

# Condylar Agenesis: A Rare Case Report Report and Novel Method of its Management

S.C. Anand, \*\*Balwant Rai, \*\*\*Virender Singh, \*\*\*\*Pankaj Bansal

\*M.D.S. Orthodontics, Oral and Maxillofacial Surgery, \*\*M.S. Forensic Odontology, Editor-in-Chief: Indian Journal of Forensic Odontology, \*\*\*M.D.S, Oral and Maxillofacial Surgery, G.D.C, Rohtak, \*\*\*\*Ex-M.D.S, Oral and Maxillofacial surgery, G.D.C, Rohtak

## Abstract

Cases of condylar agenesis as such are rare and present a multipronged problem involving development, growth and aesthetic of face as well as occlusal and dentition development problems. In the absence of any long term study and shortage of subject material, management protocol of problems associated with agenesis of condyle vary from institute to institute and there is no internationally accepted protocol for same. We are presenting a case of unilateral condylar agenesis with severe malocclusion along with its unique orthosurgical management that has never been published before. We propose to have future studies based upon our experience in this case so as to fine tune process and refine proposed treatment plan to manage adult case of unilateral condylar agenesis. Subject in discussion is a 17 year old boy with agenesis of left condyle and perfectly normal right side condyle resulting in deviation towards left side of face. Case was managed by right side vertical ramal osteotomy with advancing genioplasty along with orthodontic treatment concurrently.

## Key Words

Condylar agenesis, condyle, Orthodontic treatment

## Introduction

Underdevelopment or defective formation of condyle may be congenital or acquired. Congenital non formation of condyle is called condylar agenesis while poor development is called hypoplasia. Although both are distinct entity yet wrongly but very often these terms are used interchangeably. Once in adult age

group, it is difficult to ascertain whether non formation of condyle is congenital or due to condylar maldevelopment. During our search we were unable to find any substantial study over the topic.

## History

A 17 yr old male presented in O.P.D with complain of facial asymmetry which was increasing with age(Fig-1). Patient had history of normal birth with no history of trauma to facial region later in life. There was no history of any hormonal disturbance or premature birth. Any relevant positive family history was absent. He had absolutely no problem with mastication and was unaware of his severe malocclusion.

## Clinical Examination

General physical examination had no significant finding related to case. On local examination- deviation towards left was obvious, maxillary anterior teeth were protruded, midline shifted, chin retruded and molars were in class 2 malocclusion with lingual tilt. Mandibular anteriors were crowded. Absence of normal condylar contour on palpation of left side condylar region. Further examination confirmed absence of lateral pterygoid as well as temporalis and poorly developed masseter. Patient had restricted side to side movements but mouth opening and protrusion were within normal range.(of course with deviation). Though there was no abnormal finding related to zygoma, ear or frontal bone. Presence of autoimmune disease like rheumatism or scleroderma was also ruled out.

## Radiological Findings

OPG shows missing condyle and underdeveloped ascending ramus on left side. PA view shows deviation of chin to left(Fig-2).

## Reprint requests: S.C. Anand

House No.1286, Sector -6,  
Bahadurgarh, Haryana

## Identification of Problem and Defining Treatment Goal

1. Facial asymmetry and its correction.
2. Retruded chin and its advancement
3. correction of malocclusion
4. improvement in mastication and mouth movements
5. long term stability of treatment.

## Management

Firstly, orthodontic treatment was started with begg's technique

In order to correct dental midline, upright molars and retract maxillary anterior teeth and leveling arches. After 8 months of orthodontic treatment we decided to do a novel surgical intervention that takes advantage of absence of masticatory muscles on left side and hence absence of any significant resistance to the bodily movement of mandible towards left side. A extra-oral vertical ramal osteotomy was performed on right side to correct deviation of chin and to bring mandible forward. Proximal(part carrying condyle) was overlapped on distal part during fixation to reduce chin deviation(it was possible in this case as muscles on contralateral side did not provide significant resistance)(Fig-3). Second stage surgery includes advancing genioplasty with slight sliding of chin to right(Fig-4). After 2 months of healing period, orthodontic treatment was resumed and continued for 4 more months. Result achieved was esthetically pleasing and functionally acceptable. With straight and improved chin , retracted maxillary anteriors and class one occlusion in place, patient and we were satisfied men(Fig-5,6).

## Discussion

There has been sporadic case reports of condylar agenesis but to the best of our knowledge and there is no substantial long term study with reliable data in literature to describe any surgical treatment. More often condylar agenesis reports has been related to Goldenhar's syndrome (hemifacial microsomia) and there has been no concrete explanation of why condylar agenesis take place. Explanation varies from trauma during delivery to genetic aberrations to disturbance in mesenchymal cells

from which condyle get formed. Difference between condylar agenesis and hypoplasia is that in agenesis there is no condyle or articular disc present right from birth while in hypoplasia condyle is rudimentary or mal developed which may be due to genetic or accquired factors. Another term condylolysis means loss of condylar structure after its complete formation and is completely different from previous two.

Main aim in an adult case of condylar agenesis is to establish a stable and normal facial appearance and provide effective function. Traditional treatment modality like costochondral grafting is not applicable as growth is complete while in cases of distraction osteogenesis in this particular case we might lose satisfactory occlusion we have achieved by orthodontic treatment. Senior author( prof. S. C. Anand ) recommends a method to achieve both goals simultaneously and in short span of time. We suggest that in condylar agenesis cases where growth is complete and occlusion can be achieved by orthodontic treatment we can take advantage of absence of masticatory muscles on side of defect and hence push deviation back to midline via vertical ramal osteotomy of normal side ( as there is no resistance from contra lateral side due to absence of major masticatory muscles) followed by advancing genioplasty to further improve esthetics. Further, advantages of includes.

1. Speedy procedure and better functional stability.
2. As bone is available on normal side therefore sound surgery can be performed meticulously otherwise in these cases it become difficult to perform any surgery on hypoplastic part of mandible and subsequently control direction of growth( in cases of distraction).
3. Establishment of occlusion is better.

## Conclusion

Condylar agenesis is a complex problem with multiple problems pertaining to function and esthetics and absence of substantial data makes it even more difficult to plan and execute suitable surgery required. Surgical requirement may differ from patient to patient and according to condition of occlusion and bone available.

Proposed surgical plan of vertical ramal osteotomy on normal side with advancing genioplasty preceded and followed by orthodontic treatment in an adult patient of unilateral condylar agenesis provides optimal and sustainable result and should be seen as valid option for future treatment of such patients. It is still felt that further long term study is required to refine and mold this procedure to an individual need in such rare cases .

### References

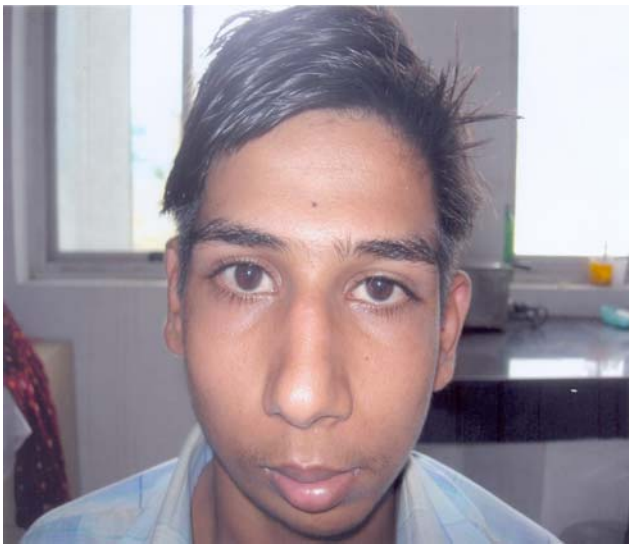
1. Arat FE, Arat ZM, Tompson B, Tanju S. Muscular and condylar response to rapid maxillary expansion. Part 3: magnetic resonance assessment of condyle - disc

relationship. *Am j Ortod Dentofacial Orthop.* 2008 Jun; 133 (6) : 830 -6.

2. Art FE, Arat ZM, Acar M, Beyazova M, Tompson B. Muscular and condylar response to rapid maxillary expansion. Part 1 : electromyographic study of anterior temporal and superficial masseter muscles. *AM J Orthod Dentofacial Orthop .* 2008 Jun; 133 (6) : 815 - 22.

3. Eski M, Deveci M, Zor f, Sengezer M. Treatment of temporomandibular joint ankylosis and facial asymmetry with bidirectional transport distraction osteogenesis technique. *J Craniofac surg.* 2008 May; 19 (3) : 732 -9.

4. Jacobson N, Starr C. Implant - supported rehabilitation of severe malocclusion due to unilateral condylar hypoplasia : case report. *J Oral Implantol.* 2008; 34 (2) : 90 - 6.



**Fig. 1**



**Fig. 2**



**Fig. 3**