Case Report

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Management of Unilateral Condylar Hypoplasia: A Case Report

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ABSTRACT

Background: The temporomandibular joint (TMJ) is one of the most complex joints of the human body. It consists of the mandibular condyle and the articular eminence of the temporal bone. The condyle is very special because the expression of mandibular growth is provided by mandibular condyle.[1] As a result, developmental abnormalities at this location manifest as altered growth on the affected side of the condyle, mandibular ramus, mandibular body, and alveolar process.[2] Hypoplasia or aplasia of the mandibular condyle indicates underdevelopment or nondevelopment associated mainly with various craniofacial abnormalities. These may be either congenital or acquired. The authors report an interesting case of acquired non syndromic case of unilateral condylar Hypoplasia and its treatment.

Keywords: Unilateral condylar Hypoplasia, facial asymmetry.

INTRODUCTION

Condylar hypoplasia is a congenital or acquired developmental disorder that affects condylar cartilage growth. This process results in progressive facial asymmetry, mandibular deviation and dental malocclusion. Congenital hypoplasia is present at birth, while acquired condylar hypoplasia occurs from an event that interferes with its normal development. This event can be trauma, infection, radiation, endocrine disorder, or systemic arthropathy.[3] It may also be associated with Mandibulofacial dysostosis, Hemifacial microsomia, Oculoauriculovertebral syndrome, Oculomandibulodyscephaly, Hurler's syndrome, Proteus syndrome,Morquio syndrome and Auriculocondylar syndrome.[1]

CASE REPORT

A 22 year old male patient was referred from the department of orthodontia to the department of oral and maxillofacial surgery for correction of asymmetry of face. The patient had a chief complain of asymmetric face and deviation of lower jaw on right side. The patient had no history of trauma to the chin or face in the childhood. The patient had no evidence of any other co existing syndromes. On clinical examination, the patient had an asymmetry of face on the right side involving body and ramus region. There was presence of a deep anti-gonial notch on the left side. The facial midline was deviated from the dental midline. The upper lip was incompetent. The dental midlines also did not match due deviation of the mandibular midline on the right side. There was canting of occlusion on the left side. The patient also had a posterior open bite on the right side in canine to premolar region. A standard panaormic radiograph revealed a hypoplastic mandible leading to disturbed growth of the ramus and body region. Further examination through a Cone Beam CT Scan was carried out to clearly understand the morphology of the affected jaw. The patient underwent presurgical orthodontics and arch discrepancies were

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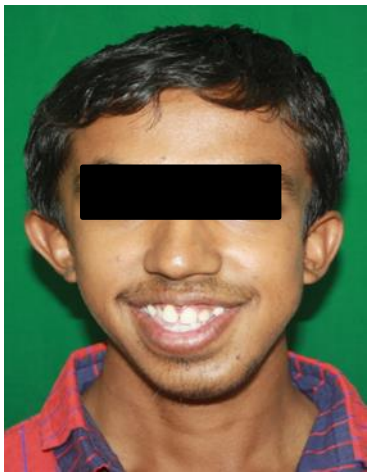

Fig 1: Pre-operative smile.

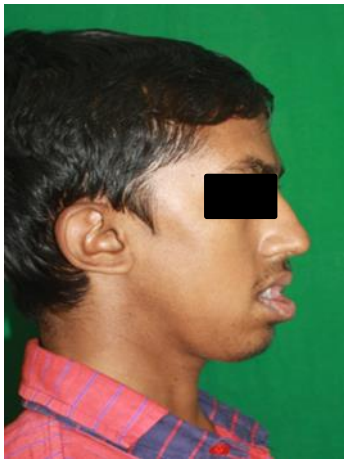

Fig 2: Pre-operative profile.

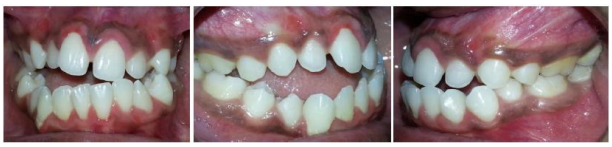

Fig 3: Pre operative occlusion.

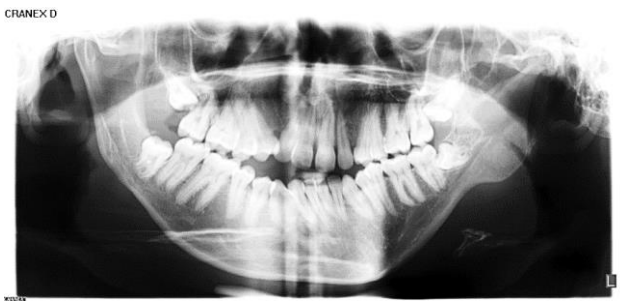

Fig 4: Pre operative occlusion.

corrected. A detailed COGS analysis of the patient was undertaken. Cephalometric mock surgery was carried out. The casts of the maxillary and

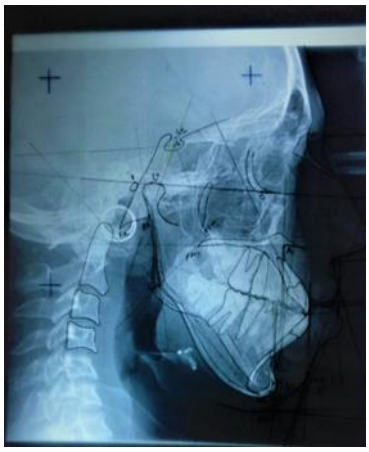

Fig 4: Lateral cephalogram tracing for COGS analysis.

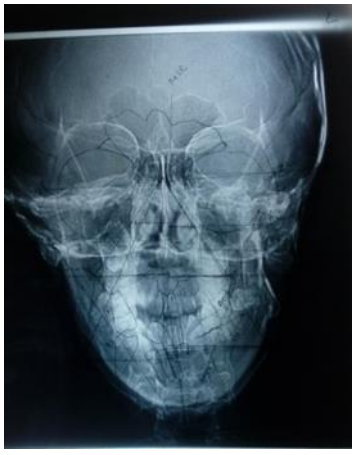

Fig 5: PA Cephalogram tracing for COGS analysis.

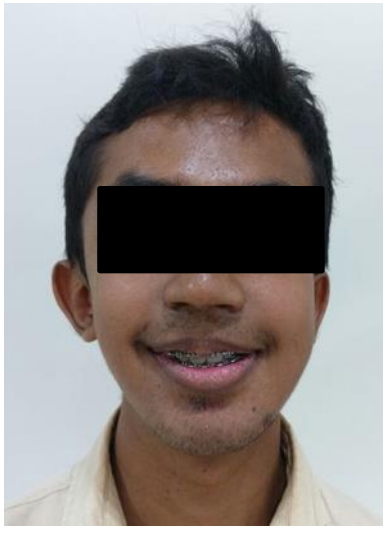

Fig 6: Post operative front.

mandibular arches were mounted on a hanau articulator using a face bow transfer and a mock surgery was performed. Intermediate and final

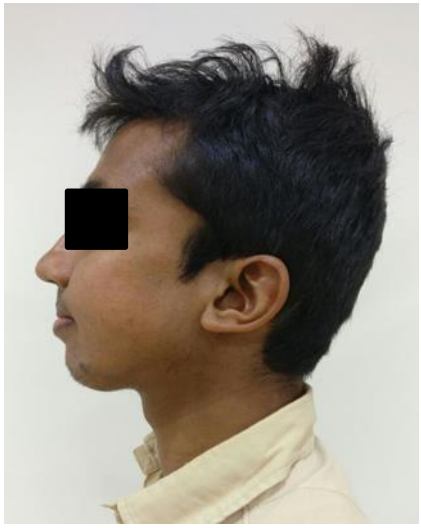

Fig 7: Post operative profile.

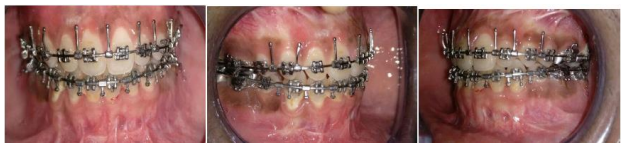

Fig 8: Post operative occlusion.

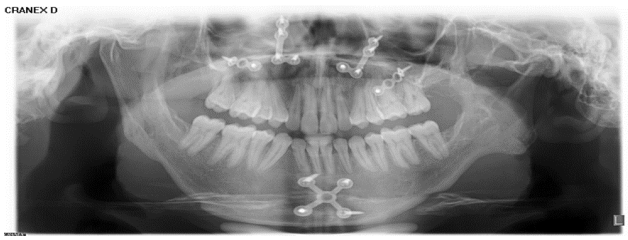

Fig 9: Post operative OPG.

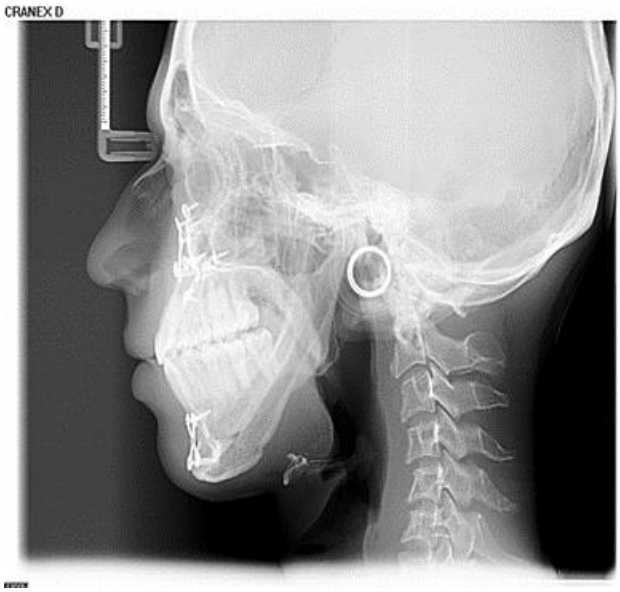

Fig 10: Post operative lateral cephalogram.

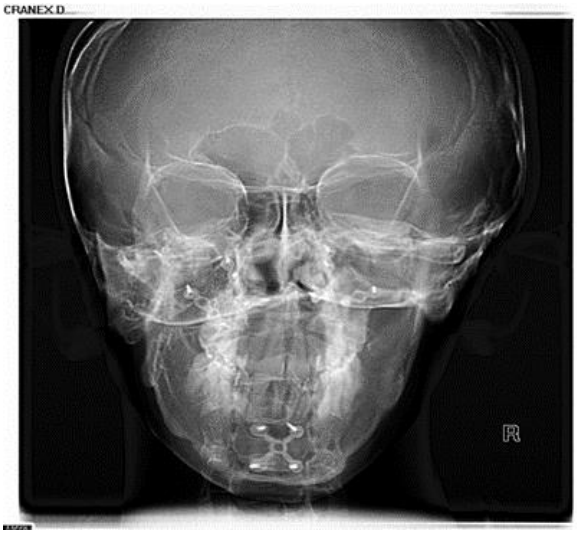

Fig 10: Post operative PA Cephalogram.

splints were prepared. The patient was thoroughly examined and a physician's approval was taken for taking the patient under general anesthesia. Naso-tracheal intubation was done with the help of a flexible endotrachal tube and lignocaine jelly. Painting and drapping of the face was done in conventional manner and secured with towel clips. A lefort 1 osteotomy was carried out for 6 mm superior positioning of the maxilla. osteosynthesis was carried out using 1.5 mm titanium miniplates and 6 mm screws. An intraoral approach was used for an inverted "L" ramus osteotomy on the left and right side and a 7 mm manidibular setback was achieved. A rotational genioplasty was carried out for correction of the chin asymmetry. A post operative Intermaxillary fixation was given for 2 weeks to avoid any malunion. Post surgical orthodontics was carried out to settle the occlusal descrepancies.

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. Congenital (primary) condylar hypoplasia is characterized by unilateral or bilateral underdevelopment of the mandibular condyle and usually occurs as a part of some systemic condition originating in the first and second branchial arches. The affected side fails to grow downward and forward, resulting in a 3D

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.[2] The treatment modalities for mandibular condylar hypoplasia vary dependent on the age of the patient. In growing patients, orthopedic treatment with functional appliances is often helpful in correcting deformities or in reducing the worsening of deformities with growth. If the facial asymmetry develops progressively during orthodontic treatment, mandibular distraction osteogenesis or surgical reconstruction of the TMJ with a costochondral graft of the remaining ramus tissue may be considered. After the skeletal growth is completed, deformities can be corrected only by double jaw surgery and/or genioplasty or unilateral mandibular augmentation.[4] Condylar Hypoplasia is a rare craniofacial abnormality which can be corrected at various stages of growth. In this case, since the patient had achieved his growth maturity a surgical correction was carried out. A bi-jaw surgery was carried out constituting a Le-Fort 1 osteotomy and 6 mm superior positioning of maxilla and intraoral inverted "L" ramus osteotomies in mandible with a 7 mm setback. A rotational genioplasty was carried out for correction of chin asymmetry.

CONCLUSION

Condylar Hypoplasia either congenital or acquired results in altered growth of ramus and body on the affected site which can be unilateral or bilateral. Treatment of condylar hypoplasia and associated deformity requires meticulous planning and can be undertaken as one stage or two stage surgery. It is best undertaken before the completion of skeletal growth to intercept further deformity. Distraction osteogenesis provides an alternative method of management of such cases.

CONFLICT OF INTEREST

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

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