

Early Le Fort I maxillary advancement retained postsurgically by bone-anchored Class III elastics in individuals with cleft lip and palate

Abstract

Objective: To evaluate the stability of Le Fort I osteotomy with maxillary advancement in growing patients with complete unilateral cleft lip and palate (UCLP), retained postsurgically by elastics anchored on miniplates.

Methods: Eighteen patients with UCLP and moderate to severe maxillary deficiency participated of this study. All required Le Fort I osteotomy for maxillary advancement. Experimental group consisted of 9 patients with a mean age of 14.0 year (7 males, 2 females) treated by orthognathic surgery at puberty. Comparison group included 9 patients with a mean age of 20.2 years (2 males, 7 females) treated by conventional maxillary advancement at skeletal maturity. During surgery, Bollard miniplates were installed in the experimental group. Class III elastics anchored on miniplates were worn overnight starting 60 days after orthognathic surgery. Cone-beam computed tomography scans were taken before surgery (T1) and 12 months (T3) after surgery. Digital lateral cephalometric radiographs were taken 2 months postoperatively (T2). The same examiner assessed cephalometric changes using Dolphin Imaging 11.95 software twice with an interval of 30 days. Comparisons between treatment phases and between groups were performed using analysis of variance ($p < 0,05$).

Results: In the experimental group, SNA angle was 76.1° , 81.4° and 80.7° and overjet was -4.9mm , 2.7mm and 2.5mm at T1, T2 and T3, respectively. Statistically significant changes for SNA and overjet were observed for T1-T2 and T1-T3 periods for both groups. There was no difference between groups for SNA and overjet at any interphase.

Conclusion: Osteotomy for maxillary advancement at puberty showed adequate short-term stability when retained by Class III elastics anchored on miniplates.

Keywords: Orthognathic Surgery. Osteotomy. Orthodontics. Cleft lip. Cleft palate.