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Unilateral Condylar Hyperplasia with Facial Assymetry Treated By Surgery First Orthognathic Approach– A Case Report

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Abstract
[2] Condylar hyperplasia is a complex deformity of temporomandibular joint, which involves excessive growth of condyle. Asymmetric facial deformity is one of the consequence of condylar hyperplasia, which may often cause an alteration of dental occlusion with unilateral cross bite or open bite . This case demonstrates the treatment modality, which was given to the patient to get optimum outcome of esthetic and occlusion.

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I. Introduction

[28] Condylar hyperplasia of mandible is a nonneoplastic disorder of where overdevelopment of condyle either unilaterally or bilaterally leading to facial asymmetry, mandibular deviation, malocclusion and articular dysfunction. Adams first reported it, in 1836. It usually occurs in mid teens with increasing deformity until cessation of growth. Prominent features include an enlarged mandibular condyle, elongated condylar neck, outward bowing and downward growth of body and ramus of mandible on affected side causing fullness of face on that side and flattening of face of contralateral side. If deformity occurs before growth completion the occlusal plane usually becomes slanted for dental compensation whereas posterior open bite is apparent if deformity occurs after completion of growth. Growth eventually stops after without treatment. **[6]** The enlargement of the condyle is unpredictable and may produce significant changes in both mandible and dentition. Others differential diagnosis may be chondromas, exostoses, as well as malignant tumors of the condyle may produce facial deformity.

Etiology

The etiology of the unilateral hyperplasia of the condyle is still under discussion. The identification of sex hormone receptors in and around the TMJ and the pubertal onset of condylar hyperplasia strongly suggest hormonal influences as etiology. **[2]** Gottlieb et al 1951 in a series of cases describes both unilateral and bilateral cases where increased female sex incidence in the unilateral cases and a genetic background in bilateral cases. The other causative factors could be trauma, infection, heredity, intrauterine factors and hypervascularity.

[7] The mandibular condyle must be considered as a growth center that has a multidirectional potential of growth as confirmed by histologic and physiological studies. the condylar growth appears to undergo an unpredictable and unjustified enlargement because of the action of an undetermined growth regulator and stimulus.

[3] It is probable that in most cases the abnormal process begins a year or two before discovery. The function of the condyle does not appear to be affected by the deformity and the surgical treatment is designed to arrest the progressive deformity, restore symmetry and improve masticatory function.

Classification

Deformity has been classified in two groups by Normann and Painter et al, in the first are included those patients who have an active hyperplastic growth whereas in second is characterized by a stable situation in which the abnormal growth is completed and we don't expect the condyle to grow further. Bone scanning is noninvasive technique to evaluate whether the hyperplastic growth is still active, commonly 99 technetium phosphate is used for scanning to assess the metabolic activity of the affected side before surgery.

Case Report

[7] The present report deals with a case of unilateral facial asymmetry resulting from hyperplasia of mandibular condyle .A female patient of 25 years of age came to our Hospital with facial deformity since 2 years which is gradual in nature. Intraoral examination reveals unilateral cross bite and deviation of jaw to left side during occlusion and deviation of midline during closing. CT scan of face reveals forward and downward displacement of body and ramus of mandible resulting tilting of the occlusal plane in the transverse direction and cross bite resulting significant facial asymmetry.

Planning for BSSO was done after study cast analysis. Bilateral sagittal split osteotomy was done by intraoral incision with Dal Pont (1961), Hunsuck (1968), and Epker (1977) modification approach and both side proximal fragment placed at glenoid fossa and fixation was done by 2 mm single miniplate. Post operatively iintermaxillary fixation done to stabilize the occlusion and guidance by red elastic.

PRE OP CT SCAN

PRE OP OCCLUSION

PRE OP LATERAL PROFILE

BSSO CUT LEFT SIDE

BSSO CUT RIGHT SIDE

POST OP OCCLUSION

Post surgical orthodontics

[26] Brachvogel et al. in 1991 first gave the concept of "surgery- first and orthodontics second" which has the goal of reducing some of the disadvantages and inconveniences of presurgical orthodontics. He claimed that the normalized surrounding soft tissues (lips, cheeks and tongue) settled teeth into better positions after surgery, facilitating remaining orthodontic tooth movement and reducing the total orthodontic treatment period.

As per history history the deviation was not from birth but developed later on postpubertally, as usually found in cases of unilateral condylar hyperplasia. After thorough consultation a combined approach of orthognathic surgery first followed by fixed orthodontics post surgically (SFA) for occusal settling was planned. Accordingly Post surgically MBT brackets with 0.022 slot was fixed on her upper arch intially. Since the patient had to visit from a very far away distance she declined any long-term treatment. She was satisfied with the residual crowding in her mandibular anterior arch and wanted correction and occusal settling in the postero-anterior direction only. So after intial placement of 0.16 NiTi wire, early placement of rectangular arch wire, 19× 25 S. S archwire was placed. Composite modules for placement of Class 3 blue elastics was fabricated in the lower cannines. The patient was instructed to wear Class 3 elastics with change after every 48 hrs and she is undergoing the same treatment.

II. Conclusion

As TMJ is bilateral joint which act as a single unit during jaw movement BSSO is the right choice of treatment for remodeling of lower jaw in all directions for better occlusion and esthetics..It has also been shown that during healing process after orthognathic surgery, there is an increase in blood flow above the presurgical levels which facilitates the healing process and stimulates bone turnover that can potentially speed up orthodontic tooth movement so here in this case we have undergone the "surgery-first-orthognathic-approach" or "surgery-first approach" (SFA).

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