



# Bonded resin composite strip crowns for primary incisors: clinical tips for a successful outcome

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## Abstract

The bonded resin composite strip crown is perhaps the most esthetic of all the restorations available to the clinician for the treatment of severely decayed primary incisors. However, strip crowns are also the most technique-sensitive and may be difficult to place. The purpose of this step-by-step technique article is to present some simple clinical tips to assist the clinician in achieving an esthetic and superior outcome. (*Pediatr Dent* 24:145-148, 2002)

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The bonded resin composite strip crown<sup>1</sup> is perhaps the most esthetic of all the restorations available to the clinician for the treatment of severely decayed primary incisors. However, strip crowns are also the most technique-sensitive and may be difficult to place.<sup>2</sup> The purpose of this step-by-step technique article is to present some simple clinical tips to assist the clinician in achieving an esthetic and superior outcome.

## Clinical technique

The procedure and clinical tips for placing bonded resin composite crowns for primary incisors are described below and illustrated in Figs 1-9.

## Oral hygiene

It is advantageous to obtain ideal oral hygiene prior to commencement of treatment. Parents should be instructed and convinced that they bear partial responsibility for success of treatment by preparing their child's gingiva for the procedure. Inflamed gingiva may interfere with proper curing of the restorations, resulting in discolored crowns due to excessive bleeding during the curing process (Fig 1a). The result obtained in Fig 1b was attainable due to healthy, pink, non-bleeding gingiva.

## Strip crown preparation

Preparation of the strip crown may be accomplished prior to the treatment visit. The crown is pierced with a sharp explorer at the mesial or distal incisal angle to create a core vent for the escape of any air bubbles entrapped in the crown (Fig 2a). Care must be taken not to damage the proximal

seams of the crown. Following vent preparation, sharp, curved scissors should be used to trim the crown gingival margins (Fig 2b). To ensure sharpness, task-designated scissors are recommended for this purpose only. If there is any



Fig 1a.



Fig 1b.

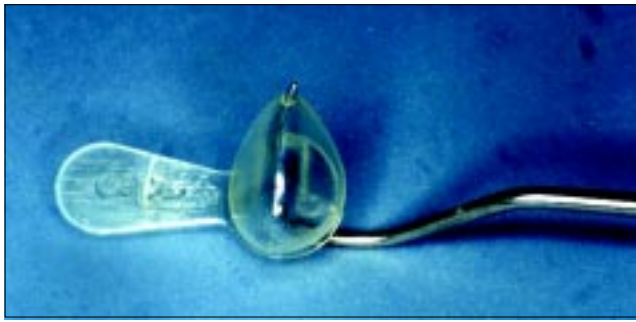


Fig 2a.



Fig 2b.



Fig 3a.



Fig 3b.



Fig 4a.



Fig 4b.

doubt of proximal seam integrity, the crown should be discarded. All crowns may be trimmed to an approximate level and can be fine-tuned chairside during treatment.

### Rubber dam placement

The routine use of ligature ties to deflect gingival tissue and retain the rubber dam in place is not suggested although this is a valid technique used routinely by many dentists with success (Fig 3a). Ligature ties at many times may be the cause of bleeding and discomfort for the patient. Their use may inhibit rapid removal and replacement of the rubber dam during treatment. After curing, the removal of the ligatures, which are situated under the hardened restoration, is often difficult and necessitates otherwise unnecessary subgingival bur finishing for their complete removal. Therefore, with the exception of a case involving severe subgingival carious incisors, it is suggested to use the slit-dam-method (Fig 3b).<sup>3</sup>

The application is rapid and the desired teeth are completely available for restorative treatment. Two large holes are punched out 1 to 2 cm apart and are joined by a scissors cut. The rubber dam may be held in place with digital pressure (Fig 3b) or with the use of an elastic band extending between the rubber dam frame and wrapped around the patient's head.<sup>4</sup> Note that the rubber dam is kept in place only during caries removal; during crown placement the rubber dam may be removed.

### Caries removal and crown placement, curing and finishing

During caries excavation and removal extra care should be taken not to damage any gingiva. A stainless steel, round, medium-to-large-sized bur should be used in a low-speed handpiece for this purpose (Figs 4a and 4b) following initial high-speed tooth reduction.



Fig 5a.



Fig 7.



Fig 5b.



Fig 8a.



Fig 8b.



Fig 5c.



Fig 6.

Following the application of a resin-modified glass-ionomer liner/base for dentin protection, all crowns should be fitted and placed (Fig 5a). It is suggested to fill and cure each crown individually with unfilled crown forms in place on their respective teeth to ensure proper spacing between restorations (Fig 5b). Special care should be taken to carefully remove (prior to filled crown placement) a collar of cured bonding agent, which will interfere with proper seating of the crown form if it is left in place (Fig 5c). Another cause of failure is over-filling the crown with composite material, resulting in the tearing of the mesial and distal seams of the crown. Minimal filling is highly recommended.

Instead of using a rotary instrument to remove the crown form a sharp, hand-held instrument such as a cleoid/discoid carver is recommended to peel off the strip crown shell (Fig 6). This results in only minimal damage to the cured restoration and, consequently, little if any polishing is necessary and the luster of the labial crown surface is preserved. Care should be taken to apply contra-digital pressure for the patient's benefit.

An excellent result was obtained following the use of the above-described method and is presented in Figs 7 and 8b. The preoperative view is presented in Figs 4a and 8a.

In cases of black-colored arrested caries (Fig 9a), a masking agent may be used (Fig 9b). Otherwise, due to the transparent characteristic of resin composites, the dark color of the excavated lesion will be seen through the restoration.



Fig 9a.



Fig 9b.

### Summary

Placement of the highly technique-sensitive strip crown can be successfully achieved with the right planning and execution. The clinical tips required and the materials used (Table 1) are easy to master.

**Table 1. Recommended Materials and Instruments\***

- |   |
|---|
| 1. Ultra-soft toothbrush (Rx Ultra Suave Petit size with ultra-soft DuPont Tynex™ bristles PHB, Hillsboro, Ore)             |
| 2. Curved crown scissors (Denovo, Baldwin, Calif)   |
| 3. Resin-modified glass-ionomer base/liner (Vitrebond™, 3M-ESPE Dental Products, St. Paul, Minn)                            |
| 4. Resin composite restorative (Z100™ Restorative Extended Range Shade-Pedo Paste, 3M-ESPE Dental Products, St. Paul, Minn) |
| 5. Masking agent (Paint-On-Color, White opaque, Coltene-Whaledent, NJ)  |

\*Other brand-name equivalents may be substituted

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## ABSTRACT OF THE SCIENTIFIC LITERATURE



### SEIZURE DISORDERS

The author has presented an excellent medical management update on seizure disorders. The article reviews the classification of seizure disorders: simple partial, complex partial (psychomotor), absence (petit mal) and tonic-clonic (grand mal). The signs and symptoms of seizure disorders aid in the classification of seizures and are summarized in a table. Status epilepticus, the most dangerous condition (defined as a seizure that continues for more than five minutes), has a mortality rate of 10-20%. The etiology of 70% of seizure disorders is unknown and called primary (idiopathic) epilepsy. Secondary epilepsy is associated with an underlying disease or condition. Seizure disorders are treated successfully (60-80%) with medication. The dental management of seizure disorders is reviewed.

**Comments:** Dr. Wand has presented an excellent, succinct review of seizure disorders. The dental management section of the article emphasizes two areas of concern for dentists: first, the medical management of the patient who has a seizure while in the dental office, and second, the side effects of the patient's antiseizure medication. **MAB**

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