

Comparison of four cordless gingival displacement systems: A clinical study

Ahmed Naguib ,Mohammad M. Rayyan, Nagwa M. Sayed, Rima Abdallah, Essam Osman, Nayer Abo El Saad, Samiha Ramadan

Abstract

Statement of problem

Although the conventional chemicomechanical cord technique is widely used, packing the cord into the sulcus may cause pain and bleeding. Cordless displacement techniques have been introduced, but a comparison of these systems is lacking.

Purpose

The purpose of this clinical study was to evaluate the efficiency and gingival response of 4 cordless gingival displacement systems.

Material and methods

One hundred twenty teeth in 30 participants were allocated to 4 groups according to the material used: Tr (Traxodent; Premier Dental Products Co), Es (Expasyl; Acteon UK), Ez (Expazen; Acteon UK), and Mr (3M Retraction; 3M ESPE). Baseline measurements of periodontal indices and a digital scan were acquired. The cordless displacement pastes were applied according to the manufacturer's instructions. After removal, a second scan was acquired. Participants were recalled on the 2nd and 14th day to measure periodontal indices and for scans. Screenshots were superimposed to measure changes in the gingiva. Statistical differences among the different materials in achieving lingual and buccal vertical gingival displacement were tested using the related-samples Friedman 2-way ANOVA test by ranks at 3 time points such as immediate, at 2 days, and at 14 days * $\alpha=0.05$).

Results

Immediate gingival displacement varied with the system used. For horizontal displacement, median values ranged between 150 μ m (Tr) and 725 μ m (Ez) for buccal displacement and between 93 μ m (Tr) and 550 μ m (Ez) for lingual displacement. Minimum and maximum displacements also varied and followed a similar trend, with Traxodent providing the lowest displacement. The plaque index and attachment level did not statistically differ before and after the treatment. The periodontal parameters were not statistically significant among the groups at all time intervals, except for the gingival index that increased for all the groups after 2 days.

Conclusions

Significant differences were found among the 4 tested systems in both vertical and horizontal gingival displacement. Expasyl, Expazen, and 3M Retraction exceeded the 200 μ m requirements for horizontal displacement. Traxodent provided the least displacement in both vertical and horizontal dimensions.

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