

The efficiency of mandibular mini-implants in reducing adverse effects of class II elastics in adolescent female patients: a single blinded, randomized controlled trial

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Abstract

Background

Excessive proclination of lower incisors and other undesirable consequences usually result from the use of class II elastics during orthodontic treatment. The purpose of this study was to attempt to limit the adverse effects of class II elastics by the use of mini implants placed in the mandibular arch in adolescent class II female patients.

Methods

The sample comprised 28 patients, (a mean age of 15.66 ± 2 years for intervention group and 15.1 ± 2.2 years for conventional group) with one-fourth or one-half unit class II canine relationship. The sample was divided into two equal groups. Randomization was carried out by a computer sequence generator with a 1:1 allocation ratio. In the intervention group, the mini implants were inserted between the lower second premolar and first molar, while the conventional group underwent regular class II elastics therapy. The active elastics treatment time was 8 months for both groups. Results were assessed by measurements from pre- and post-elastics lateral cephalometric radiographs.

Results

The change in L1 inclination ($0.97 \pm 0.92^\circ$) and L1 AP position (0.31 ± 0.63 mm) did not show a statistically significant difference between the two groups, but a statistically significant difference was found in the U1 retroclination ($5.23 \pm 1.92^\circ$) and U1 distal movement (4.05 ± 1.4 mm) [$P < 0.001$] and [$P < 0.05$] respectively in favor of the intervention group.

Conclusion

Mini-implants in conjunction with class II elastics had no skeletal effect, mainly dentoalveolar and it did not prevent the proclination of lower incisors. There was more distal movement in the upper incisors in the skeletal anchorage group which helped in enhancing the camouflaging of class II malocclusion.

