ORTHODONTICS

Fixed versus removable retainers for the long haul

BACKGROUND

After orthodontic treatment, it's not uncommon for prolonged and sometimes indefinite retention to be prescribed for the patient to keep the teeth alignment from being lost. However, little evidence exists regarding the relative effectiveness of fixed versus removable orthodontic retainers, especially over a period of time exceeding 2 years. In addition, few randomized controlled trials (RCTs) address the effectiveness of fixed versus vacuum-formed retainers (VFRs). A comparison of the stability of treatment and periodontal health with fixed retainers versus VFRs over the course of 4 years was undertaken.

METHODS

The 42 participants who remained in the study to the end were randomly assigned to receive either mandibular fixed retainers from canine to canine or removable VFRs. Among the measurements obtained to evaluate stability of treatment and periodontal health were irregularity of the mandibular anterior segment, mandibular intercanine, and intermolar widths, clinical attachment level, and bleeding on probing.

RESULTS

Twenty-one participants were in each treatment group. The 2 groups were well matched as far as age, sex, and treatment protocol. When fixed retainer integrity was considered, 100% of the retainers were in place at the final recall, although 3 were partially detached and 2 had been repaired. Among the group receiving removable retainers, noncompliance levels had increased from 0% in the first 6 months after treatment to 19% at 12 months, 52% at 2 years, and 67% thereafter.

Some relapse was noted in both treatment groups in the mandibular anterior segment after 4 years. The median increases in irregularity were 0.85 mm in the fixed retainer group and 2.37 mm in the removable retainer group. Adjustment for confounders yielded a median between-group difference 1.64 mm higher in those wearing VFRs. The intercanine and intermolar widths, arch length, and extraction space opening did not differ significantly between the treatment groups.

Periodontal parameters did not differ significantly between the fixed and removable retainer groups. The fixed retainer group had slightly lower median scores for the modified gingival index than the removable retainer group. Median plaque levels and clinical attachment levels were slightly higher in the fixed group, but the difference did not reach statistical significance.

DISCUSSION

Fixed retainers were more successful at preserving mandibular anterior segment alignment than VFRs, although both groups demonstrated some deterioration. Periodontal conditions were not considered healthy in either group, with both having significant gingival inflammation and elevated plaque levels.

Clinical Significance

The study group was a relatively small sample, which reflects some of the difficulty retaining sufficient numbers of participants for a long-term study. However, fixed retainers were more effective in maintaining alignment over the course of 4 years compared to VFRs. Both groups suffered poor periodontal outcomes, a fact that testifies to the importance of meticulous oral hygiene before, during, and after orthodontic treatment to prevent gingival inflammation.

Al-Moghrabi D, Johal Am O'Rourke N, et al: Effects of fixed vs removable orthodontic retainers on stability and periodontal health: 4-year follow-up of a randomized controlled trial. *Am J Orthod Dentofacial Orthop* 154:167-174, 2018

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