

Reducing microleakage in composite resin restorations: self-etching adhesives and pre-protocols. Comments on the article by Cahuayme & Chavez (2023)

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Dear editor:

We read the article by Cahuayme & Chávez (1) titled «Comparison of the degree of microleakage in three restorative systems using universal adhesives: *in vitro* study», which caught our attention due to the comparison of the most commonly used restorative systems in the field of dentistry in Peru, regarding the use of universal adhesives. This work demonstrated that the degree of microleakage was observed at the enamel, dentin, and pulp level, with no significant difference between the three brands used (1, 2).

Regarding it, microleakage usually causes recurrence of caries and may lead to dental tissue loss. This variable can be influenced by the adhesive used. However, it is important to consider other factors that may influence the reduction of microleakage of composite restorations, such as the use of a base and a surface sealer, since some studies emphasize that their management reduces microleakage, regardless of the adhesive system used (3). Furthermore, it has been observed that the total etching, prior to the application of a conventional adhesive, decreases microleakage in enamel compared to the universal adhesive in self-etch mode. This shows that there is an increase in micromechanical retention due to the roughness induced by the acid (4), coinciding with the reported by Córdova-López et al. (5).

In fact, during a thorough evaluation, it was established that the strength of the universal adhesive system has better adherence when using it in its different etching modes, whether that is self-etch, selective or total. Regarding the selective etching mode, it presents greater bonding strength with enamel and dentin (6).

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When using conditioning through total etching, before using the eighth-generation system, a better function of this adhesive is obtained, since it allows for better marginal sealing, creating a significant reduction of fluid leakage (7).

Additionally, it was found during research that when cleaning the cavity with 2% chlorhexidine prior to the adhesive protocol, and using the total etching technique, there was a significant decrease in microleakage, providing a better sealing capacity in the dentin margins (8).

Finally, the studies done on universal or multimode adhesives show that only their use does not eliminate microleakage completely. Furthermore, the microleakage reduction is influenced by the protocol done prior to the use of the self-etching adhesive system, which can be the one of cavity cleaning using chlorhexidine and the etching technique used, or both. Therefore, it is recommended to do more *in vitro* studies to evaluate the influence of other factors that would help the self-etch adhesives to eliminate microleakage.

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