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Research Article

FACIAL ASYMMETRY SECONDARY TO APLASIA OF THE MANDIBULAR CONDYLE

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A R T I C L E I N F O

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A B S T R A C T

Growth disturbances in the mandibular condyle region include aplasia, hypoplasia and hyperplasia. Aplasia of the mandibular condyle may occur following a history of trauma, with an underlying pathological disorder or with any syndromic association. We present here a case of a 16 year old female presenting with profound facial asymmetry since childhood without association of any syndrome. The first clinical impression of the patient was that of residual facial asymmetry following release of unilateral TMJ ankylosis considering the fullness on one side and flattened face on the other side. Digital orthopantomogram and CT scan revealed a complete absence of condyle on the right side Scintigraphy revealed reduced tracer uptake on right side. Patient was diagnosed with Aplasia of condyle on right side. Considering the patients' age and skeletal maturity, patient is kept under observation. Treatment options include a multidisciplinary approach viz orthodontic treatment, radiological evaluation of skeletal growth and a surgical intervention with a concept of neo-condyle formation via distraction osteogenesis. Surgical camouflage via an implant placement for esthetic facial rehabilitation proves to be an excellent treatment option with minimal morbidity.

INTRODUCTION

The condyle is primary growth centre which is essential for mandibular development. Any disturbance in this growth centre correspondingly inhibits mandibular growth. Growth disturbances in mandibular condyle region include aplasia, hypoplasia, and hyperplasia. Occurrence of aplastic condyle without presence of any underlying pathology or syndromic association is extremely rare [1,2]. Etiological factors for aplasia of condyle include mechanical trauma during active growth phase, inflammatory conditions, rheumatoid arthritis, and radiotherapy [3].Parathyroid hormone-related protein deficiency also affects bone formation and chondrocyte differentiation, leading to condyle malformation[6,7,8]. When not seen in concurrence with any other developmental anomalies, aplasia of mandible is an extremely rare condition. This report presents a unique case of unilateral condylar aplasia with no syndromic association.

Case Report

A 16 year old female reported to the department of Oral & Maxillofacial Surgery with a complaint of pronounced facial asymmetry since childhood.

As per the history given by her parents, asymmetry was noticed by them at approximately 2 years of patient's age. Past medical and family history was insignificant. History of trauma, infection of ear or related surrounding tissues was negative. General physical examination did not reveal any significant findings. Patient's parents were normal. There was no history of consanguinity and two other siblings were normal. Extraoral facial examination gave the first impression of gross facial asymmetry with fullness on right side of face which appeared similar to residual facial asymmetry following TMJ ankylosis release; but the patient did not give any history of ankylosis and surgery. The external ear and other soft tissues were normal on both sides. Mouth opening was approximately 40 mms. No deviation was seen on mouth opening. On palpation, TMJ movements were found to be missing on the right side. No tenderness was noted. Patient was advised medicine, ENT, cardiology and orthopaedic references to rule out any syndromes which gave no positive results. Clinical photographs provided by the patient's family at 2, 10 and 16 years of patient's age revealed progressive facial asymmetry (Figure 1).

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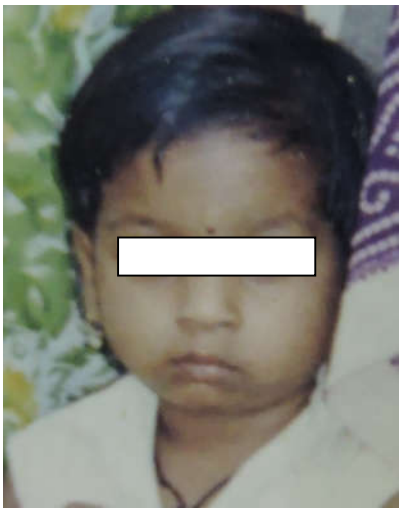
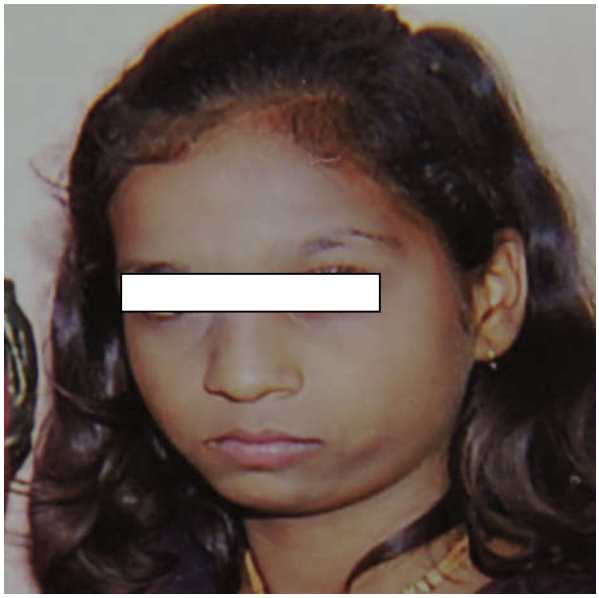




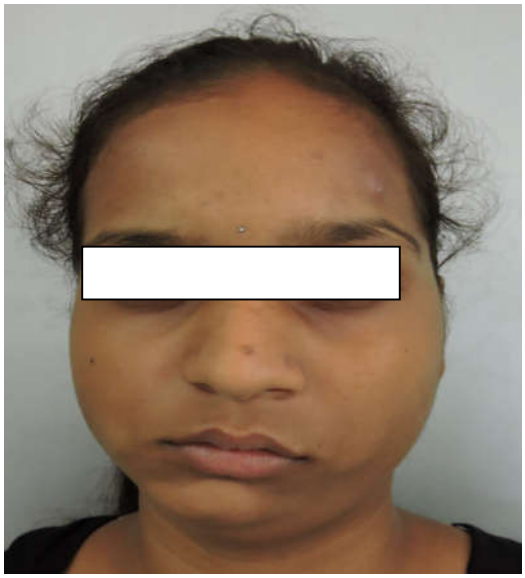


Fig. 1.A,1.B,1.C Facial asymmetry at 2,10 & 16 years

Intraorally, minor crowding in the maxillary arch, shift of midline towards affected side was seen. Posteroanterior(PA)view of the mandible showed marked facial asymmetry. Digital OPG showed absence of condyle, prominent antegonial notch, elongated coronoid process on the right side(Figure 2).

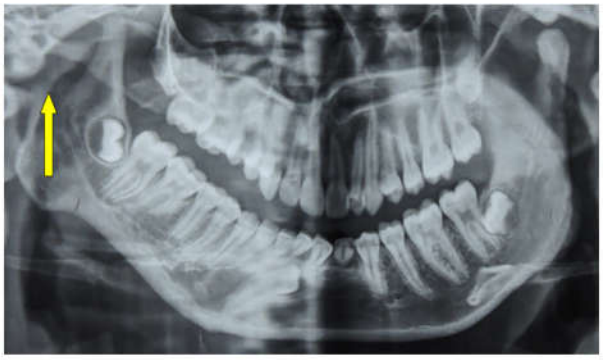
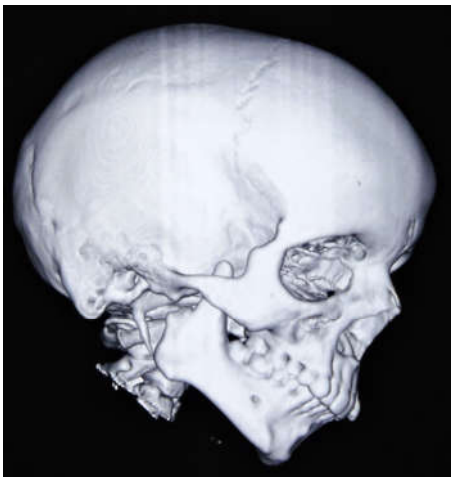


Fig 2 Digital Orthopantomogram showing absence of right side condyle.

Patient was advised 3DCT Scans which showed gross facial asymmetry and absence of condyle on the right side.(Figure 3).



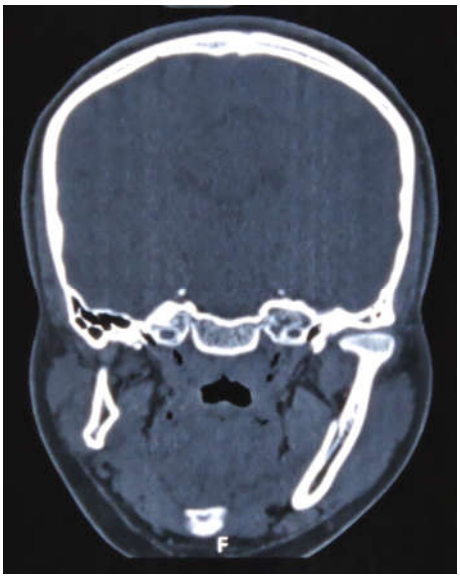


Fig 3 3DCT Face & coronal section showing absence of right condyle

DISCUSSION

The temporomandibular joint (TMJ) is a ginglymoarthroidal type of joint. It is one of the most complex and elegantly designed joints in the human body[4]. Apart from playing a major role in various functions such as speech, mastication etc., the TMJ also provides aesthetic value to the face by regulating a proportional growth. The condyle is important

because it provides the expression for the mandibular growth. The temporomandibular joint is at birth highly underdeveloped compared to synovial joints in the rest of body; the reason for this being the late beginning of morphologic development along with slow pace of TMJ growth. In the 8th week of gestation, two separate mesenchymal blastemas form which mark the first appearance of the TMJ and the joint is completed by the 12th week[9,10]. The condylar articular surfaces and the temporal bones are covered with fibrous connective tissue at birth. The fossa deepens thereby leading to formation of fibrocartilage and the condylar development progresses under the functional influences[11,12]. Changes or disruption in mandibular development can occur in early stages of formation either as a part of syndrome or an isolated variety. Condylar aplasia is seen in concurrence with Goldenhar syndrome, Treacher Collins syndrome, hemifacial microsomia, auriculocondylar syndrome, Proteus syndrome and Morquio syndrome. The occurrence of aplastic condyle in the absence of any pathology or syndrome is an extremely rare entity[13,14]. Our case presented without any history of trauma or syndromic association. In early age or before completion of growth spurt, treatment is aimed at influencing the mandibular growth preferably via dental orthopaedics or costochondral grafting. Orthognathic surgery alone or in combination with orthodontics is the preferred approach for treatment at the end of growth period[15]. For successful outcome, a multidisciplinary approach which involves the maxillofacial surgeon, general surgeon, plastic surgeon and orthodontist is the accepted norm[7,14,15]. Swinging of the mandible with the help of an orthodontic activator to the unaffected side to promote condylar formation has been reported [14]. Distraction osteogenesis for the condyle formation can also be considered. Along with the surgical treatment plan, the timing of surgery as also the age when the patient first reports- for treatment- is very critical.

CONCLUSION

The case presented here is of unilateral condylar aplasia without any syndromic association which defines its rarity. Patient had no functional deficit but being a young female, the primary concern was poor aesthetics & personality as it could lead to hinderance in peer acceptance. Early detection and prompt treatment are imperative to restore aesthetics and hence provides psychologic benefits to such patients.

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