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CASE REPORT:

DOUBLE JAW SURGERY – A MODIFIED SURGICAL APPROACH TO TREAT SKELETAL CLASS II: A CASE REPORT

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ABSTRACT:
Patients with mandibular deficiency and skeletal class II malocclusions exhibit a wide spectrum of esthetic, cephalometric, and occlusal characteristics. The structure of chin determines facial attractiveness and is directly linked to a quality of life. Correction of dentoalveolar protrusion of maxilla is done by anterior maxillary subapical osteotomy by which anterior segment can be moved superiorly or inferiorly and posteriorly as indicated. Augmentation genioplasty is advocated to improve the overall facial esthetics of patient with mandibular deficiency. In skeletal class II malocclusions cases best results are obtained with double jaw surgery combined with the orthodontic treatment. This is a case report of skeletal class II malocclusion with mandibular deficiency and protruded maxilla in 22 year old female patient who was treated surgically by anterior maxillary subapical osteotomy and augmentation genioplasty along with the orthodontic treatment.

Keywords: Augmentation genioplasty, Double jaw surgery, Orthognathic surgery, Skeletal class II
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INTRODUCTION:

First jaw deformity correction was performed in the United States of America (USA) by Simon Hullihen, an American general surgeon, in the mid of the 19th century. Surgery is not a substitute for orthodontics but it must be properly coordinated with orthodontics to ensure a better esthetic, functional, and stable results. Class II skeletal deformity is characterized by an exaggerated sagittal distance between the maxilla and the mandible, which could be the result of maxillary prognathism, mandibular retrognathism, or both. Presurgical orthodontic decompensation is essential to enable the surgeon to make a considerable amount of surgical correction, otherwise the esthetic and

functional outcome of the entire procedure will not be satisfactory [1-4].

Case report:

A 22 year old female reported with the complaint of irregular and crowded proclined upper anterior teeth along with retruded chin. Clinical examination of patient revealed a severe skeletal class II. The lateral facial view showed a convex profile, average nose, normal nasolabial angle and retruded chin. Lips were incompetent at rest with lower lip resting behind the upper incisors. Excessive gingival show on smile (Gummy smile) was noted. Intraoral examination reveals class I molar relation. Both upper and lower arches were U shaped. Lower anterior crowding was seen. Excessive overjet was observed as upper anteriors were proclined. Cephalometric analysis revealed increased maxillary vertical height, class II skeletal pattern, and reduced mandible length, proclination of upper and lower incisors. Panoramic view revealed a normal bony trabeculation, the full number of permanent teeth except for extracted impacted upper and lower third molars (Figs. 1a & 1b).

After a complete study and analysis, the detailed treatment plan was explained to the patient. Upper and lower impressions were taken, and study casts were prepared. Mock surgery was performed after knocking out the upper first premolars. Splints were fabricated.

The subapical osteotomy of the anterior maxilla was done after raising full thickness of mucoperiosteal flap and the maxillary components were stabilized using the preformed splint and were fixed with L-shaped 1.5mm titanium plates and screws (Figs. 2a & 2b).

Approximately 4 mm advancement genioplasty was done to correct retrognathic mandible. It was then stabilized with the help of titanium miniplate and screws. Wound was closed with 4-0 vicryl (Figs. 2c & 2d). Splint was kept for 4 weeks. After removal of the splint, occlusion was checked which was found to be stable. Post-surgical orthodontics was carried after 3 months. The profile of the patient improved drastically. The gummy smile had almost disappeared. Lips incompetence was greatly improved.

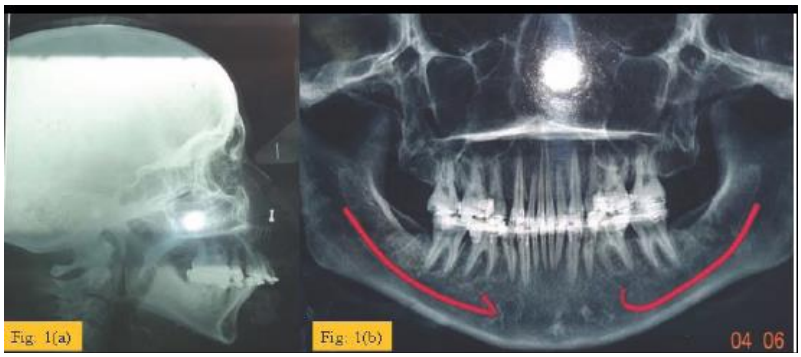

Fig.1a & 1b: Preoperative lateral cephalometric and panoramic radiograph

Fig. 2a Subapical osteotomy in upper arch

Fig. 2b: Maxillary osteotomy preformed and fixed with titanium plates and screws

Fig. 2c: Advancement of chin in lower arch

Fig. 2d: Genioplasty was performed and stabilized with titanium miniplate and screws

DISCUSSION:

A class II skeletal malocclusion could be due to maxillary prognathism, mandibular retrognathism, a combination of the two or a vertical growth pattern with a downward and backward rotating mandible and a deficient chin. The envelope of discrepancy deciphers the need for orthodontics, orthodontics with growth modulation or orthodontics combined with orthognathic surgeries [4]. Orthognathic surgery is very important part of the process to correct a dentofacial deformity. The process starts with the initial diagnosis, followed by a treatment plan and patient counselling and consent. Treatment generally begins with a dental assessment and treatment, followed by orthodontic decompensation in preparation for surgical intervention. Orthognathic surgery is followed by postoperative orthodontia to maximize the occlusal relationship [2, 5].

Subapical anterior maxillary osteotomy provides a suitable option in the treatment of maxillary protrusion. It provides improvement of the aesthetic profile without nasal changes [6]. Genioplasty allows 3-dimensional control of chin

position, resulting in significant improvement of facial aesthetics combined with other osteotomies. Of the actual corrections of the chin, advancement genioplasty to improve a receding chin is probably the most common procedure [7-10].

CONCLUSION:

Double jaw surgery with anterior subapical osteotomy and augmentation genioplasty might be recommended as a treatment modality of choice in patients with skeletal class II for best functional and aesthetic results.

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