

SURGERY FIRST APPROACH IN CORRECTION OF SKELETAL CLASS III WITH LATEROGNATHIA- A CASE REPORT

Case Report

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ABSTRACT : Background: Skeletal maxillofacial anomalies are intricate and can diminish the quality of life of patients. The current treatment modality of orthognathic surgery in combination with orthodontics have most successful outcomes. The conventional orthognathic approach is a well-known technique for correction skeletal maxillofacial anomalies but total treatment time is prolonged leading to psychosocial problems to the patient hence a two staged surgery-first approach is a good alternative for patients.

Case Report: An adult male patient aged 19 years with skeletal class III with laterognathia. Patient planned under surgery-first approach and was operated and skeletal correction was done by orthognathic surgery. The post-surgical results were satisfactory in respect to skeletal, dental and aesthetic point of view.

Conclusion: Advantages of surgery-first approach of shortened total treatment time over conventional method is becoming treatment of choice in certain cases and fulfilment of patient's expectations.

Keywords:

Skeletal maxillofacial anomalies, Orthognathic surgery, Surgery-first approach

Source of support: Nil

Conflict of interest: Nil

INTRODUCTION : Skeletal maxillofacial anomalies are intricate and can diminish the quality of life of patients. The treatment of specially the maxillofacial anomalies is complicated as the expectation of the patient is very high so it may need a multidisciplinary approach. The treatment may be surgical or orthodontic or it may be combination of both the treatments, which should be coordinated properly to gain the maximum benefit to the patient.

The skeletal class III malocclusion is one of the unacceptable facial anomalies which exhibits facial asymmetry and altering functional occlusion. The characteristics of Skeletal class III malocclusion are mandibular prognathism, maxillary deficiency or both.¹ Clinically, facial profile of the patient is concave and a protruded lower third of the face with lower lip protrusion in comparison to the upper lip. Usually maxillary arch is narrower than the mandibular arch, and the overjet and over bite may be reduced to reverse.

The evolution in treatment of skeletal class III patient has been advanced in recent decades and major contribution is

from Obwegeser who popularized the sagittal split osteotomy technique for correction of dentomaxillofacial anomalies.^[2] Many of the studies^[3] stated that the current treatment modality of orthognathic surgery in combination with orthodontics have most successful outcomes in terms of long-term stability and correction of skeletal maxillofacial deformities.

The conventional orthognathic approach is a well-known technique for correction skeletal maxillofacial anomalies but total treatment time is prolonged leading to psychosocial problems to the patient hence a two staged surgery-first approach is a good alternative for such patients.

CASE REPORT : An adult male patient aged 19 years reported in outpatient department of oral & maxillofacial department of Mahatma Gandhi Dental College, Jaipur, Rajasthan. He came up with a chief complaint of long and deviated lower jaw to the right side. He was concerned with his appearance and desired treatment for the same.

On extraoral clinical examination (Fig.1), the front profile

view was elongated oval shaped face. Elongation and deviation of lower third of the face was observed. Lips were competent and the facial midline and dental midline were non-corresponding to each other. Lateral profile showed increased mentocervical length. The intraoral examination (Fig.2) showed an ovoid arch form, all teeth were present except the right mandibular third molar, protruded maxillary central incisors with spacing, a -3mm overjet with anterior open bite. Suggestive of skeletal class III malocclusion with laterognathia.



(A)Lateral profile (right)
 (B)Front profile
 (C)Lateral profile (left)

Fig.1: Pre-operative images



Fig.2: Pre-operative occlusal view

TREATMENT PLAN : The treatment planning was done two steps: first surgical treatment and second postsurgical orthodontic treatment as patient wanted early asymmetric correction and then orthodontic corrections. So, planned for surgery-first approach.

Presurgical data to collected. According to protocol, model analysis, surgical prediction and model surgery was done.

In surgical phase, patient was operated under general anaesthesia and bilateral sagittal osteotomy with mandibular setback and counter-rotation was done. Fixation done with miniplates in pre-planned position.

Post-surgical photographs (Fig.3,4) and radiographs were obtained (Fig.5). The post-surgical results were satisfactory in respect to skeletal, dental and aesthetic point of view. Now the post-surgical orthodontics has been planned for minor dental corrections.



(A)Lateral profile (right) (B)Front profile (C) Lateral profile (left)

Fig.3: Post-operative images



Fig.4: Post-operative occlusal view



(A)Pre-operative (B)Post-operative

Fig.5: Lateral cephalogram

DISCUSSION : Since decades, Orthognathic surgery is the most accepted treatment modality in management of skeletal maxillofacial deformities in adult patients. Trauner and Obwegeser² initiated the modern era of orthognathic surgery.

Till 1960s, pre-surgical orthodontic was not common in patients needing orthognathic surgery. With the increased success of orthognathic surgery, the patients seeking treatment for their aesthetic correction increased with which the refinement in treatment modality giving optimal aesthetics and occlusal results developed which was the three-stage approach. The three staged approach included the pre-surgical orthodontic stage, the orthognathic surgery stage and the post-surgery orthodontic stage. Though the results of three staged treatment were satisfactory but patients faced the time-consuming process with psychosocial problems and complications of long orthodontic treatment.

To overcome the problems faced during conventional approach, Skaggs[4] in 1959 proposed that patients with minor discrepancies in dentition can undergo surgery before orthodontic treatment. Later on, Behrman and Behrman⁵ in 1988 gave concept similar to regional acceleratory phenomenon (RAP). In 1991, Brachvogel⁸ favoured postsurgical orthodontic treatment over presurgical orthodontic approach and supported the surgery first approach.

In 2009, Nagasaka et al.[7] gained popularity for the first clinical application of the surgery-first approach. No significant differences were observed in several studies comparing the conventional technique with the surgery-first approach.[8,9,10]

The surgery-first approach improved in progressive years and sometimes misused by neglecting the orthodontic consideration.

Although surgery-first approach has its advantages with reduced total treatment time still there are some limitations. This approach is only indicated in mild teeth discrepancies in which pre surgical decompensation is not required and patient's compliance for immediate aesthetic correction.

CONCLUSION : A correct diagnosis as well as the correct interdisciplinary planning is essential for a successful treatment. Sometimes we have to modify the treatment plan according to the situation as in this case we have to skip the step of pre-surgical orthodontics and moved on to surgery-first approach. Advantages of surgery-first approach of shortened total treatment time over conventional method is becoming treatment of choice in certain cases and fulfilment of patient's expectations. The future orthognathic surgery is heading towards minimizing the overall treatment time without negotiating the final results.

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