Marginal Microleakage In Vitro Study of Oclusal Fissures Sealing Prepared and Etched or not with Er:YAG Laser.

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The aim of this in vitro study was to evaluate the degree of marginal microleakage in oclusal sealing by invasive techniques, after preparation with Er:YAG laser followed or not by Er:YAG laser etching and compared to the conventional technique. Thirty human premolars were divided into three groups: A (control group) – cavities were prepared with high speed and etched with 37% ortophosphoric acid; group B – cavities were prepared with Er:YAG (350 mJ, 4 Hz and 112 J/cm^2) and etched with 37% ortophosphoric acid; group C – cavities were prepared with Er:YAG laser (350 mJ, 4 Hz and 112 J/cm^2), and etched with Er:YAG laser (80 mJ, 4 Hz and 25 mJ/cm^2). All cavities were treated with the same adhesive system and restored with flow composite according to manufacturer instructions. Teeth were submitted to thermal cycling procedures and immersed in 50% Silver Nitrate Solutions for 8 hours in total darkness. Teeth were sectioned longitudinally in the bucco-lingual direction, in slices of 1 mm thick. Each slice was immersed into photo developing solution under 16 hours of fluorescent light. Slices were photographed and microleakage was scored from 0 to 7, by three standard examiners. Results showed statistically significant differences for group C (Er:YAG laser preparation