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Mandibular Condylar Hyperplasia: Diagnosis and Management

Authors
Dr Prakhar Katta[1], Dr Raghav Mehta[2], Dr Vikas Singh[3], Dr Ruchika Tiwari[4]
Dr Gaurang Thanvi[5], Dr Shivani Sharma[6]
[1,2]III[rd] Year PG Department of Oral & Maxillofacial Surgery Mahatma Gandhi Dental College, Jaipur Rajasthan
[3,4]Professor Department of Oral & Maxillofacial Surgery Mahatma Gandhi Dental College, Jaipur Rajasthan
[5]II[nd] Year PG Department of Oral & Maxillofacial Surgery Mahatma Gandhi Dental College Jaipur Rajasthan
[6]II[nd] Year PG Department of Oral & Maxillofacial Surgery Mahatma Gandhi Dental College, Jaipur Rajasthan India

Abstract
Background and Objectives: *Excessive growth of mandibular ramus, condyle and body elicits facial asymmetry is named-Mandibular condylar hyperplasia. Its therapeutic management is not a consensus and, due to its complexity, is a challenge for orthodontists and maxillofacial surgeons. This study focus at discussing the diagnostic, clinical and therapeutic aspects of the management of this disease, with explanation of condylectomy procedure.*
Case Report: *A Male patient of 22 years old, had a complain of facial asymmetry and pain on left temporomandibular joint. Patient had no relevant medical or family history of such deformity and had no history of trauma to joint or infection.*
This was a case of hemimandibular elongation which was treated with condylectomy.
Conclusion: *Condylectomy is an effective procedure approach, for reducing the excess bony mass and also has no such complications of joint functioning post operatively. This prevents progress of dento-facial deformity and minimize its psycological impact.*
Keywords: *Temporomandibular joint disorders, Facial asymmetry, Hyperplasia, Mandibular condyle.*

Introduction

Introduction of Mandibular condylar hyperplasia was first done by Robert Adams in 1836, when he was describing a case of rheumatoid arthritis[1]. It is a pathology of temporomandibular joint (TMJ) where there is an excessive growth of mandible occurs, commonly it occurs unilaterally, which leads to unpleasing and asymmetric aesthetics as well as and functional problems[2]. It's incidence ranges between 10 and 30 years of age, although there are cases who reported the incidence of 9 to 80 years of age, and this occurrence of discrepancy is due to patient's willingness to consult a surgeon for treatment [3,4]. It has unknown etiology, however some factors have been reported, like hyper-remodelling of condyle after trauma, joint infection, hormonal disorders, mandibular condyle hyper vascularisation, genetic factors and intrauterine changes[5]. Obwegeser and Madek in 1986 have given the classification of mandibular condylar hyperplasia under heading: hemimandibular elongation and hemimandibular

hyperplasia. However, the disease may diagnose as hybrid unilateral or combined bilateral[6]. In case of hemimandibular elongation, growth vector has ipsilateral deviation. In case of mandibular condylar hyperactivity in a post-puberty phase, there might be ipsilateral posterior open bite due to lack of maxillary compensation[7].In functional aspect, mandibular condylar hyperplasia affects phonetic, chewing and swallowing ability due to occlusal disharmony, nasal obstruction due to deviation of nasal septum and turbinates hypertrophy[7,8]. Diagnosis is made clinically and by images[2]. Approximately 98% of facial growth is complete between 17 and 18 years of age in males and 15 years of age in females. During growth phase, mandible grows from Condylion (most posterio-superior point of mandibular condyle) to Point B (point located in the largest concavity of the chin symphysis anterior face) at a speed of 1.6mm/year in females and 2.2mm/year in males therefore accelerated growth of mandible may indicate active mandibular condyle hyperplasia[8]. Positrons emission tomography (PET) is coming as a new advancement to study such disease[10]. Treatment depends on activity of mandibular condyle (active versus non active hyperplasia), malocclusion, on the level of asymmetry and age[11]. Different therapeutic possibilities have been described yet from condylectomy[12,13] to orthognatic surgery, with or without associated orthodontics[2]but have complications and undesirable result more as compare to treatment done in this case.

This report aimed at diagnostic process and treatment, clarifying the role of condylectomy as increasingly used technique, by presentation of a case report. Major signs are contralateral deviation of the chin and of the lower dental midline, ipsilateral molar relationship Class III and contralateral crossbite. On the other hand, hemimandibular hyperplasia is shows the tridimensional growth of the affected side, with vertical increase of the lower hemi-third of the face and infero medial projection of mandibular basilar edge. In general, there is minimum deviation of the chin, maxillary occlusal plane inclination and shifted lower dental midline.

Fig-1 Left side Class III molar relation

Fig-2 Right side posterior cross bite

Fig-3 Deviation of midline

Fig-4 Maxillary inclination

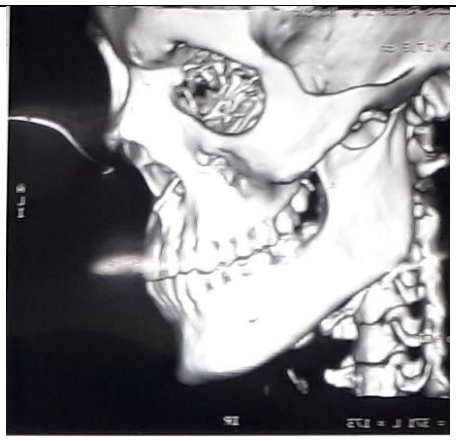

Fig-5a Left side

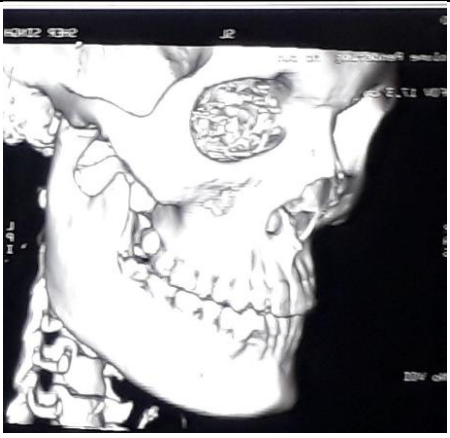

Fig-5b Right side

Case Report

A Male patient of age 22 years old, complain of facial asymmetry and pain in left temporomandibular joint. Patient had no relevant medical or family history of facial deformity, no history of previous trauma to joint or infection. Clinically molar relationship is Class III to the left(Fig-1), right posterior crossbite (Fig-2) and inferior dental midline deviation less than 4mm to the right(Fig-3) and minimal inclination of maxillary occlusal plane to the left (Fig-4).. CT scan with 3D reconstruction confirms hyperplasia of left side(Fig-5a and b). Mouth opening was 40mm, with 7mm of lateral movement to the right of illustrate the Muscle and joint has pain on palpation of affected side worsened by chewing. Diagnosis made was active mandibular condylar hyperplasia of hemimandibular elongation type. Treatment plan was made of low condylectomy to the left with removal of superior mandibular condyle was explained to patient. Surgical technique include pre auricular Thoma's angulated incision and exposing site (Fig-6). Then, osteotomy was performed with removal of condyle fragment (Fig-7) washing of the cavity with saline and closure was done with vicryl 3-0, ending with ethilion 4-0 (Fig-8). In the immediate postoperative period, liquid and soft diet was instructed for 3- 4 weeks. An appreciable facial symmetry achieved post operatively as compare to pre-op (Fig-9). Functional joint exercises was instituted[15] to recover lateral and vertical movements.

Fig-6 Dissection and exposing site

Fig-7 Condyle fragment

Fig-8 Closure of site

Fig-9 Pre-op and Post-op

Discussion

When mandibular condylar hyperplasia is suspected, clinical as well as radio graphical evaluation shall include documentation with, study models, extra and intraoral photographs and some imaging exams, such as panoramic and face profile. Mandibular condyle growth can also be evaluated by means of skeleton bone scintigraphy[12].

Condylectomy is currently considered a safe and effective surgery to eliminate mandibular condylar growth centre which is hyperactive[9,14]. Performing in early ages[4,14,15] before the end of growth is more beneficial and reduce the complexity of case. Mandibular hypercorrection with orthogenetic surgery is not recommended, because its results are unpredictable[8]. Condylectomy aims at removing joint cartilage responsible for active growth[12]. This cartilage is considered a centre of craniofacial growth. In a normal mandibular condyle this growth is complete at approximately 20 years of age.

In the lack of scientific evidence to support an ideal condylectomy depth, this varies from mandibular condyle osteoplasty (2-3mm)[12-17], to high condylectomy (4-5mm)[2,9,14,17,18,19] to low condylectomy (8-12mm)[13,16,20]. High condylectomy allows the removal of cartilaginous surface and subcondral bone, eliminating growth center[2]. We favour condylectomy since it has more predictable results.

Conclusion

Treatment of mandibular condylar hyperplasia is still controversial. Condylectomy is considered a safest, effective and essential surgery to prevent exaggerated growth of condyle.

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