

Lefort 1 Osteotomy: A Case Report of 2 Cases

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DOI: 10.31080/ASDS.2023.07.1724

Received: September 04, 2023

Published: September 27, 2023

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Abstract

22-year-old patients reported with Angle's class II division 1 malocclusion, canine class II, gummy smile. Lateral cephalogram demonstrated anteroposterior, vertical maxillary excess and steep mandibular plane.

LEFORT 1 osteotomy was performed to treat maxillary protrusive skeletal Class II. The treatment results show that the procedure exhibited large upward and forward movements of the maxillary segment and desirable facial profile, with a reduction of the Cross-bite after the treatment.

Keywords: Lefort 1 Osteotomy; Maxillary; Protrusive Skeletal

Introduction

LEFORT 1 osteotomy is frequently applied to superior positioning of the entire maxilla, Superior positioning of maxilla can be performed for closure of open bite, correction of display of excessive gingiva during Incompetence. The article reports a case of maxillary protrusive skeletal Class II patient with deep overbite, vertical maxillary excess treated with LEFORT 1 osteotomy.

Case History

2 patients roughly around 32-year-old patients reported with a complaint of inability to cover front teeth with lips and forwardly placed upper front teeth. On examination one patient had Angle, s class II division II malocclusion, class II canine relationship, and gummy smile while another had Angle, s class II division 1 malocclusion, class I canine relationship, gummy smile. Patients profile demonstrated protrusion of the maxilla and upper lip. The frontal facial appearance showed a large vertical height and display of an entire incisor crown with a few millimeters of gingiva on smile. Intraoral examination showed significant proclination of maxillary incisors and increased anterior overjet and overbite. Lateral cephalogram demonstrated vertical and anteroposterior maxillary excess. The most significant problems were the protrusion and excessive vertical height of the maxilla. Therefore, the treatment plan was to move the maxillary segment upward and backward by LEFORT 1 osteotomy. Presurgical orthodontics was carried out to level and align both arches.



Figure a



Figure b



Figure c



Figure f



Figure d



Figure e



Figure f

Surgical procedure

Under GA, with nasotracheal intubation, standard preparation was done. Maxillary mucobuccal fold is incised from first molar to first molar Subperiosteal dissection, expose anterior wall of maxillary sinus to infraorbital foramen superior Laterally to zygomatic maxillary buttress to allow access to the junction of the posterior maxilla with the pterygoid plates, medially to the piriform aper-

ture with elevation of muco periosteum from lateral wall of nose. horizontal osteotomy is made leaving a 3mm margin of bone above maxillary teeth medially, a thin osteotome used to divide the lateral nasal wall used to create a horizontal osteotomy across the thin bone of posterior wall of the maxillary Sinus, u shaped osteotome is used to separate the nasal crest of the maxilla from the nasal floor while preserving the anterior nasal spine curved osteotome is placed vertically between the maxillary tuberosity and pterygoid plates, struck with mallet to separate structures excess maxillary vertical height is problem, double horizontal osteotomy created on the anterior maxillary wall before down fracture , removal of nasal crest and resection of part of the caudal nasal septum may be required; a septoplasty may also be performed maxilla is firmly grasped down fractured as mucoperiosteum of nasal floor elevated preserved, descending palatine arteries are preserved if possible advancement of maxilla require gentle stretching of soft tissues, allowing maxilla to lie passively in its new position, Teeth wired into their new occlusal relationship with prefabricated dental splint maxillo-mandibular complex gently pushed posteriorly to seat mandibular condyles. Bony interferences checked for, bony projections are removed Rigid fixation is applied 4 L-shaped miniplates, one at each piriform rim one at each-zygomatico-maxillary- buttress- Muco-buccal fold incision closed in one layer with incorporation of a V or Plasty in the midline to restore upper lip contour.

Discussion and Conclusion

Lefort osteotomy was first described 130 years ago for removal of a nasopharyngeal tumour. The maxilla was split at the level now known as a *Lefort I osteotomy*. A further 80 years elapsed before the operation became part of surgical treatment of skeletal deformities of face, method has been developed and refined *Lefort 1 osteotomy* has been frequently applied to cases of vertical maxillary excess [1-3].

The vertical excess causes a long midfacial appearance and display of incisors and gingiva during smiling; Most of them exhibit skeletal Class II malocclusion with maxillary protrusion and proclination of maxillary incisors. To treat patients it is necessary to superior reposition maxillary dento alveolar segment, Currently, there are mainly four basic surgical designs for *Lefort 1 osteotomy*;

traditional le fort 1 osteotomy, maxillary-step osteotomy, high-le fort 1 osteotomy, maxillary horse shoe osteotomy methods. In traditional le fort 1 osteotomy, osteotomy is made with a 2straight line cut from the piriform rim area (4-5mm above apices of teeth) to the pterygoid plate area; separation is done at pterygoid plate-tuberosity area, lateral nasal walls, and septum vomer area. In maxillary step osteotomy, horizontal cuts are made parallel to the Frankfort horizontal plane (4-5 mm above the canine apex) from the piriform rim to the zygomatic buttress area, in buttress area vertical step(usually 5-8mm in length)is made and horizontal osteotomy is continued posterior at the lower level to the pterygoid plates usually parallel to frank fort horizontal plane permitting forward or backward movement of the maxilla, eliminating ramping, maxillary step provides reference point to facilitate repositioning and provides additional area for bone grafting. In high le fort 1 osteotomy, osteotomy is made with a straight line cut from the piriform rim area (4-5mm above apices of teeth) to the pterygoid plate area; separation is done at pterygoid plate-tuberosity area, lateral nasal walls, and septum vomer area, osteotomy is directed posteriorly at the buttress area at a lower level, In maxillary horse shoe osteotomy, horizontal palatal shelf is attached to the nasal septum and lateral nasal walls while mobilizing maxillary dento alveolus.

Bibliography

1. Lefort 1 Osteotomy., *et al.* "Hyman seminars in plastic surgery Displacement of the upper jaw Cheever D W". *Medical and Surgical Report of the Boston City Hospital* 1 (1987): 156.
2. Wassmun M Leipzig and Germany: Meusser. "Frakuren und Luxationen des Gesichtsschadels the Surgical- Orthodontic Approach to treatment of dentofacial deformities". *American Journal of Orthodontics* 55.3 (1969): 217-243.
3. Proffit WR., *et al.* "Orthognathic surgery: a hierarchy of stability". *The International Journal of Adult Orthodontics and Orthognathic Surgery* 11.3 (1969):191-204.