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Interim therapeutic restoration in the primary dentition

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Interim therapeutic restoration (ITR) may be the procedure of choice for restoration in uncooperative children, young children, or children with special needs when definitive restorative treatment cannot be performed. ITR avoids the use of sedation or general anesthesia until a child is old enough to cooperate or curtails caries progression and/or emergency care, while awaiting availability of sedation or general anesthesia services (Kateeb *et al.*, 2013).

Indications

Alternative/atraumatic restorative technique (ART) is performed with similar indications and techniques as ITR; however, ART restorations have been traditionally placed where people have limited ability to obtain dental treatment and without a plan for future replacement (American Academy of Pediatric Dentistry, 2014a; AAPD Reference Manual, pp. 48–49). ART was first introduced 26 years ago in Tanzania and has developed into an accepted protocol for caries management to improve quality and access to dental treatment over the world (Frencken *et al.*, 2012). Mahoney *et al.* (2008) state that ART should be used only when the restoration can be periodically evaluated to insure integrity of the restoration.

ITR is minimally invasive and includes only asymptomatic primary incisors or molars with lesions confined to dentin with sound enamel margins, along with a

plan for future follow-up and final restoration (Amini & Casamassimo, 2012). Two surfaces may be treated, but the use of a matrix and rubber dam increases the complexity of the procedure, and the longevity of a multisurface glass ionomer restoration is reduced compared to a one-surface restoration. Survival rates over the first 2 years of 93% for single surface and 62% for multiple surface primary molar restorations are reported (de Amorim *et al.*, 2012). Carious lesions ideal for ITR are mesial caries on maxillary incisors, facial caries, cervical caries, and occlusal caries in the primary dentition (Figures 1.1–1.4).

Stepwise excavation of open carious lesions is another indication for ITR (American Academy of Pediatric Dentistry, 2014b; AAPD Reference Manual, pp. 48–49). Partial removal of carious dentin avoids pulpotomy. Microbial counts of bacteria are reduced under the restoration with or without complete removal of the carious dentin (Lula *et al.*, 2009).

Procedure

The procedure can be performed in 5 min or less without the use of local anesthesia or a rubber dam. The nonpainful carious dentin is removed with a large round bur in a slow-speed rotary instrument (Figure 1.5). A spoon excavator may also be used, but cautiously, due to the risk of unroofing the pulp chamber with a large mass of carious dentin (Figure 1.6). A dri-angle or



Figure 1.1 Mesial caries maxillary primary central incisors.



Figure 1.4 Occlusal caries mandibular right second primary molar.



Figure 1.2 Facial caries maxillary primary central incisors.



Figure 1.5 Slow speed with round bur to remove superficial caries.



Figure 1.3 Cervical caries primary canines and first primary molars.



Figure 1.6 Spoon excavator to remove superficial caries.

dri-aid is used to cover Stensen's duct and provide cheek retraction for a posterior restoration. When restoring a mandibular primary molar, a second dri-angle/dri-aid may be placed on the lingual to retract the tongue, while placing the glass ionomer restoration (Figure 1.7).

Materials

A high-viscosity glass ionomer is the material of choice for restoration owing to the ease of use and



Figure 1.7 Dri-angles to retract cheek and tongue while placing glass ionomer.



Figure 1.8 Clinician's finger compressing glass ionomer.

physical properties. Glass ionomer is fluoride releasing, esthetically acceptable, tolerates some moisture contamination, chemically bonds to the tooth, and chemically cures. Application with the use of preloaded capsules in a capsule applier or gun significantly reduces working time. After placement in the preparation,

finger pressure may be used to compress the material, removing occlusal contacts to increase longevity of the restoration (Figure 1.8). Finishing is not necessary. Select a material with a fast setting time to insure the procedure is completed in the shortest possible chair time.

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