MAXILLARY ANTERIOR SEGMENTAL ADVANCEMENT BY DISTRACTION OSTEOGENESIS

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ABSTRACT

Previous researches have shown that distraction osteogenesis is a useful technique that provides many advantages over the regular orthognathic surgical procedures. Treatment of skeletal Class III due to maxillary deficiency in adults usually requires maxillary advancement with complicated or- thognathic surgical procedures that in most cases requires extraction of upper first premolars to de- compensate the proclined upper incisors. The aim of this study was to evaluate the skeletal and den-
tal changes after using intraoral tooth-borne osteodistraction appliance with acrylic base that is cemented on the teeth to advance the anterior segment of the maxilla in patients having Skeletal Class III due to maxillary deficiency. Distraction osteogenesis was performed after two vertical os- teotomies distal to lateral incisors and a horizontal osteotomy that connected the two vertical os- teotomies, just 5mm apical to the roots of the maxillary incisors. Distraction started three days after the surgical osteotomies at a rate of 0.75mm/day and continued for average of 8 $\pm$3 days based on the pre-planned treatment for each patient. The clinical records that included study models and later- al cephalomteric radiographs were obtained before and after distraction of the anterior part of the maxilla. Model analysis indicated increased arch perimeter after distraction osteogenesis by 7.6 $\pm$ 0.75 mm and cephalomteric analysis indicated improved patients profiles after osteotomy (increase in ANB angle 6.3 $\pm$ 3.14 degrees). The obtained arch length was used to correct (decompensate) the axia, inclination of the proclined upper incisors due to the pre-existed skeletal problem or to relief maxillary anterior pre-existing crowding.
In conclusion, the presented technique could be performed easily on an outpatient setting and us- ing a very low cost custom made distraction devices without the need for premolar extraction for de- compensation of the proclined upper incisors in skeletal Class III due to maxillary deficiency.

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