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Original Articles

Microleakage under Orthodontic Brackets Using High-Intensity Curing Lights

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Abstract

Objective: To compare the microleakage of the enamel-adhesive-bracket complex at the occlusal and gingival margins of brackets bonded with high-intensity light curing lights and conventional halogen lights.

Materials and Methods: Forty-five freshly extracted human maxillary premolar teeth were randomly separated into three groups of 15 teeth each. Stainless steel brackets were bonded in all groups according to the manufacturer's recommendations. Specimens (15 per group) were cured for 40 seconds with a conventional halogen light, 20 seconds with light-emitting diode (LED), and 6 seconds with plasma arc curing light (PAC). After curing, the specimens were further sealed with nail varnish, stained with 0.5% basic-fuchsin for 24 hours, sectioned and examined under a stereomicroscope, and scored for microleakage for the enamel-adhesive and bracket-adhesive interfaces from both the occlusal and gingival margins. Statistical analyses were performed using Kruskal-Wallis and Mann-Whitney *U*-tests with a Bonferroni correction.

Results: The type of light curing unit did not significantly affect the amount of microleakage at the gingival or occlusal margins of investigated interfaces ($P > .05$). The gingival sides in the LED and PAC groups exhibited higher microleakage scores compared with those observed on occlusal sides for the enamel-adhesive and adhesive-bracket interfaces. The halogen light source showed similar microleakage at the gingival and occlusal sides between both adhesive interfaces.

Conclusions: High-intensity curing units did not cause more microleakage than conventional halogen lights. This supports the use of all these curing units in routine orthodontic practice.

Keywords: [Microleakage](#), [Light source](#), [Halogen](#), [LED](#), [PAC](#)

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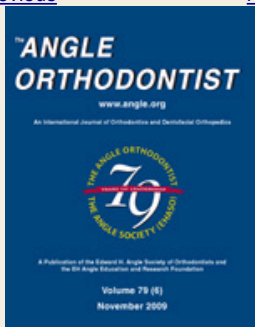
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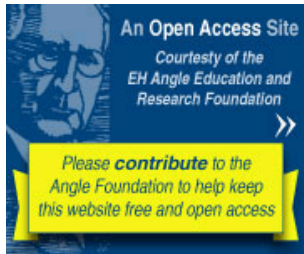
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