

## White Spots Lesion with Patient Undergoing Orthodontic Treatments and Preventive Procedures.

**Mahmoud Alsuleiman\***

*Professor in Department of Orthodontics- Dental school, University of Aleppo-Syria Consultant in Orthodontics in Dental Planet Clinic, Jeddah Saudi Arabia*

**\*Corresponding Author:** Mahmood Alsuleiman, Professor in Department of Orthodontics-Dental School, University of Aleppo-Syria. Consultant in Orthodontics in Dental Planet Clinic, Jeddah Saudi Arabia.

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Enamel demineralization appearing as clinically white spot lesion is a significant problem and can cause major clinical complications of orthodontic treatment with fixed appliances. Prevalence of white spot lesions after orthodontics treatment reported to varying from one-third up to 96 per cent in patients undergoing fixed appliance therapy. The placement of fixed orthodontic appliances creates a favorable environment for the accumulation of microorganisms, which causes enamel demineralization or exacerbates the effects of any pre-existing caries. [1,2]

Different methods to prevent enamel demineralization around orthodontics brackets were studied, such as topical fluoride application and using fluoridated phosphoric acid. Incorporation of fluoride agents into bonding adhesives affects their mechanical properties and increases bond failure rate. Using fluoride toothpaste and daily rinsing with a 0.05% sodium fluoride mouth rinse appears to reduce the incidence of decalcification in patients undergoing orthodontic treatment with fixed appliances. [3,4]

Acid etching itself caused some damage to dental enamel and exaggerated its demineralization, Previous studies where phosphoric acid was used at different concentrations (5-15-37) % with varying application times (15-30-60s), concluded that the acid concentration can be reduced significantly without a significant increase in the failure of bonding, and clearly explained that enamel decalcification during orthodontic treatment may be reduced by decreasing the phosphoric acid concentration and the duration of etching and our study shows that 25% concentration of phosphoric acid is better for clinical application whereas the enamel damage reduced and shear bond strength increased. [5]

Patients' compliance and their cooperation in orthodontic treatment and oral hygiene are considered a problematic matter. Orthodontists do not implement the available evidence in order to prevent enamel demineralization during fixed-appliance treatment. Successful preventive strategies must be based on noncompliance method. The application of fluoride varnish (FV) can be considered an efficient preventive method to enhance enamel resistance against the cariogenic challenges during orthodontic therapy.

Clinicians should consider applying FV on areas of enamel that exhibit demineralization or are at risk of demineralization in patients with poor oral hygiene. One topical application of FV with a high concentration can decrease enamel lesion depth adjacent to bonded brackets by about 40% for 3 months To prevent decalcification, it has been recommended to use casein phosphopeptide-amorphous

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calcium phosphate (CPP-ACP), which may assist remineralization and can maintain high concentration gradients of calcium and phosphate ions and ion pairs into the subsurface lesion, thus leading to high rates of enamel remineralization. The presence of CPP-ACP agent delays the biofilm formation and favors the nucleation and crystallization of calcium phosphates, possibly in apatite form, in matured biofilms [26]. The application of CPPACP before bonding improves the shear bond strength (SBS) to demineralized enamel. [27] The application of teeth mousse (CPP-ACP) can significantly prevent enamel demineralization when composite resin is used for bonding. [6]

Our study concluded that the monthly application amorphous calcium phosphate (GC Tooth Mousse), is effective on prevention of demineralization around orthodontic brackets during orthodontic treatment with fixed appliance.

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