

Optical Coherence Tomography Study of wear and tear in microabrasion enamel of primary teeth

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The esthetics appearance is very important to social acquaintanceship and in psychological health of the people, especially when children are the subject. Because of these reasons patients and guardians they want and expect from the dentists proceedings that can reduce or that eliminate the alterations in color of the teeth. The microabrasion technique is used for this objective, in order to perform the superficial wear of dental enamel by action of the mixture of acid pH material with abrasives particles. The aim of this study is quantify the damage induced on enamel surface of primary teeth after microabrasion technique. In order to do so, 10 applications of paste prepared (1:1) with 37% phosphoric acid (FGM) and pumice (SS White) were realized in labial surface of primary incisor teeth, with a rubber cup inserted in a contra-angle slow-speed hand piece (12.000 rpm). The time (10 seconds) and pressure (30g) were controlled. After each application of 10 seconds, the surface were flushed by 20 seconds with spray air/water and air-dried. The specimens were analyzed by optical coherence tomography (OCT), before, during and after the microabrasive proceedings, and images were also done, after 0, 3, 5, 7 and 10 applications. Results: The erosion depth measured at 500 μm far for the rubber center was 7 (4) μm after 3 application and 45 (14) μm after 10 applications. At 1000, 1500, and 2000 μm far from center it was 11 (6) μm and 50 (22) μm , 17 (10) μm and 65 (17) μm and 19 (11) μm and 93 (30) μm respectively. It was possible to determine that, in this model, the erosion depth grows lineally with the number of applications; the erosion rate was 3.9 (0.4), 5.6 (0.2), 7.1 (0.4) and 11.6 (0.9) for the same position describe previously. Conclusions: It was concluded that erosion rate it is not uniform in the rubber area. It was possible to demonstrate that the erosion depth grows linearly with the number of successive applications, and it is also grows linearly with the distance to the rubber cup center.