A rare case of non-syndromic bilateral condylar hypoplasia with kissing molars

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Abstract

The appearance of the mandibular condyle varies greatly among different age groups and individual morphologic changes may occur on the basis of simple developmental variability as well as remodelling of condyle to accomodate developmental variations, malocclusion, trauma and other developmental abnormalities. Deviations in the growth of the mandibular condyle can affect both the functional and aesthetic aspects of the face. Causes for these malformations can be numerous and are complex in nature. Pathological conditions can be subdivided into; 1) Congenital malformations, 2) Primary growth disorders, 3) Acquired diseases or trauma with associated growth disorders. Anomalies of mandibular condyle are generally classified as aplasia, hypoplasia and hyperplasia. This paper highlights a case of bilateral condylar hypoplasia with kissing molars not associated with any syndromes and thus a seperate entity.

Key words: Condylar hypoplasia, Kissing molars, Rosette formation, Micrognathia, Bird facies

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Introduction

Growth disturbances in the development of mandibular condyle may occur in-utero late in the first trimester and may result in disorders such as aplasia or hypoplasia of the mandibular condyle.[1] Congenital hypoplasia that is idiopathic in origin is characterized by unilateral or bilateral underdevelopment of condyle beginning early in life[2,4]. Secondary causes include trauma, infection of mandible/middle ear, irradiation or due to systemic causes. Associated ankylosis along with small condyle is seen in secondary cases. It can be unilateral or bilateral. This paper discuses a case report of a non-syndromic bilateral condylar hypoplasia along with "kissing molars" on the left lower quadrant.

Case Report

A 23 year old male patient reported to the Department of Oral Medicine and Radiology with a complaint of missing upper front teeth and wanted replacement for his missing upper front teeth which had been extracted after an accident one year ago. No history of trauma, irradiation or forceps delivery/birth. General physical examination did not reveal any abnormalities. Family history revealed that the marriage of the parents was consanguineous. Mother and sister are deaf and dumb. Extra-oral examination revealed deficient lower face with severely retruded mandible, giving "bird facies" appearance. (Fig. 1) TMJ examination revealed normal condylar movements. Intra oral examination revealed clinically missing 11, 18, 21, 22, 24, 28, 37, 38 & 48. Lower anterior teeth crowding was present. Overbite was increased with malocclusion. (Fig. 2) The case was provisionally diagnosed as partially edentulous, impacted 18, 28, 37, 38, 48 with mandibular micrognathia. A dental panoramic radiograph was taken which revealed, vertically impacted 18, 28, 48 and impaction of 37, 38 with the crown of the teeth in approximation to each other presenting as "kissing molars". Condylar heads of the left and right sides appeared flattened with shortened neck of condyle on both sides. Height of ramus of mandible was decreased on the left side with prominent antegonial notch. (Fig. 3) Patient was then subjected to CBCT evaluation. Coronal and sagittal sections of right and left condyle revealed flattened head of condyles and thinning of articular eminence. (Fig. 4a, b, c, d). 3D view of CBCT revealed flattened head and neck of condyles on both sides. (Fig. 5) The case was diagnosed as partially edentulous with impacted 18, 28, 48 and 37, 38 presenting as kissing molars and non-syndromic bilateral condylar hypoplasia. Fixed partial denture was fabricated to replace the missing maxillary anteriors. (Fig. 6) Patient was referred to the Department of OMFS for surgical treatment of Condylar hypoplasia.

Fig. 1: Profile view showing deficient lower 1/3rd of face, retruded chin giving "bird facies" appearance

Fig. 2: Clinically missing 11, 21, 22, 23, 24 with increased overbite

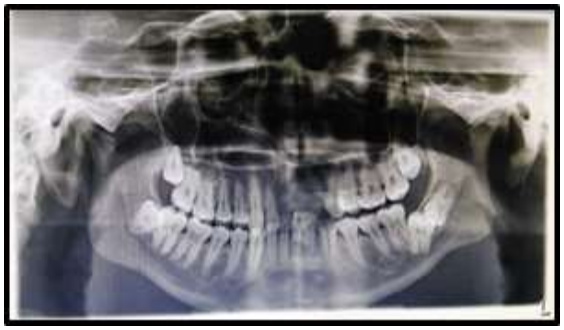
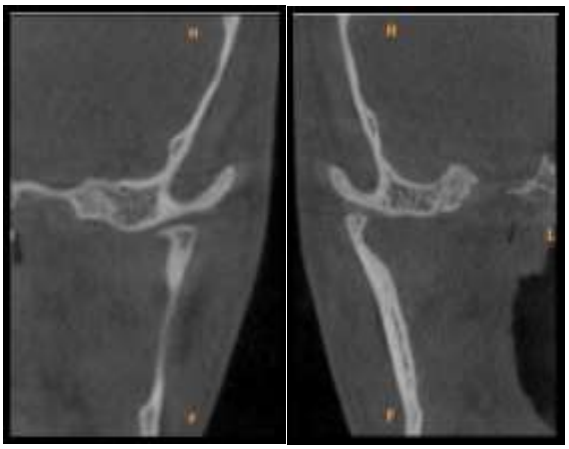


Fig. 3: OPG showing deficient and flattened head of condyle on the left and right sides with kissing molars-37, 38 region, decreased height of ramus of mandible on the left side with prominent antegonial notch, vertical impaction of 18, 28 and 48. Impacted 37, 38 presenting as kissing molars



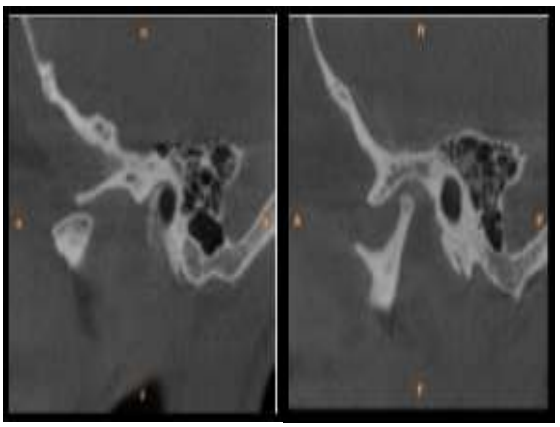
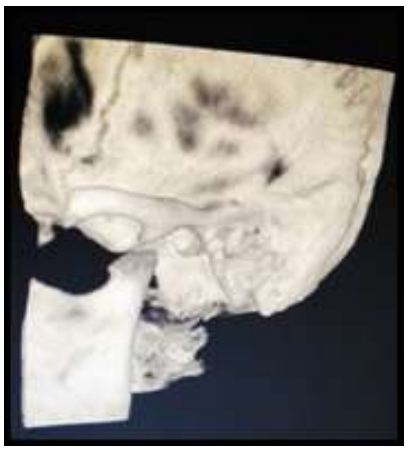


Fig. 4a, b, c, d: Showing coronal and sagittal sections of left and right condyles with decreased CW and CH



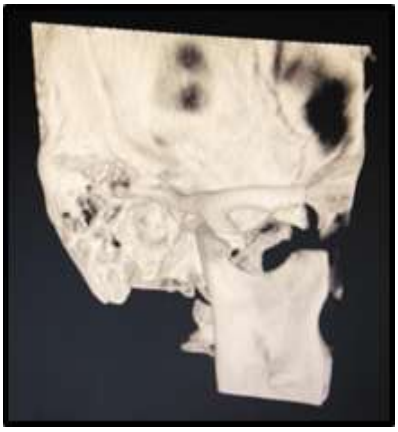


Fig. 5: CBCT-3D view showing flattened head and shortened neck of condyle on both sides

Fig. 6: Patient after replacement of missing upper anterior teeth

Discussion

The temporomandibular joint initially develops as two seperate areas of mesenchymal blastemas, condylar blastema and temporal blastema, near the eventual location of the mandibular condyle and glenoid fossa in the 8th week of gestation[5,6]. The mandibular condylar and temporal blastomas move closer as the joint develops by 12th week. At birth, the articular surfaces of both the mandibular condyles and temporal bones are covered with fibrous connective tissue. Later, this is slowly converted to fibrocartilage as the fossa deepens, and the mandibular condyle develops under functional influence[1,5].

Congenital(primary) hypoplasia is characterized by unilateral or bilateral underdevelopment of mandibular condyle and usually occurs as a part of some systemic condition originating in the first and second branchial arches[3,5,6]. Syndromes associated with hypoplastic condyles are Auriculo-condylar syndrome[3,5,6], hemifacial microsomia, Goldenhar syndrome, Treacher-Collin syndrome, Hurler syndrome, Proteus syndrome, Morquio's syndrome, Hallerman Strieff syndrome. Hypoplasia of mandible without any other facial malformations and systemic conditions is an extremely rare condition.

In 1961, Yale et al. was the first one to report about the different shapes of mandibular condyle. Initially Yale classified condylar head based on superior view into three categories namely concave, convex and flat, however later on, he simplified it into four categories namely convex, flattened, angled and rounded[7]. According to Yale's classification, our case falls into type-I (flattened) head of condyle. Various treatment approaches have been proposed for treating condylar aplasia and possibilities for influencing mandibular growth. Most of the time it is treated by multimode with the help of oral surgeon, general surgeon, plastic surgeon, and orthodontist[8,9,10]. The treatment could then be a costochondral graft transplant, preferably before the growth spurt, orthognathic surgery at the end of the growth period, or both[10]. Krogstad reported that effective results were obtained through the application of a form of orthodontic activator which aimed to swing the mandible to the unaffected side and promote formation of a mandibular condyle, albeit irregular in shape[8]. Surgery is often required, but the timing and regimen of this choice is still an issue to be resolved[9].

"Kissing molars" or "rosette" formation was described by Van Hoofer(1973). The term kissing molars refers to impacted permanent molars that have occlusal surfaces contacting each other within a single follicular space with roots of each pointing in opposite directions[11]. Preece estimated the prevalence rate for impacted second molars at 0.03% in his study of 5000 cases[12].

KM or multiple rosetting of molars has been associated with pathological conditions such as mucopolysaccharidoses and cleidocranial dysplasia[13,14,15]. But in our case, it is not associated with the above conditions and kissing molars may be due to lack of space.

Conclusion

Non-syndromic condylar aplasia and hypoplasia are extremely rare conditions and very few cases have been reported till date. Our case of non-syndromic condylar hypoplasia with kissing molars is rare and an important case to the literature.

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