

CASE REPORT

A Case of Cleft Hypoplastic Maxilla corrected by Single-stage Lefort 1 Osteotomy to improve Esthetics and Function

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ABSTRACT

Among the congenital anomalies, cleft lip and palate take about 14% of the total population; among them, unilateral cleft lip and palate is predominant than bilateral. Cleft lip correction preceding the cleft palate is usually done within a gap of 3 years. Due to the wide median palatal cleft, a perfectly performed Langenbeck pushback closures can leave behind persistent oronasal fistulas during the healing process, due to which severe scarring of palatal mucosa takes place. Secondary alveolar grafting is a procedure performed irrespective of the age for persistent oronasal fistulas. Further closure of nasal and palatal fistula with intervening bone graft is always successful but can compromise the growth of maxilla resulting in hypoplasia. In one such case of a failed secondary alveolar grafting, a Lefort 1 advancement alone was done not only to improve the facial esthetics but also function. This paper discusses in detail the comprehensive surgical procedure performed.

Keywords: Cleft-orthognathic surgery, Cleft secondary correction, Esthetic cleft surgeries.

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CASE REPORT

A female patient born to nonconsanguineous parents reported to the Department of Oral and Maxillofacial Surgery, Thai Moogambigai Dental College and Hospital, Chennai with a chief complaint of unappealing facial features and difficulty in speech and swallowing; she

already had undergone repair for unilateral cleft lip and palate. Clinical examination revealed severe hypoplastic maxilla and on intraoral examination showed scarring of the palatal region from previous surgeries done to close the cleft palate, due to which the patient had difficulty in speech and also deglutation. History revealed that cleft lip correction was done at 1 year of age (1989), and at the age of 6 years (1994), cleft palate closure was done; both the procedures were done in Government Hospitals in Chennai. Later, when the patient was about 15 years of age (2005), bilateral sagittal split osteotomy (BSSO) was done in a private hospital in Chennai to set back the mandible. Again in the year 2009, iliac bone grafts were harvested and used for closing the palatal defect in a private institute, but the closure resulted in severe scarring and thus prevented the maxillary growth and resulted in severe maxillary hypoplasia (Fig. 1).

After discussing the case, it was planned for a Lefort 1 osteotomy with advancement up to 10–12 mm approximately in order to get a good esthetics as well as to improve function. The procedure was explained to parents and an informed consent was obtained.

SURGICAL PROCEDURE

Under nasoendotracheal intubation, general anesthesia was administered, intraoral incisions from first molar to first molar were made in the upper vestibule, and bone cuts were made from lateral piriform aperture and continued posteriorly up to the tuberosity area maintaining 5 mm above the roots of the maxillary teeth on both sides using a 701 surgical bur with a straight surgical hand piece;¹¹

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Fig. 1: Preoperative photographs

lateral nasal osteotomes are used to separate the lateral nasal wall on both sides; then a septal osteotome was used to separate the septum; then, the pterygoid osteotomes are used to disjunct the maxilla from the pterygoid bone and a classical Lefort 1 down fracture is performed.⁵ After trimming the sharp margins and with the help of Tiesier maxillary mobilizer, the maxilla is mobilized and advanced anteriorly without any restrictions up to 11 mm approximately; fixation was done with two L-shaped, four-holed miniplates in the pyriform area and two straight four-holed mini plates in the buttress area (Fig. 2) after getting a good occlusion with the mandibular arch. The wound was sutured using 3-0 vicryl sutures after alar cinching⁸ to minimize widening of alar base and the patient was extubated; the postoperative recovery was uneventful.

DISCUSSION

Secondary alveolar grafting,⁴ which was first described in 1970,² is one of the treatment modality in patients with unilateral and bilateral cleft lip and palate.¹⁰ Patients with cleft lip and palate require prolonged interdisciplinary approach and long-term follow-up to establish a final result.⁷

In early stages of cleft palate repair, bone grafts are usually used in closing the bony defects.⁶ In most of the cases, resorption of the graft occurs because of excessive tension in the mucoperiosteum and absence of physiologic stress by the erupting teeth⁴, which ultimately results in inadequate coverage or severe scarring of the palate;³ this can restrict maxillary growth and cause hypoplasia of the maxilla.¹²

Lefort 1 osteotomy is usually the surgery of choice to resolve abnormalities of jaw relationships, such as malocclusions, to correct facial esthetics, and to improve the speech.¹

But 78.5% of surgeons prefer to do Lefort 1 osteotomy with advancement in patients who had already undergone primary closure of unilateral cleft lip and palate with maxillary hypoplasia.¹²

CONCLUSION

After the completion of skeletal growth in craniofacial region, the patient who has already undergone cleft lip and palate repair with secondary alveolar grafting⁹ exhibits a concave profile due to retarded maxillary growth and consequently tends to develop functional problems with speech, deglutition, and also obstructive sleep apnea.¹² In this particular case, by doing a Lefort 1 osteotomy with advancement of approximately 11 mm, we were not only able to get a good esthetic profile but also improve the function (Fig. 3).¹



Fig. 2: Intraoperative photographs



Fig. 3: Postoperative photographs

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