

ABSTRACT

Comparison of alveolar bone morphology after expansion with Hybrid and conventional Hyrax expanders

Introduction: The aim of this study was to compare the buccal and palatal bone changes of maxillary teeth produced by the Hybrid (HH) and Conventional Hyrax (CH) expanders in growing patients. **Methods:** A sample of 32 patients with posterior crossbites in the early permanent dentition was recruited and randomly allocated into two groups. Group HH was composed of 18 individuals with a mean age of 10.7 years (6 female, 12 male) treated with a Hybrid expander with two anterior parasagittal miniscrews. Group CH was composed of 14 individuals with a mean age of 11.4 years (6 female, 8 male) treated with conventional Hyrax expanders. Cone-beam computed tomography (CBCT) exams were obtained before expansion and after expansion. Buccal and palatal bone plate thickness and height of maxillary posterior teeth were measured. Intergroup comparisons were performed using t or Mann Whitney tests ($P < 0.05$). **Results:** The CH group caused greater decreases of the buccal bone plate height (mean change of 1.27 mm) at the maxillary first premolars compared to HH group (mean change of 0.11 mm, $p = 0.001$). No intergroup difference was found for changes in the buccal and palatal bone thickness. **Conclusion:** Hybrid expanders showed a tendency to cause less negative impact on the buccal bone height of first premolars compared to conventional Hyrax expanders. In patients with delicate periodontal biotype, Hybrid expander is an alternative to prevent buccal bone dehiscence.

Keywords: Orthodontics, Interceptive; Palatal expansion technique; Imaging, Three-dimensional.

