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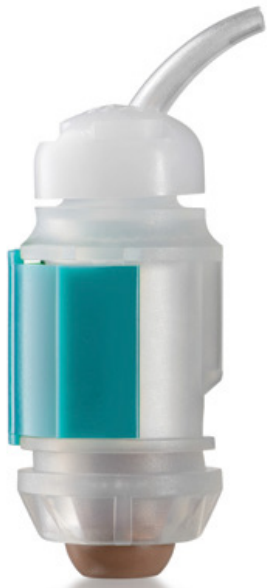

While there has been a great deal of progress made in the reduction of tooth decay through an increased focus on caries risk assessment and preventive protocols, dental caries continue to be a significant problem—especially for pediatric patients. A dynamic disease process, the development of caries is a balancing act between protective factors like saliva, calcium, phosphate and fluoride, and pathological factors in the mouth like bacteria and sugar. Periods of demineralization of the hard dental tissue alternate with periods of remineralization, and as primary teeth exhibit thinner enamel than permanent dentition, they remain particularly susceptible to carious lesions.

Early white spot lesions can often be reversed with home hygiene and fluoride varnish treatment, but once a primary tooth has been cavitated, restorative treatment is necessary to gain control of the bacterial infection. There are multiple options available to clinicians, but for minimally invasive caries control on primary teeth, treatment with a glass ionomer restorative offers a quick and simple solution that means less time in the chair. Although some initial glass ionomer materials were difficult to handle, exhibited poor wear resistance and were brittle, advancements in glass ionomer formulation have led to better properties, and this class of material now shows improvement in handling characteristics, decreased setting time, increased strength and improved wear resistance.

In addition to being some of the most caries-prone patients in an office, pediatric patients can also be the most restless, and at times, the least cooperative. 3M™ Ketac™ Universal Aplicap™ Glass Ionomer Restorative offers an example of an improved glass ionomer formulation with low stickiness for easy handling and one-step placement without the need for conditioning, coating or light curing—eliminating steps that can slow the procedure down.

Tests have exhibited that Ketac Universal restorative continues to deliver compressive strength and surface hardness that are higher than several competitive glass ionomers that require coatings, meaning that this restorative material is strong enough for stress-bearing indications.

Case Presentation

The patient was a 5-year-old female who presented with carious lesions in the primary first and second molar (Fig. 1). Minimally invasive cavity preparation is completed to remove all decay (Fig. 2). A Tofflemire matrix is placed to restore anatomic proximal contours and contact areas (Fig. 3) before bulk placement of 3M™ Ketac™ Universal Aplicap™ Glass Ionomer Restorative into cavity (Fig. 4). This material exhibits medium viscosity, enabling the extrusion of the mixed paste through a tapered nozzle for better access to the cavity. Because the material is also less sticky, Ketac Universal Aplicap restorative resists sticking to dental instruments while filling, but at the same time remains sticky enough to stay in the prepared cavity. After filling the cavity, the material is allowed to self-cure before finishing the occlusal surface with a fine diamond bur (Fig. 5). The final result is esthetic and strong (Fig. 6).

Conclusion

Using a glass ionomer to restore primary teeth is an effective and quick way to control caries in pediatric patients, and the optimized properties of new materials on the market provide efficiency without compromising strength. It's important to note that the caries prevention process should be reviewed at each pediatric appointment. The patient should be recalled in three to six months depending on his/her caries risk level, and at-home oral hygiene or prescription dentrifices should be discussed thoroughly to ensure that the parents and caregivers of pediatric patients are aware of dietary risks and proper hygiene practices.

About the author

Dr. Jacqueline Esch attended the University of Regensburg in Germany and graduated in 1990. Upon graduation, she worked at the university as an assistant professor and assistant dentist before joining a private pediatric dentistry practice in Munich in 1997. As part-owner of the practice since 1999, her primary research interests are in the areas of pediatric and adolescent dentistry. Dr. Esch has received international recognition from the Pierre Fauchard Academy, and she has published extensively in the area of pediatric dentistry. Dr. Esch continues to grow her pediatric practice with over 20 years of professional experience. www.kinderzahnaerzte.com

Dr. Esch has received honorarium from 3M Oral Care.

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