CROWN UNDER CLASP - REDUX

Here’s how to create a new crown that fits an old clasp like a glove, AND THE PATIENT DOESN’T EVEN HAVE TO SURRENDER THE PARTIAL.

By Mike Barr, DDS
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We all know what a pain it can be when you have to crown a tooth that’s serving as an abutment for a perfectly good clasped partial.

Problem #1: Persuading the patient to surrender the RPD for a week.

Problem #2: If it’s an anterior bridge, of course, you’ll have to make a flipper.

Problem #3: Then you have to very carefully pick up the partial in an impression.

Because I sent the waxin template (below) to the lab, the patient wasn’t forced to surrender the partial denture. Furthermore, the crown fit perfectly — so I saved perhaps 45-minutes of crown adjustments.

A number of years ago I ran across an article in Parkell Today by Dr. Allen Weiner of Medfield, MA describing how to quickly and precisely register the relationship between the clasp and the preparation. The technique had the obvious advantage of permitting the patient to continue wearing the removable partial denture while the crown was being fabricated. (No need for anterior flippers!) Less obvious was the fact that this new technique produced much, much better fitting crowns. At least that’s been my experience.

When a patient recently presented requiring a crown on 9/29, abutment for his free-end para-
tial, it occurred to me that Parkell hadn’t revis-
ted the technique in quite a while. So I thought I’d photograph the case and pass it on including a few of my personal embellishments.

Metabond: An Adhesive or a Splint?

The patient presents with mobile mandibular anteriors, including a central judged “hopeless” by the periododontist. Here’s how to stabilize the arch and preserve the hope-
less tooth (at least for now) — in a one-appointment pro-
cedure that will allow easy future modification.

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Last December Parkell Today printed an article by Dr. Bob Obradovich (Apollo, PA) discussing how adhesive C&B-Metabond frequently helps him find solutions when the ideal textbook treatment isn’t an option due to biological limitations, economic restraints, or patient preference.

There are, of course, many ways to manage any given situation! It is the dentist’s ethical challenge to find what he considers to be the most appropriate treatment option. In certain situations, a creative “non-text-
book” use of material such as those in Dr. Obradovich’s article are not only “ethical”, but actually the preferred treatment option. For example, on numerous occasions, I have used an adhesive cement to “get the extra mile” out of periodontally compromised mandibular incisors.

Using C&B-Metabond for direct provisional periodontal splints is certainly not a new concept. In fact the technique was illustrated by Dr. Kenji Ichimura in Parkell Today sev-
eral years ago. Since then, I have used C&B-Metabond for this purpose at least fifteen

Figure 1: The patient’s mandibular ante-
riors showed Class II mobility. Number 24 had a guarded prognosis.

On at least two occasions, I have used it to “ponticize” a hopeless tooth as a prov-
siromal restoration. Here the tooth was extracted, the root removed, and the clinical crown bonded to the proximal teeth with C&B-Metabond (See Side-Bar page 9).

Because the tooth was endodontically treat-
ed, a 1mm X 2mm horizontal groove was prepared mesial distal to serve as a con-
nectector, and a dentin pin was placed from the lingual for retention of this “support”. (This

Figure 1: After completing crown prepara-
tion, express Blu-Mousse over the tooth, seat the partial and express some more. (You’ll save time during trimming if you quickly wipe away some Blu-Mousse to expose the surface of the clasp and occlusal rest.)

Noteworthy in this issue...

Why a resilient composite reduces leakage and postop in crown/retromolar (page 14)

Take a great impression and save 50% or more over other good vinyls (page 23)

Armour-clad your crown preps to resist sensitivity, pulp damage and a lot more. (page 12-13)
Implant therapy to replace tooth number 24 was contraindicated due to the lack of keratinized gingiva in that site, and he did not want to sacrifice any more teeth than were absolutely necessary. The adjacent teeth were mobile, which posed a relative contraindication to a conventional fixed partial denture, but they had been given a favorable prognosis by the periodontist.

The patient, the periodontist, and I decided to preserve number 24 as long as possible and provisionally stabilize the mobile anterior teeth using a direct C&B-Metabond adhesive splint. According to Parkell, periodontal splinting is the second-most-popular alternative treatment to help the patient preclude the potential abutment teeth had guarded to premolar for adequate isolation. The procedure to fabricate the C&B splint took a total of 40 minutes, and most of that was patient preparation time. Step-by-step:

1. A rubber dam was placed from premolar to premolar for adequate isolation.
2. The teeth were minimally abraded interproximally using an ultrasonic diamond in a high-speed handpiece. This mechanically removed chlorhexidine residue and accretions (Figure 3). (Some studies also suggest that enamel bonds are stronger if the surface of the enamel has been broken.)
3. Flexible wedges (Flexi-Wedge, Commonsense Dental, Nunci, MI) were gently placed to maintain hygienic gingival embrasures (Figure 4).

When the time comes to ponticize tooth number 24, there will be several options. Assuming that the adjacent teeth are still stable, a logical choice may be to record the tooth position with a Blu-Mousse matrix, extract the tooth and remove the root, and then rebond it in place with fresh Metabond. More likely, the tooth could be left in place, the root amputated and removed, and the intaglio surface resculpted in situ. The ponticized tooth suffering from class II mobility. For stability, the patient had been wearing a removable Hawley orthodontic appliance. (Figures 2 and 2a).

The ponticized tooth

When number 24 required extraction, the poor periodontal condition of the proximal teeth, anterior and premolar, was a dilemma for a traditional fixed bridge question to be able to recreate the enamel. A horizontal retentive pin was placed to counteract rotational dislocation movement, but this may not have been necessary. Then, using the registration to reapproximate the correct position of the pontic, the clinical crown was bonded to the proximal teeth using C&B-Metabond. The C&B-Metabond was also applied to the interproximal contacts from teeth numbers 22–27 to stabilize the remaining teeth.

The original intent was for the pontic to function for approximately a year. However, this alternative treatment has proved successful for six years and is still functionally efficient. This photograph and radiograph were taken at the 6-year recall.

Figure 2: The patient had a history of severe periodontal disease, and previous attempts at gingival grafting had failed.

Figure 3: A Blu-Mousse registration index was gently placed to maintain hygienic gingival embrasures. (Figure 8).

Figure 4: Flexible wedges were gently placed, not to separate the teeth, but to create natural embrasures.

Figure 5: C&B-Metabond’s red etchant was applied to the proximal surfaces and extended onto the lingual and facial.

Figure 6: After the etchant had remained on the enamel for 10 seconds, the teeth were rinsed and dried, and the C&B-Metabond was applied using a brush-head technique.

Figure 7: After the C&B-Metabond had set (approximately 8 minutes) the surface was mechanically polished and polished.

Figure 8: The resulting provisional splint for esthetics.

The ponticized tooth

Editor’s Note: The C&B-Metabond kit comes with two jars of powder. One creates a white, opaque/radiopaque cement for applications where dark shades must be masked or the cement must show up on a film. The other produces a clear/radiolucent cement. For this application you want the clear powder.

6. Ultraline diamonds in a conventional high-speed handpiece with copious water spray were used to shape and polish the extraconventional provisional splint after 5 minutes setting time (Figure 7).

The final splint was stable, esthetic, and hygienic. (Figure 8.)

Notice that Dr. Huff limits his use of C&B-Metabond stabilization to mobile mandibular teeth. In the maxilla, where bicuspids are substantially greater, we recommend reinforcing the resin with a wire or fiber strip. For more than a decade direct splinting with C&B-Metabond has been common in Japan in lieu of the traditional removable retainer. However, the forces involved in relapse after orthodontic treatment are substantial, so an additional reinforcing element is virtually always added to the adhesive.

In fact, when Dr. Ryan Swain (Chili, NY) tested the use of unreinforced C&B-Metabond after short-term ortho, he found a high incidence of fracture through the interproximal resin.

3 Johannsen, K., et al. A 4-minute adhesive splint for mobile teeth, Parkell Today. p 8 Sept 03
4 Miles, D. Deeriness of splinting. ADHESION CLINIC P7-144 1999
5 Most M. Making Effective Use of Wisdom Teeth. DENTAL OUTLOOK. 94:1, p40-57 1999
6 Most M. Making Effective Use of Wisdom Teeth. DENTAL OUTLOOK. 94:2, p20-29 1999
7 Iwanow. B - personal communication.

STOP! Before you throw away this magazine, READ THIS!

The phone call came in about 6:15 pm EST.

“I’ve received Parkell Today for years. I figured it was just advertising, so I always tossed it away without cracking the cover. For some reason, I really looked at it for the first time today ... and I wound up reading it from cover to cover. There were 3 or 4 clinical tips in there I can use. If I promise to pay better attention in the future, can I get some past issues?”

Dr. Paul Dodsworth Statue, CO

Unfortunately, we don’t save old issues of Parkell Today. If we did, we’d be up to our eyeballs in papers. Nevertheless, we managed to scrape up a few articles for you. Here’s a sampling:

Sure, it’s advertising. But not “JUST” advertising. I won’t deny it. Our ultimate objective in publishing this catalog is to generate orders. It’s pure, blatant capitalism. However we have been considered overtreatment. Although the potential abutment teeth had guarded rotational dislocation movement, but this may not have been necessary. In this situation, I could toss it away without cracking the cover.

But if you don’t look at this magazine, we’ll ruin our plan.

So even if you’re not in the market for dental products at the moment, please thumb through this issue. There’s something here in you can use.