

Bilateral Sagittal Split Osteotomy - A case report

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Abstract :

Bilateral Sagittal Split Osteotomy is a surgical cosmetic procedure carried out to correct mandibular deformities i.e. prognathism or retrognathism. In this procedure, the osteotomy cut splits the mandibular body and ramus sagittally, so that the fragments can be advanced or set back.

INTRODUCTION:

The various skeletal deformities of the jaw are:

1. Mandibular prognathism or retrognathism.
2. Vertical or transverse maxillary excess or deficient.
3. Combination of both.
4. Facial asymmetry.

The treatment options available are growth modification, orthodontic camouflage, orthognathic Surgery.[1,4]

Orthognathic surgery involves combined efforts of Orthodontist & Oral and Maxillofacial surgeon. This case highlights the orthognathic surgical procedure for correction of mandibular prognathism.

CASE REPORT

A twenty one year old male patient was referred to the Dept. of Oral and Maxillofacial Surgery from the Dept. of Orthodontia for correction of skeletal deformity of the jaws. Patient was concerned about his facial aesthetics and he also complained of difficulty in mastication and speech. On examination his frontal and lateral profile showed mid-face deficiency (naso-maxillary hypoplasia) with protruded chin. The lips were incompetent and the thin upper lip had reduced vermilion exposure. The profile was concave with obliterated and decreased mentolabial sulcus, acute lip chin throat angle, long chin throat length with well-defined inferior border of mandible. (Fig. 1)

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Fig 1 : Profile Details

On intra-oral examination, there was class HI molar relationship, class DI canine relationship, anterior cross bite, and lower arch midline shift to right side (2-3mm).



Fig 2: Intra-oral Examination

General examination was not contributory. Serum biochemistry levels were within normal limits. Pre-operative cephalogram was taken (Fig.3) for analysis and predictions.

After mock surgery on models, it was decided to undertake bilateral sagittal split osteotomy for the mandibular setback and iliac crest onlay grafting for Naso-maxillary hypoplasia under general anesthesia. Occlusal splint was also prepared.



Fig 3 Pre-operative cephalogram



Fig 4

Complete surgery was performed intraorally (Fig:4).

Osteotomy cuts were made bilaterally on the medial cortical plate of the ramus of the mandible just above and behind the lingula, anterior border of the ramus of the mandible involving only lateral cortical plate up to the 2nd molar and finally from there up to lower border of the mandible involving both cortices (fig.4).



Fig 4: Operative procedure showing sagittal cut of the mandible on one side along with on lay grafting of nasomaxillary region.

After achieving proper set back, the occlusion segments were rigidly fixed with titanium plates and screws. Iliac crestbone graft was harvested from the right side. After proper reshaping and counteracting, they fixed in nasomaxillary area with 12 mm titanium titanium screws. Patient tolerated surgery well and there were no post-operative complications.

Patient was discharged on the sixth post operative day and he is on regular follow up. Patient is very satisfied with his post operative esthetic profile as compared with that of his pre-operative one. (fig.5)

DISCUSSION

Bilateral Sagittal Split Osteotomy is a very popular and versatile orthognathic procedure performed intraorally on the mandibular body and ramus. It was first described by Trauner and Obwegesser in 1957 and later modified by Dalpont, Hunsuck and Epker¹ Advantages of this technique over the other osteotomy procedures on body and ramus of the mandible are:

1. Greater flexibility in repositioning the distal tooth bearing section.
2. Minimal alteration in the position of the muscles of mastication.
3. Broad bony overlap of segments after repositioning the jaws to ensure good healing.
4. It is an intraoral procedure, thereby preventing extra-oral scars [2-3].



Fig 5: Pre-operative/ Post-operative profile view



Fig 5: Pre-operative/ Post-operative frontal view

Surgery indicated for maxillary deficiency is Le-fort I osteotomy and advancement, but as our patient was unwilling for double jaw surgery, it was decided to perform iliac crest bone grafting for naso-maxillary deficiency.

The patient is satisfied with the results

Reported complications associated with this technique are:

1. Unanticipated bony splits, nerve injuries i.e. laceration or transaction of the inferior alveolar nerve mostly neuropraxia and injury to facial nerve and lingual nerve.
2. Malpositioning of the proximal segment including the condyle, malocclusion i.e. open bite or lateral

shift, Temporomandibular joint dysfunction and hyper-mobility, haemorrhage and relapse[5].

However, in our case there were no post-operative complications.

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