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Premaxillary osteotomy in children with bilateral cleft lip and palate: Skeletal and dental changes

Purpose: To evaluate changes in children with bilateral cleft lip and palate (BCLP) who premaxillary osteotomy and secondary alveolar bone grafting as compared to children with BCLP who are not indicated for surgery, and to determine variables that differentiate patients who do or do not require osteotomy.

Material and methods: Twenty-four children with BCLP were included in the study: 12 who underwent osteotomy (intervention group) and 12 who had no surgery (control group). Radiographic and model values of the intervention group were compared before (T1) and after (T2) premaxillary osteotomy, and measurements were compared with those from the control group at T1.

Results: Convexity, ANB (point A-nasion-point B), and maxillary depth was more diminished at T2 in children in the intervention group. Point A, anterior nasal spine, and pogonion were retroposed after surgery, and the anterior spine was higher. At T2, the upper incisors were proinclinated and intruded, and overbite was improved.

Models revealed increased intermolar intercanine width as well as intrusion of upper incisor after surgery. Premaxilla and upper molars were more extruded, had a higher total maxillary height and increased extrusion of upper incisor in children who underwent osteotomy.

Conclusion: After surgery, children who undergo surgery have a premaxilla that is more normalized and more level with the occlusal plane, as well as improved dental inclination. Variables that differentiate children who require osteotomy from those who do not include more extrusion and protrusion of the premaxilla, and a greater extrusion of the upper incisors.