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April 2008

Endodontic Posts vs Bonded Cores

By John I. Ingle, DDS, MSD
San Diego, CA

I recently read an article in Parkell Today by Dr. Martin Goldstein suggesting that in this Adhesive Age we now live in, performing elective RCT on a vital broken-down tooth solely to retain a post and core is often unnecessary – perhaps even over-treatment.

That article inspired me to tell you the history of my lower left first molar.

I have a long personal history of fracturing teeth, molars and premolars. Deep fossae and steep cusps seem to be the contributing factor.

My first fracture was when I was in den-

Continued on page 2

What little remained of my molar was absolutely flat (see sketch). The bonded amalgam core and the crown that restored it have served me now for 18 years – and are still going strong.

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
Boynton Beach, FL

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.

Problem #4: And when the crown comes back from the lab – well, you better schedule an hour for adjustments.

The traditional approach never worked very well in my hands. I usually had to spend a lot of time adjusting the finished crown – and even then the fit wasn't terrific. I suspect the problem was the transfer impression. With everything hidden by a loaded full-arch tray, it's very difficult to assure that the partial is both completely seated in the mouth and passive.

Because I sent the resin template (below) to the lab, the patient wasn't forced to surrender the partial dentire. 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 #29, abutment for his free-end partial, it occurred to me that Parkell hadn't revisited the technique in quite a while. So I thought I'd photograph the case and pass it on along including a few of my personal embellishments.

Continued on page 22

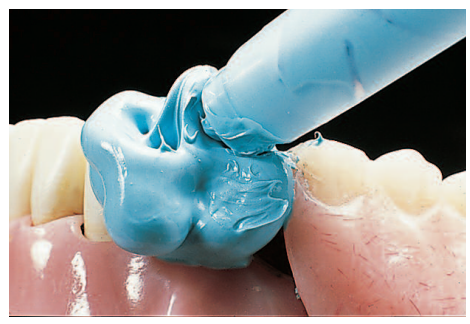


Figure 1: After completing crown preparation, express Blu-Mousse over the tooth, seat the partial and express some more. (You'll save time during trimming if you quickly wipe away some Blu-Mousse to expose the surface of the clasp and occlusal rest.)

Figure 2: When you remove the partial the Blu-Mousse matrix will come with it.

About the author:

A 1988 graduate of the University of Tennessee College of Dentistry, Dr. Michael Barr operates Palm Beach Smiles in Boynton Beach, FL, focusing on cosmetic and reconstructive dentistry. A sought-after speaker who has served as a Clinical Instructor in Dr. Larry Rosenthal's participation courses, Dr. Barr has written numerous articles in both professional journals and consumer magazines. He can be contacted at mikebarrdds@palmbeach-smiles.com.

Metabond: An Adhesive or a Splint?

The patient presents with mobile mandibular anteriors, including a central judged "hopeless" by the periodontist. Here's how to stabilize the arch - and preserve the hopeless tooth (at least for now) – in a one-appointment procedure that will allow easy future modification.

Kevin D. Huff, DDS, MAGD
Dover, Ohio

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[1,2]. 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-textbook" 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 several years ago.[3] Since then, I have used C&B-Metabond for this purpose at least fifteen

Figure 1: The patient's mandibular anteriors showed Class II mobility. Number 24 had a guarded prognosis.

times, and I have been very impressed!

On at least two occasions, I have used it to "ponticize" a hopeless tooth as a provisional 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 4). Because the tooth was endodontically treated, a 1mm X 2mm horizontal groove was prepared mesial distally to serve as a connector, and a dentin pin was placed from the lingual for retention of this "support". (This

Continued on page 4

About the author: Kevin D. Huff, DDS, MAGD practices general dentistry in Dover, Ohio. A graduate of the Ohio State University College of Dentistry and alumnus of the Pankey Institute, he is a dedicated CE attendee, frequent speaker on dental matters, and a Clinical Instructor at the Case School of Dental Medicine. He can be contacted at dr@doctorhuff.net.


Noteworthy in this issue ...

Why a resilient composite reduces leakage and popout in class V restorations (page 14)

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

Armor-clad your crown preps to resist sensitivity, pulp damage and a lot more. (page 12-13)

Metabond: An Adhesive or a Splint?
(continued from page 1)

was probably unnecessary, but I'm still fairly "old school".) In this situation, I could not ethically justify conventional dentistry, such as an FPD or even a cast bonded splint due to potential financial investment. Since the potential abutment teeth had guarded prognoses, conventional dentistry might have been considered overtreatment. However, premature edentulation would have caused these patients undue harm. C&B-Metabond allowed me a reasonable alternative treatment to help the patient preserve bone for as long as possible. Although the patient and I only hoped for a year or so, those "bridges" are still functioning after 4 and 6 years, respectively!

Most recently, a patient presented with a questionable, but still vital, tooth number 24. A well-respected periodontist had previously attempted connective tissue grafting without success, and he had informed the patient that tooth number 24 would eventually require extraction. Teeth numbers 22-27 showed with class II mobility. For stability, the patient had been wearing a removable Hawley orthodontic appliance. (Figures 2 and 2a).

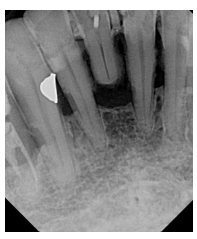
Implant therapy to replace tooth number 24 was contraindicated due to the lack of keratinized gingiva in that site, and he did not want to sacrifice any more teeth than were absolutely necessary. The adjacent teeth were mobile, which posed a relative contraindication to a conventional fixed partial denture, 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 mandibular anteriors using a direct C&B-Metabond adhesive splint. According to Parkell, periodontal splinting is the second-most-popular Metabond application in Japan … right next to crown retention.[4] Unlike composite, C&B-Metabond creates proximal connectors that are slightly resilient, so they resist stress build-up that can cause fracture and debonding. Unlike a composite splint with fiber reinforcement, a C&B-Metabond splint is very easy to repair or modify.

The ponticized tooth

When number 24 required extraction, the poor periodontal condition of the proximal teeth made the prognosis for a traditional fixed bridge questionable.

A Blu-Mousse registration index was made to accurately record the tooth position. After extracting the tooth, which had been previously endodontically treated, the root was smoothed and rounded apically to create an anatomic pontic and a conservative lingual channel was prepared to enable bulk of the resin. A horizontal retentive pin was placed to counteract rotational dislodgement, 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 mobile incisors.



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 fully functional. 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.

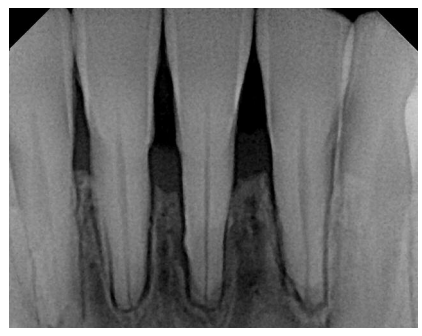


Figure 2A: Teeth 22-27 showed classII mobility.

Figure 3: Using a fine diamond the proximal enamel was lightly abraded.

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

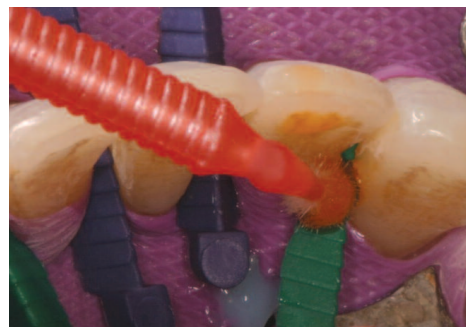


Figure 5: C&B-Metabond's red etchant was applied to the proximal surfaces and extended onto the lingual and facial.

Figure 6: After the etchant had remained on the enamel for 30-secs, the teeth were rinsed and dried, and the C&B-Metabond was applied using a brush-bead technique.

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

Figure 8: The resulting provisional splint was virtually invisible. (The wide embrasures should facilitate hygiene.)

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 recontoured in situ.

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 ultrafine diamond in a high-speed handpiece. This mechanically removed chlorhexidine residue and accretions (Figure 3). (Some studies also suggest than enamel bonds are stronger when the surface of the enamel has been broken.)

3. Flexible wedges (Flexi-Wedge, Commonsense Dental, Nunica, MI) were gently placed to maintain hygienic gingival embrasures (Figure 4).

4. Red enamel etchant was applied according to manufacturer's instructions (Figures 5 and 6). The teeth were rinsed and dried.

5. The "brush bead" technique was used to mix C&B Metabond (4 drops+1 drop catalyst+ clear powder as needed for consistency), and it was applied it to the lingual contact areas of the mandibular anterior teeth, filling the lingual embrasures. The gingival, incisal, and facial embrasures were avoided for esthetics.

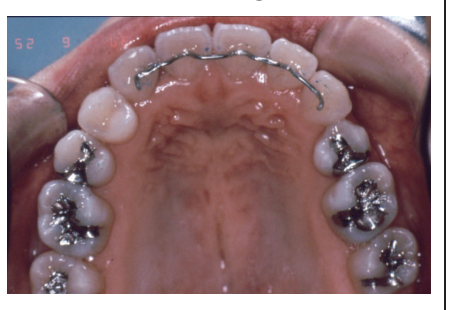
Editor's Note: The C&B-Metabond kit comes with two jars of powder. One creates a white, very opaque/radiopaque cement for applications where dark shades must be masked or the cement must show up on a film. The other powder produces a clear/radiolucent cement film. For this application you want the clear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

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

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

EDITOR'S NOTE

Where C&B-Metabond alone isn't enough



Notice that Dr. Huff limits his use of C&B-Metabond stabilization to mobile mandibular teeth. In the maxilla, where forces 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.[5,6] 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.[7]

1 Sadowsky D. The moral dilemmas of the multiple prescription in dentistry. J Am Coll Dent. 1979;46:245.

2 Huff, K., Farah, C., and Huff, M. Ethical decision making for multiple prescription dentistry. Gen Dent. In press.

3 Ichimura K, et al. A 15-minute adhesive splint for mobile teeth, Parkell Today. p5 Sept 03

4 Mitsugi H. Durability of splinting. ADHESION CLINIC. P141-144 1996

5 Mogi M. Making Effective Use of Wisdom Teeth. DENTAL OUTLOOK. 94:1, p40-57 1999

6 Mogi M. Making Effective Use of Wisdom Teeth. DENTAL OUTLOOK. 94:2, p270-289 1999

7 Swain R – 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
Salida, CO

Unfortunately, we don't save old issues of Parkell Today. If we did, we'd be up to our eyeballs in paper. Nevertheless, we managed to scrape up a couple to mail to the good doctor.

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 an insidious, underhanded way of approaching it.

We figure that if, along with the advertising, we also offer some serious clinical articles - things you can put to work in your practice - maybe we can trick you into reading Parkell Today even when you're not in the market for our products. (And if the articles are really, really good, who knows? You may even save it for future reference!)

That way, when you do need something - you'll remember us.

We work a lot harder on the articles than the advertising.

Believe it or not, Parkell Today was the first publication in the US to discuss the hybrid-layer theory of bonding. (Back in 1989 most gurus thought the primary bonding mechanism was resin tags in tubules. At the time, several gurus told us we were crazy.)

Parkell Today was the first publication to present the concept of bonded amalgams. (The editor of General Dentistry told us we were crazy.)

It was one of the first to discuss Gary Schoenrock's laminar impression technique - as well as Rod Kurthy's recent modification of it.

Dr. Masaka's technique for adhesive repair of fractured teeth has been described in detail in Japan and France and Germany - but here in the US? Only in Parkell Today.

We now get so many requests for past articles, we're starting to post as many as possible on our website for fast reference (www.parkell.com).

But if you don't look at this magazine, you'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 in here you can use.

Karen Mitchell
CEO-Parkell