial Deformities: Integrated Orthodontic and Surgical Correction. Vol II, St Louis,Mosby; 1986:949.

7. Proffit WR, White RP. Surgical Orthodontic Treatment. St Louis,Mosby; 1991:483–502.

8. Gorlin RJ, Pindborg JJ, Cohen MM Jr. Syndromes of the Head and Neck. 2nd ed. New York, NY: McGraw-Hill; 1976:546.

9. Arun,Fulya Kayhan, Meral Kiziltan. Treatment of condylar Hypoplasia with DistractionOsteogenesis: A Case Report. Angle Orthod 2002;72:371–6.

10. *Vig* PS, *Vig* KW. *Hybrid appliances*: A component approach to dentofacial orthopedics. Am J Orthod 1986;90:273-85.