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EFFICACY OF FLUORIDE VARNISHES IN PREVENTING ENAMEL DEMINERALIZATION

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Demineralization is a process in which the inorganic content of the enamel structure is lost leading to occurrence of white spot lesions. The purpose of this study was to examine fluoride varnish effect on enamel. The study involved 20 premolars extracted for orthodontic reasons. Before the extractions, brackets were bonded with one type of adhesive according to manufacturers 'bonding instructions. After bracket bonding, ten left premolars (the test group) were kept dried by careful tooth isolation and the enamel received a topical application of fluoride varnish (Duraphat®, Germany). Ten right premolars (the control group) did not receive any varnish application and brackets were fixed using identical procedures. After two months, the premolars were extracted and prepared for SEM analysis. Samples treated with fluoride varnish showed a nearly smooth surface, with complete obtrusion of interrod spaces in some fields. The rods appeared as they were fused together with some globules deposited on the surface, relatively no evidence of porosities or irregularities. Within control group demineralization started on enamel surface, but still with adequate and genuine prisms together within interprismatic space. Micro-morphological surface observation of the enamel surfaces showed demineralized surface as rough and uneven tooth enamel (shrinking of prisms, due to the widening of the prismatic spaces). Fluoride varnish application on enamel surface prevents demineralization processes. Fluoride application could act as a 'barrier' against the demineralization processes on enamel.

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