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Case Report

Condylar aplasia: a case report

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ABSTRACT

Aplasia of mandibular condyle is one of the several facial manifestations of many syndromes. It is considered as an extremely exceptional stipulation, if it is not seen as a part of any syndrome. The incidence expected 1 in 5600. It occurs due to the growth instability in development of condyle in the intrauterine life, late in the first trimester. It is not discernible at birth and seems to be steadily acquired during the growth. We report a case of condylar aplasia on the right side in an 18-year-old female. The patient reported to the department of Oral and Maxillofacial Surgery at ACPM dental College, Dhule, with a chief complaint of underdeveloped lower jaw. The etiology of this condition was unknown, clinical examination and conventional radiographs revealed complete absence of condyle on the right side. A proper diagnosis along with the differentiation from the syndromic cases is of importance. The aim of this article is to present a case with peculiar type of non-syndromic condylar aplasia

Keywords: Condyle, Syndrome, Condylar aplasia, Mandibular asymmetry, Growth instability

INTRODUCTION

The temporomandibular joint (TMJ) is one of the most complex joints of the human body. It is considered a ginglymus diarthrodial joint capable of both rotational and translatory movements. It consists of the mandibular condyle and the articular eminence of the temporal bone. In compared to other diarthrodial joints, during prenatal life, the temporomandibular joint lags morphologically behind other synovial joints in both the timing of its appearance and its progress, so that at birth the joint is still largely underdeveloped.

The temporomandibular joint first appears in the 8th week of gestation.[1,2] Bone and cartilage are first seen in the mandibular condyle at approximately the 10th week of gestation. At birth, the articular surfaces of both the mandibular condyle and temporal bones are covered with fibrous connective tissue. Later, this tissue is slowly converted to fibrocartilage as the fossa deepens and the mandibular condyle develops under functional influences.[3,4]

Growth disturbances in the development of mandibular condyle may occur in intrauterine life late in the first trimester and may result in disorders such as aplasia or hypoplasia of the mandibular condyle. As compared to hypoplasia, hyperplasia of the mandibular condyle is not visible at birth and seems to be gradually acquired during growth.[5]

CASE REPORT

An 18-year-old female was presented to the department oral and maxillofacial surgery with a chief complaint of asymmetry of face, which was first noticed during childhood and gradually progressed. Due to unfavourable socioeconomic conditions, it was not possible to get the treatment done for the patient. There was no history of any trauma or any systemic diseases. There was no family history of the present problem. General physical examination did not reveal any abnormalities. Her vital signs were within normal limits. Extraoral examination revealed facial asymmetry with slight retruded mandible and deviation to right side (Figures 1).

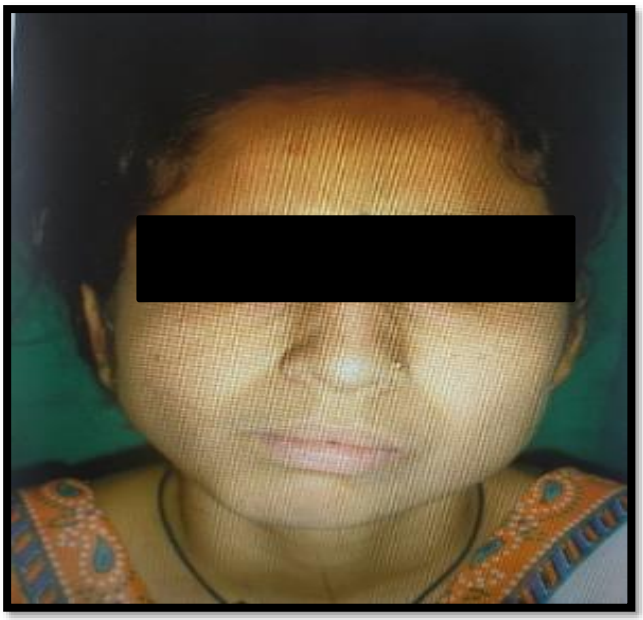

Figure 1: Frontal profile.

Mouth opening was adequate. On palpation condyle was not palpated on the right side. Intraorally Molar relation was Angle's class I bilaterally (Figure 2). No other important clinical extraoral or intraoral findings were observed. Based on clinical findings, a provisional diagnosis of unilateral ankylosis and differential diagnosis of unilateral condylar and ramus aplasia were given.

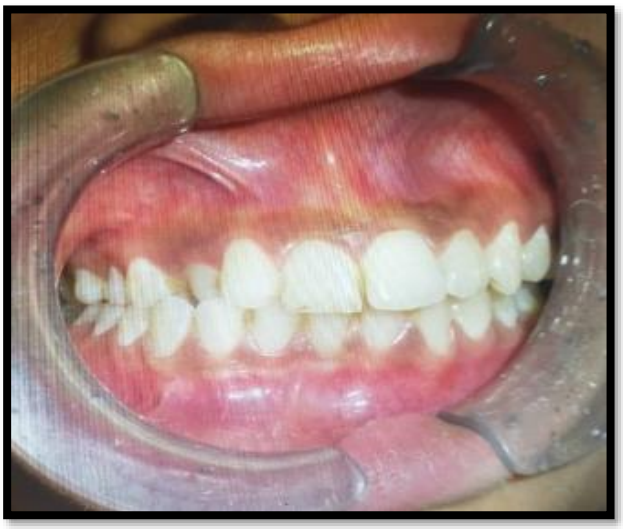

Figure 2: Occlusion.

After clinical examination, radiographic examination was performed. Panoramic radiograph showed complete absence of condyle on the right side. Glenoid fossa was not developed on the right side (Figure 3). Antegonial notch was prominent on left side (Figure 1). After radiographic confirmation patient was advised complete systemic evaluation and referred to general medicine, cardiology, ophthalmology, ENT, and orthopaedics to rule out any syndromes. Medical evaluation revealed no abnormalities. Based on the clinical and radiographic findings, a final diagnosis of non-syndromic agenesis of the right condyle and ramus was given.

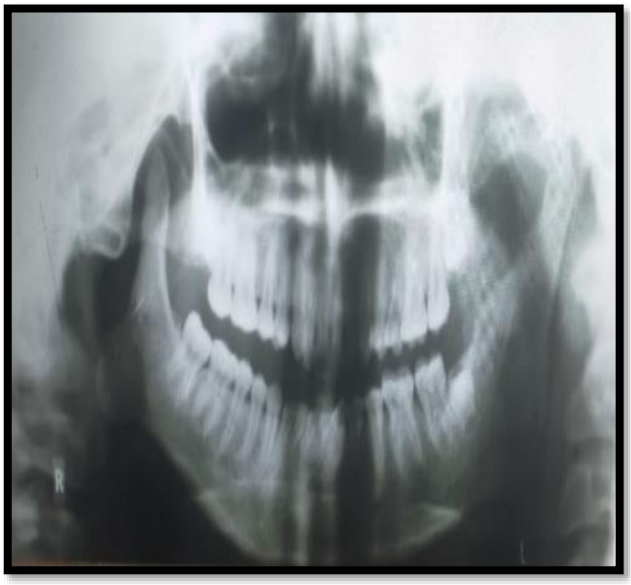

Figure 3: Orthopantomograph of aplasia of right mandibular condyle.

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.[5] The TMJ develops from initially separated temporal and condylar blastemata which appear at about the 8th week of gestation. They eventually grow towards each other and ossify to forma functional joint by about the 20th week of intrauterine life.[5] 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, such as Mandibulofacial dysostosis (Treacher Collins syndrome), Hemifacial microsomia (first and second branchial arch syndrome), Oculoauriculovertebral syndrome (Goldenhar syndrome), oculomandibulodyscephaly (Hallermann-Streiff syndrome), Hurler's syndrome, Proteus syndrome, Morquio syndrome and auriculocondylar syndrome.[5-8]

Aplasia of the mandibular condyle without any other facial malformations is an extremely rare condition.[8] As a rule, in each of these conditions some soft tissue manifestations accompany the condylar agenesis and/or condylar malformations.[9]

Acquired (secondary) condylar hypoplasia takes place if the condyle is injured during active growth, because of which development may be arrested. The most common causes are mechanical injury, such as trauma (before the age of two), infection of the joint itself or the middle ear, childhood rheumatoid arthritis, radiotherapy, and parathyroid hormone related protein deficiency which affect bone formation and chondrocyte differentiation.[5,9,10]

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, though irregular in shape.[9]

Several authors confirmed that mandibular deficiency can occur without any defined etiology.[11] The cases of non-syndromic mandibular condyle aplasia have been previously reported by Krogstad, Prowler et al, Santos et al, Bowden Jr et al, Canger et al and so forth.[9-15] Our case also presented condylar aplasia without any other features suggestive of any syndrome.

In our case, total absence of the condyle and glenoid fossa on the right side constitute evidence that the defect originated in the prenatal period.

Various treatment approaches have been proposed for treating condylar aplasia and possibilities for influencing mandibular growth. Most of the time it is treated by multi- mode with the help of oral surgeon, general surgeon, plastic surgeon, and orthodontist.[15]

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.[15] Surgery is often required, but the timing and regimen of this choice is still an issue to be resolved.[15]

CONCLUSION

In conclusion we report a rare case of total condylar aplasia on the right side, not related to any clear pathological disorder. This case of unknown aetiology was thoroughly examined; based on clinical and radiographic findings, we suggest that this case is of congenital origin. Non-syndromic condylar hypoplasia and aplasia are exceedingly rare conditions and very few case reports are published till date. In this context, our case is an important addition to the literature. Early detection and prompt treatment are imperative to restore aesthetics and thus provide psychologic benefit to these patients.

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REFERENCES

1. Chee EK, Sara Ahmad T. Fibula Osteocutaneous Flap for Mandible Reconstruction after Ameloblastoma Resection: Amending Technique to Reduce Ischaemic Time. Malaysian Orthop J. 2007;1:1.
2. Vayvada H, Mola F, Menderes A, Yilmaz M. Surgical Management of Ameloblastoma in the Mandible: Segmental Mandibulectomy and Immediate Reconstruction with Free Fibula or Deep Circumflex Iliac Artery Flap (Evaluation of the Long-Term Esthetic and Functional Results). J Oral Maxillofac Surg. 2006;64:1532-9.
3. Ooi A, Feng J, Tan HJ, Ong YS. Primary treatment of mandibular ameloblastoma with segmental resection and free fibula reconstruction: Achieving satisfactory outcomes with low implant prosthetic rehabilitation uptake. J Plastic, Reconstructive Aesthetic Surg. 2014;67:498e505.
4. Smith ML, Clarke-Pearson E, Dayan JH. Fibula osteo-adipofascial flap for mandibular and maxillary reconstruction. 2011 Wiley Periodicals, Inc. Head Neck. 2012;34:1389-94.
5. Small IA, Waldron CA. Ameloblastoma of the jaws. Oral Surg Oral Med Oral Pathol. 1955;8:281.
6. Morgan KA, Rehman MA, Schwartz RE. Morquio's syndrome and its anaesthetic considerations. Pediatric Anes- thesi. 2002;12:641-4.
7. Ozturk S, Sengezer M, Isik S, Gul D, Zor F. The correction of auricular and mandibular deformities in auriculo-condylar syndrome. J Craniofacial Surg. 2005;16(3):489-92.
8. Krogstad O. Aplasia of the mandibular condyle. Eur J Orthodontics. 1997;19(5):483-9.
9. Shibata S, Suda N, Fukada N, Ohyama K, Yamashita Y, Hammond VE. Mandibular coronoid process in parathyroid hormone-related protein-deficient mice shows ectopic cartilage formation accompanied by abnormal bone modelling. Anatomy Embryol. 2003;207(1):35-44.
10. Prowler JR, Glassman S. Agenesis of the mandibular condyles. Diagnostic findings and treatment of deformity by polyethylene implant. Oral Surg Oral Med Oral Pathol. 1954;7(2):133-9.
11. Akihiko I, Ritsuo T, Junichi F, Nobuyuki I, Yutaka T. Agenesis of bilateral mandibular condyle-report of a case. J Jap Stomatol Society. 2006;55:187-92.
12. Santos KCP, Dutra MEP, Costa C, Lascala CA, De Oliviera JX. Aplasia of mandibular condyle: case report. Dentomaxillofacial Radiol. 2007;36:420-22.
13. Bowden Jr CM, Kohn MW. Mandibular deformity associated with unilateral absence of the condyle. J Oral Surg. 1973;31(6):469-72.
14. Canger EM, Celenk P. Aplasia of mandibular condyle associated with some orthopedic abnormalities: a case report. Dentomaxillofacial Radiol. 2011;1-5.

15. Vargervik K, Kaban LB. Hemifacial microstomia diagnosis and management in Modern Practice in Orthognathic and Reconstructive Surgery, W. H. Bell, Ed., W B Saunders Company, Philadelphia, Pa, USA. 1992;2:1533-60.

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