Distraction osteogenesis in adolescents with maxillary arch deficiency and dental crowding: a 3-year follow-up.

BACKGROUND: In this study, the authors evaluated the long-term results after using anterior segmental osteotomy and distraction osteogenesis for the correction of sagittal maxillary deficiency associated with dental crowding.

METHODS: Six young adolescents (four boys and two girls) underwent surgery and distraction at a mean age of 11.2 years (range, 10 to 12 years) and were followed up for 3 years. A tooth-borne distraction device was used for interdental distraction. The evaluation consisted of hard- and soft-tissue profile analysis and dental arch measurements before, immediately after, and 3 years after distraction.

RESULTS: The results showed that the facial profile, the occlusion, and the dental crowding could be successfully corrected and that the results were stable after 3 years’ follow-up. The mean facial convexity angle was changed from 1 to 8 degrees. The average advancement at point A was 4 mm and the SNA increased by an average of 4 degrees. Lengthening of the dental arch by an average of 4 mm created approximately 8 mm of new space, sufficient to resolve the dental crowding in all patients, thus avoiding an extraction of healthy teeth.

CONCLUSION: The results of this study demonstrated that anterior segmental maxillary osteotomy combined with distraction osteogenesis offers an alternative for the treatment of adolescents suffering...
from sagittal maxillary deficiency with dental crowding.