

Double Jaw Surgery: A Modified Surgical Approach to Treat Skeletal Class II

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ABSTRACT

Background: Persons 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. Frequently Correction of dentoalveolar protrusion of anterior maxilla is done with 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 many such patients optimal overall results are best 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 reported with crowded upper anterior teeth and was treated surgically by anterior maxillary subapical osteotomy and augmentation genioplasty along with the orthodontic treatment.

Keywords: Orthognathic surgery, Skeletal class II, Double jaw surgery.

INTRODUCTION

First jaw deformity correction was performed in the United States 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 to department oral surgery with the chief complaint of irregular and crowded proclined upper anterior teeth along with retruded chin. On 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).

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. Radiographically, the panoramic view revealed a normal bony trabeculation, the full number of permanent teeth except for extracted impacted upper and lower third molars [fig no.2].

Received: June. 4, 2015; Accepted: Oct. 17, 2015

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Fig 1: Preoperative lateral cephalometric view.

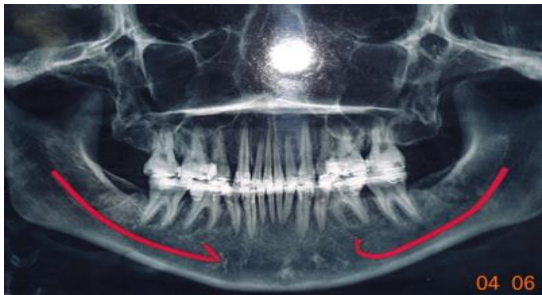


Fig 2: Preoperative orthopantomogram view.



Fig 3: Anterior vestibular incision in upper arch.



Fig 4: Subapical osteotomy.



Fig 5: Maxillary components stabilized with L-shaped titanium plate and screws.

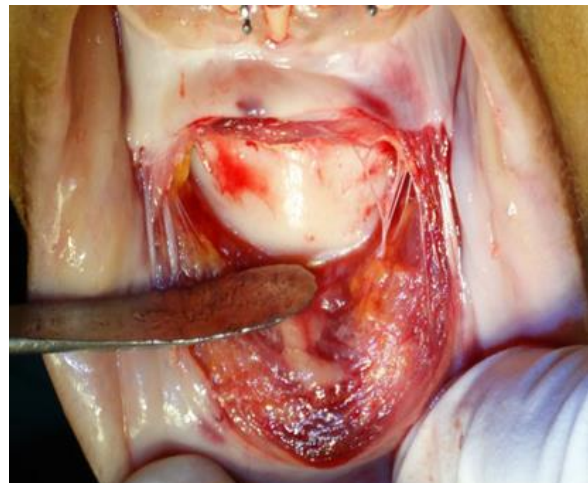


Fig 6: Anterior vestibular incision in lower arch.



Fig 7: Marking of osteotomy cut.



Fig 8: 4mm advancement of chin.



Fig 9: Stabilized with titanium plates and screws.



Fig 10: Preoperative facial profile in frontal view.



Fig 11: Postoperative facial profile in frontal view.



Fig 12: Preoperative facial profile in lateral view.



Fig 13: Postoperative facial profile in lateral view.



Fig14: Postoperative orthopantomogram view.

Cephalometric analysis revealed increased maxillary vertical height, class II skeletal pattern, reduced mandible length, proclination of upper and lower incisors [fig no. 1]. After a complete study and analysis, the patient was explained the detailed treatment plan. 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.

SURGICAL PROCEDURE

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 [fig no.3,4,5]. 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 [fig no. 6, 7, 8, 9]. 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.

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. The profile of the patient improved drastically. The gummy smile had almost disappeared. Lips incompetence was greatly improved [fig no.10,11,12,13].

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 & 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.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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