

Masterclass in Clinical Practice

Paedodontics with

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Resin restoration of Class II cavity preparations on primary molars

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Introduction

Primary molars contribute to mastication and act as space maintainers until the permanent premolar teeth erupt. According to Schwartz et al. (1984) the progression rate of approximal carious lesions in primary molars is relatively faster compared to permanent teeth. The most common restorative materials used for restoration of primary teeth include hybrid composite resin, resin modified glass ionomer cement and conventional glass ionomer cement. Due to the anatomy of primary molars, establishing a good interproximal contact is challenging and often the reason for failure of class II restorations.

This article will illustrate materials and techniques used for the restoration of a class II lesion on a first primary molar with composite resin and a sectional matrix system.

Case Report

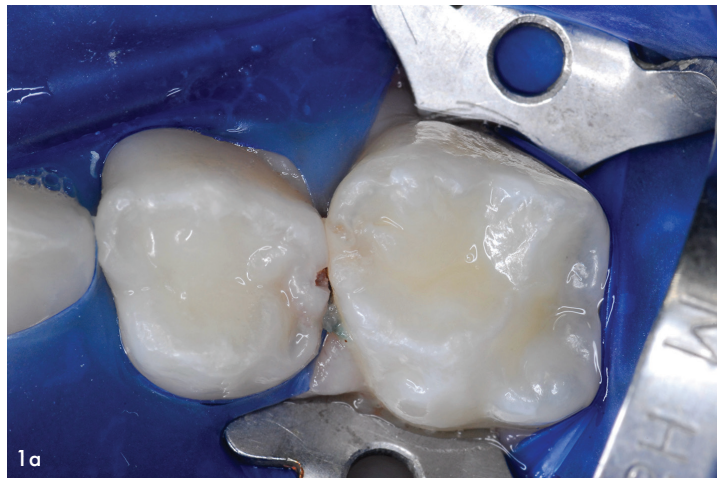


Figure 1. A 6-year-old patient presented with a carious lesion on the distal aspect of her maxillary left first primary molar (a). The tooth was anaesthetized using a combination of topical anaesthesia and buccal and interpapillary infiltration using a computer controlled local anaesthetic delivery system, (STA, Milestone Scientific). Rubber dam was placed using an ASH MUK rubber dam clamp (Dentsply Sirona) (b) and DermaDam non latex dam (Ultradent).



Top Tip: Perform interpapillary infiltration, from buccal to palatal, after the buccal infiltration. This allows painless anesthesia of the interproximal and palatal tissue for painless clamp and matrix band placement.



Figure 2: Cavity preparation and caries removal (a) were completed using a caries indicator solution (Sable Seek, Ultradent). A Palodent Plus sectional matrix (4.0 mm) (b) was placed and secured with a size medium Palodent Plus wedge (Dentsply Sirona)(c). A Palodent Plus narrow NiTi ring (Dentsply sirona) (d) was placed to position the matrix against the proximal walls of the cavity preparation and to create a separation force between the primary molars to ensure a predictable interproximal contact.

Top Tip: Use caries indicator dye for minimally invasive cavity preparations and to avoid iatrogenic pulpal exposures.

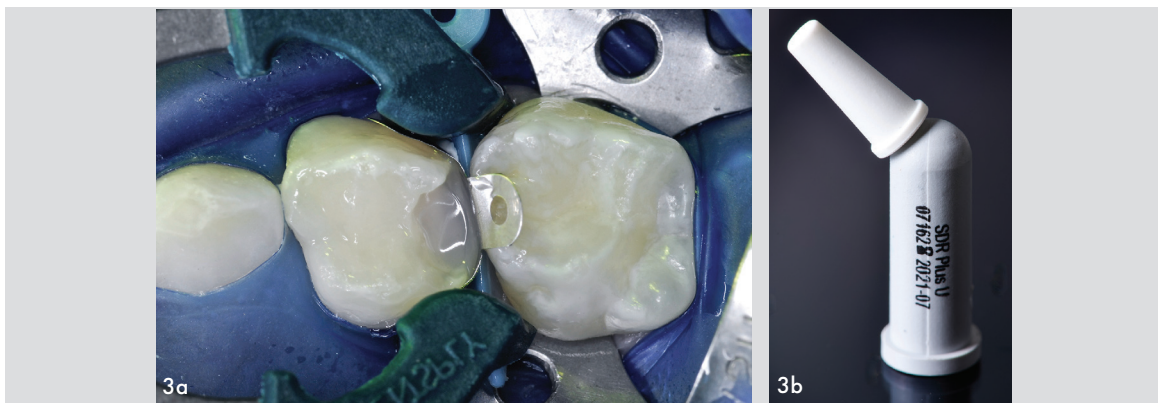


Figure 3: After etching and application of Prime and Bond Universal (Dentsply Sirona) bonding resin, the solvent was evaporated with a gentle air stream for 4-5 seconds and light-cured for 20 seconds. (a) A 4 mm increment of SDR Plus (Dentsply Sirona) (b) was dispensed onto the floor of the cavity to ensure excellent adaption of the material to the cavity walls and gingival margin and light-cured for 20 seconds.

Top Tip: Bulk fill composites save time, which is essential to maintain patient cooperation in paediatric dentistry. SDR plus has the added benefit of containing fluoride to remineralize adjacent and surrounding tooth structures.

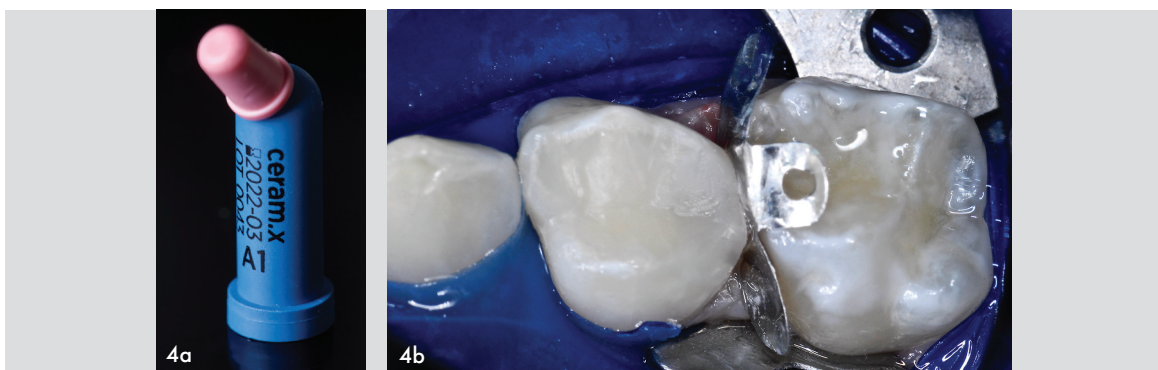


Figure 4: The final layer was restored with Ceram.x composite resin (a) (Dentsply Sirona) (shade A1) and light-cured for 40 seconds. The NiTi ring was removed and the wings of the sectional matrix reflected towards the adjacent primary molar (b) to create access for finishing of the proximal margins with discs.

Top Tip: Leave the sectional matrix in place during finishing and polishing to limit iatrogenic damage to the adjacent tooth.

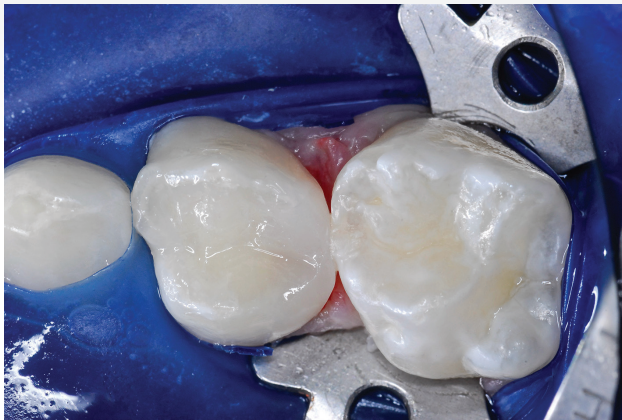


Figure 5: Final restoration after finishing and polishing. Note the natural appearance of the restoration with the correct interproximal anatomy and contact point.



Figure 6: At an 18 month recall visit, the restoration still demonstrated optimal aesthetics, function and interproximal contact.

Conclusion

This article illustrates a simple approach to obtain predictable results in class II restorations in deciduous teeth by using adequate local anaesthesia, rubber dam isolation, a sectional matrix system and bulk full composite.

Reference

Shwartz M, Grondahl HG, Pliskin J, Boffa J. A longitudinal analysis from bite-wing radiographs of the rate of progression of approximal carious lesions through human enamel. Archives of Oral Biology, 29, 529-536, 1984