



Unilateral Condylar Hyperplasia: A Case Report

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Abstract

Condylar Hyperplasia (CH) is a bone disease characterized by the increased development of mandibular condyle. It regularly presents as an active growth with facial asymmetry generally without pain. Statistically it affects more women in adolescence, although it does not discriminate by age or gender. Its best-known consequence is Asymmetric Facial Deformity (AFD), combined with alteration of the dental occlusion with unilateral crossbite or open bite. It is not known when condylar hyperplasia begins and how long it lasts. We report a unilateral condylar hyperplasia in 35 year old female managed successfully by surgical intervention.

Keywords: Deviated mouth opening; Hyperplasia; Overgrowth of the mandible; Unilateral crossbite

Introduction

Overdevelopment of mandible was described by Robert Adams in 1836 who related it to condylar hyperplasia. Condylar hyperplasia of the mandible is an uncommon idiopathic disorder of non-neoplastic origin of the jaw characterised by increased volume of the condyle, unilaterally or bilaterally, leading to facial asymmetry, mandibular deviation, malocclusion and articular dysfunction generally without pain [1].

Hugo Obwegeser and Makek classified condylar hyperplasia as Type 1, 2, and 3. Wolford et al developed an updated classification of condylar hyperplasia in 2014 [2] (Table 1). Condylar hyperplasia has an unknown etiology. Several theories exist in the literature in which one states that an event of a trauma leading to increase in number of repair mechanism and hormones in that area may lead to increase in growth of mandible on that side [3]. Another theory states that an increase in loading of Temporomandibular joint can lead to increase in expression of bone forming molecules [4]. Condylar hyperplasia predominantly affects women 64% of patients being women [2]. We report a unilateral condylar hyperplasia in 35 year old female managed successfully by surgical intervention.

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Case Presentation

A 35 year old female patient reported to us with a chief complaint of facial asymmetry. Her antenatal and obstetric history was not contributory. She had a history of trauma to the lower jaw during childhood for which she had not undergone any treatment. On extra-oral examination patient had facial asymmetry, flattening seen on the left side of the face with appearance of fullness on right side of the face (Figure 1). A bony swelling in the left pre-auricular region was evident measuring about 1.5 cms x 1.5 cms. On opening of the mouth patient had deviation of the lower jaw towards the right side (Figure 2). On radiographic examination, OPG shows gross enlargement of the left condyle and Loss of antegonial notching with downward bowing of the inferior border on the mandible (Figure 3). CT scan revealed a hyperplastic left condyle with elongated neck (Figure 4). An outward and downward growth of the body and ramus of the mandible on the affected side, deviation of mandible and chin to the opposite side, slanted occlusal plane for dental compensation, and deviation of dental midlines were evident. There was asymmetry of the left hemi mandible and outward protrusion of the anterior teeth. As the hyperplastic mass of condyle was evidently extended in the lateral preauricular region, it was easier to approach with preauricular incision (Figure 5a and b). Dissection was carried out till the mass was reached and continued to expose the condylar neck. Bony cut was made just below the hyperplastic mass which led to its separation from the neck of the condyle (Fig 6a and b). Entire mass was carefully removed in Toto (Figure 7a and b). The raw condyle neck portion was rounded off to mimic the condylar head (Figure 5b). Wounds were closed in layers. Post operatively, patient developed open bite on contra lateral side with premature



Figure 1: Pre-operative profile photographs of the patient. On extra-oral examination patient had facial asymmetry, flattening seen on the left side of the face and a bony swelling in the left pre-auricular region.

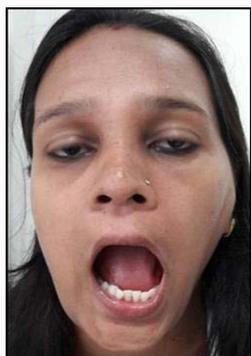


Figure 2: Deviation towards left while mouth opening.



Figure 3: OPG reveals gross enlargement of the left condyle and loss of antegonial notching with downward bowing of the inferior border on the mandible.



Figure 4: CT scan showing hyperplastic condyle, elongated ramus and slanted occlusal plane.

contact on ipsilateral side (Figure 8a and b). Arch bars were placed in both the arches under LA and elastic tractions were initiated till the satisfactory occlusion was obtained for about 3 weeks. The arch bar and elastics were removed once the occlusion was satisfactorily achieved. Patient's mandibular deviation was appreciably reduced. Patient is on a regular follow-up and there is no occlusal derangement and reduction in the mouth opening noticed (Figure 9a and b).

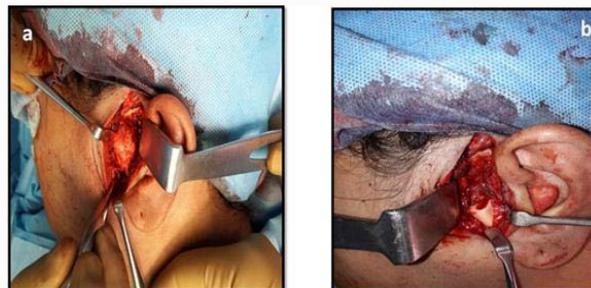


Figure 5: a) Approach taken with preauricular incision, hyperplastic mass of condyle was evident. b) Condylectomy followed by rounding of condylar neck.

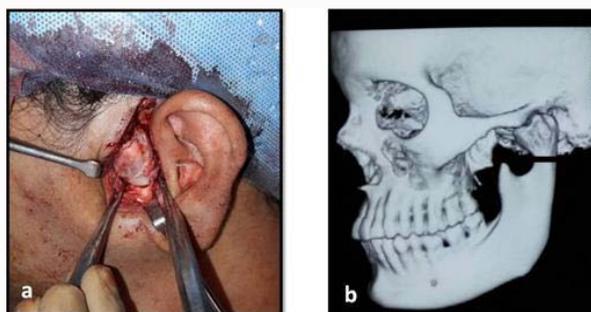


Figure 6: a) Bony cut taken on the neck of the condyle, operative site exposed with preauricular incision. b) Diagrammatic representation of the surgery performed.

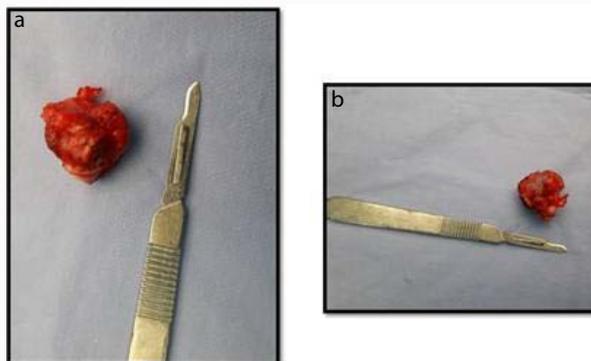


Figure 7: Excised hyperplastic condylar head in Toto.



Figure 8: a) Post operative 1 month photograph. b) Post operative 6 months photograph.



Figure 9: Pre-operative photograph. b) Post-operative photograph.

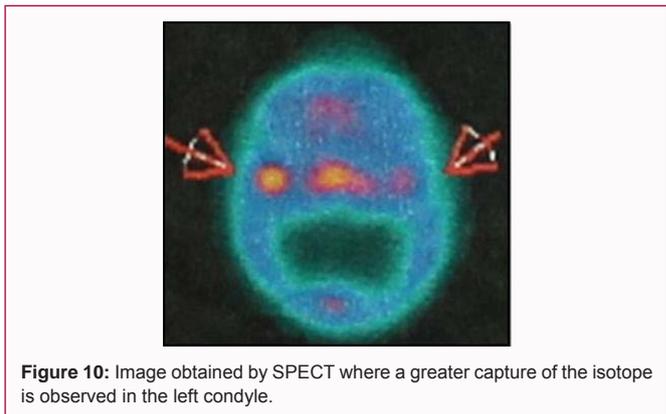


Figure 10: Image obtained by SPECT where a greater capture of the isotope is observed in the left condyle.

Table 1: Hugo Obwegeser and Makek classified condylar hyperplasia as Type 1, 2, and 3. Wolford et al. developed an updated classification of condylar hyperplasia in 2014.

Type	Name	Clinical Findings	Histological Findings
Type 1	Hemimandibular elongation	Chin Deviation towards contralateral side Midline shift towards contralateral side Posterior crossbite on contralateral side	Excessive growth in the horizontal vector Enlarged ramus, normal condyle
Type 2	Hemimandibular hyperplasia	Sloping rima oris with minimal chin deviation Supra-eruption of maxillary molars on affected side Open bite Midline shift (minimal to none)	Excessive growth in the Vertical vector Excessive growth in the condylar head
Type 3	Combination of both	Chin deviation towards contralateral side Possible open bite Sloping rima oris with possible chin deviation	Combination of excessive growth in both vectors

Table 2: Various authors suggested different treatment modalities depending on the age and SPECT findings, including condylectomy, compensatory orthodontics and surgical cosmetic camouflage either alone or in combination.

Patient	SPECT	Treatment options
Patient under 18 years	1 st -positive	Follow-up to a 3 rd SPECT
	2 nd -positive	Highcondylectomy High condylectomy + Compensatory orthodontics + Surgical cosmetic camouflage after 18 years of age High condylectomy and wait until 18 years of age to perform orthognatic surgery
Patient over 18 years	1 st -positive	High condylectomy + compensatory orthodontics + Surgical cosmetic camouflage
	2 nd -positive	High condylectomy + orthognatic surgery
Patient over 18 years	negative	Compensatory orthodontics + surgical cosmetic camouflage Orthgnatic surgery

Discussion

The diagnosis of Condylar hyperplasia is essentially clinical; there are supporting studies that determine the activity and morphology of the condyle affected [5]. Without a doubt, computerized tomography (CT) has contributed to establishing the pathology and condylar morphology but the nuclear medicine studies have helped in determining the active growth of the condyle. Technetium-99m is administered with methylene diphosphonate, which is absorbed by hydroxyapatite crystals and calcium from the bone tissue so that the fixation intensity is proportional to the degree of osteoblast activity; the examination that obtains the scanned bone is called “single photon emission computed tomography” (SPECT) [6] (Figure 10).

As the degree of asymmetry increases, the subjects determine a greater need for surgery that repairs esthetics and function, indicating

that when the chin asymmetry deviates 10 mm from the midline, there is a high demand to correct it surgically; this demand decreases in proportion to increase in the patient’s age and to decrease in the perception of facial esthetics [7]. Various authors suggested different treatment modalities depending on the age and SPECT findings, including condylectomy, compensatory orthodontics and surgical cosmetic camouflage either alone or in combination [6] (Table 2).

In our case the probable cause was trauma during childhood. CT and SPECT have contributed largely in determining the time of surgery. Surgical correction with proper planning and timing of treatment yields good functional and esthetic outcome.

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