

Evaluation of Pumice, Fissure Enameloplasty, Dentin Adhesive and Air Abrasion on Sealant Microleakage

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Abstract

Purpose: To evaluate microleakage of pit and fissure sealant after using four different pit and fissure preparation techniques 1) Pumice prophylaxis and acid etching 2) Fissure enameloplasty and acid etching 3) Self etching adhesive system 4) Air abrasion and acid etching.

Methods: Eighty exfoliated primary molars with no clinical evidence of caries were randomly divided into 4 groups of 20 each. Teeth were prepared using 1 of 4 occlusal surface treatment prior to placement of Conseal F opaque light cured sealant.

The teeth were thermocycled between $5 \pm 2^{\circ}\text{C}$ and $55 \pm 2^{\circ}\text{C}$, for 500 cycles with dwell time of 30 seconds then stored in 0.9% normal saline.

All teeth were sealed apically and coated within 1.5 mm of the sealant margin with 2 layers of nail varnish.

The teeth were immersed in a 1% solution of methylene blue for 24 hours to allow dye penetration.

Three buccolingual cuts parallel to the long axis of the teeth were made yielding 4 sections and 6 surfaces per tooth for analysis.

The surfaces were scored 0 to 3 for extent of microleakage using a binocular microscope at 25x magnification.