Creation of a protective barrier around orthodontic brackets.

by Dr. Jacqueline Esch

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Risk Factors Orthodontic Brackets

An increased caries risk is present in orthodontic patients with fixed brace appliances. This is because the brackets and archwires act as additional retention sites for food and bacteria, affect the natural flow of saliva in the mouth and hinder effective tooth brushing. Therefore, a specific oral care concept is required. One of the preventive measures for patients with orthodontic brackets carried out in our international practice for paediatric dentistry is the use of 3M™ Clinpro™ XT Varnish Durable Fluoride-Releasing Coating as a protective coating for high-risk, caries-prone areas.

Protective Coating

This liquid/paste glass ionomer coating offers sustained fluoride and calcium phosphate release. It can be recharged by the use of fluoride tooth paste and remains on the tooth surface for at least six months. As confirmed by in-vitro studies, the specific formulation leads to the creation of a caries inhibition zone in the areas under and around the coating. [1] The application of the varnish as a site-specific protective coating around brackets is demonstrated using the following patient case.

Figure 1: Patient with orthodontic brackets shortly after their placement. The tooth surface around the brackets is cleaned with a rubber brush.
Figure 2: For optimal removal plaque and debris, 3M™ Clinpro™ Prophy Paste may be used. A cleaning medium containing oils is not indicated.

Figure 3: Thorough removal of the polishing paste by rinsing with water.

Figure 4: Removal of pooled water on the surfaces around the orthodontic brackets with air. The tooth should still be slightly moist afterwards.

Figure 5: Application of 35% phosphoric acid etchant to the enamel surfaces. The recommended etching time is 15 to 60 seconds.

Figure 6: Thorough rinsing with air/water spray for complete removal of the etchant.

Figure 7: A small amount of 3M™ Clinpro™ XT Varnish is dispensed onto the mixing pad. The Clicker™ Dispenser ensures that the correct mixing ratio is obtained.

Figure 8: Mixing paste and liquid components with a small spatula for a homogeneous result with smooth consistency. The optimal mixing time is 10 to 15 seconds.

Figure 9: Application of the glossy coating to the vestibular tooth surfaces around the orthodontic brackets with a brush. The layer should not be thicker than 0.5 mm. Contact with the soft tissues should be avoided.
Figure 10: Light-curing of each area for 20 seconds. In areas without exposure to the curing light, the delayed auto-setting mechanism of the coating ensures a complete cure.

Outcome

The result of this treatment is a protective coating of the tooth surfaces with increased risk for caries or white spot lesions. For an ideal effect, the application should be repeated after six months. At any time, it is possible to remove the coating by cleaning the tooth surfaces with a coarse prophy paste. In our experience, the described application of Clinpro™ XT Varnish is an effective preventive measure for high-risk, caries-prone areas including around fixed orthodontic brackets and acid erosion-prone surfaces.

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Dr. Jacqueline Esch graduated from the University of Regensburg (Germany) in 1991. She worked as an assistant teacher at the University of Regensburg for 6 years. In 1997 she joined a private practice for paediatric dentistry in Munich, where she developed a keen interest in all aspects of paediatric dentistry including the treatment of anxious patients, advanced tooth decay, paediatric crowns and treatment under nitrous oxide. In 2000 she completed a continuing education program in Newark, NJ (USA) with Prof. M. Haupt.

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