

The Use of a Self-Etching, Self-Priming, Resin Cement for the Placement of Posts and Cores

Frank M. Spear, DDS, MSD

*Founder and Director
Seattle Institute for
Advanced Dental Education
Seattle, Washington*

*Affiliate Assistant Professor
University of Washington
School of Dentistry
Seattle, Washington*

*Private Practice
Seattle, Washington*

Our understanding of the importance of using an adhesive resin cement to bond post and cores to place has evolved significantly. This can be challenging, however, when using traditional dentin adhesives and resin cements.

Starting with the challenge of acid-etching, rinsing, and drying to the depth of the post preparation, the challenge continues with the attempt to get an acceptable application of dentin adhesive in the canal and dry it adequately enough to remove all excess solvent. In addition, unless a dual-cure dentin adhesive is used, it will be necessary to attempt to light-cure the adhesive at the base of the canal while, hopefully, not curing a pool of adhesive, which may prevent complete seating of the post.

The issue of light- vs dual-cure also carries over to the choice of cement. The choice of a light-cured cement requires the use of a post that adequately transmits enough light to polymerize the cement. And the risk of using a dual-cure adhesive and a dual-cure cement is that some of these adhesives accelerate the set of the cement, creating a risk that the cement may polymerize before the post is fully seated. Having that happen once is all it takes to show a clinician that he or she does not want to experience it again.

One obvious solution to this dilemma is to use a self-etching dentin adhesive. This would eliminate the need to etch, rinse, and dry; however, depending on which of these products is used, a new set of challenges may be present. The use of a light-cured, self-etching adhesive presents the same issue of getting light to the base of the post

preparation. In addition, the acidic nature of the surface of some light-cure, self-etching products can interfere with the polymerization of several of the dual-cure cements, resulting in a very poor retentive strength. This can be overcome, depending on what combination of adhesive is used or by using a light-cured cement and a post that readily transmits light.

Another challenge of using a resin cement is getting it down the canal to the base of the post preparation. Classically, when zinc phosphate cement was used to cement posts, it was easily accomplished with a lentulo spiral, or loading the cement into the canal with a small-tipped centrix syringe, or coating the post itself. With resin cements, however, the use of a lentulo is typically contraindicated because of the potential for the lentulo to accelerate the set of the cement, risking inadequate seating of the post. Coating the post and hoping it carries the cement into the canal can be unpredictable as it depends on the viscosity of the cement. The ideal solution is to use a small-tipped syringe to place the cement in the base of the canal before placing the post; while this is effective, it means mixing the cement and loading it into a separate syringe before injecting it in the canal.

One very practical solution to all of these problems is to eliminate the dentin adhesive step completely and use a self-etching, self-priming, resin cement. An even better solution would be for the cement to come in a dispenser designed to inject it directly into the canal. This is the case with Rely-X™ Unicem Self-Adhesive Universal Resin Cement (3M ESPE, St. Paul, MN), which has



Figure 1—The conventional Unicem capsule, but note the addition of a flange on its tip.

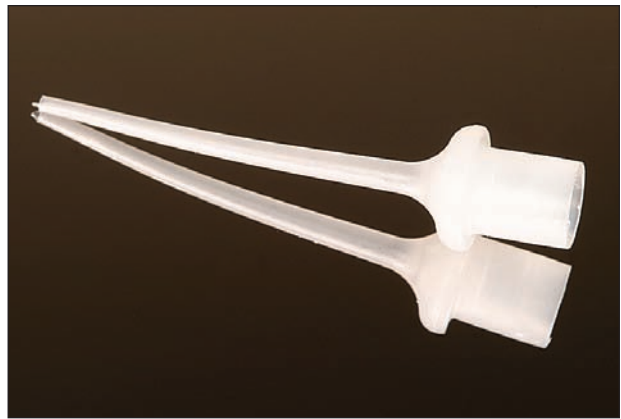


Figure 2—The flexible injection tip.

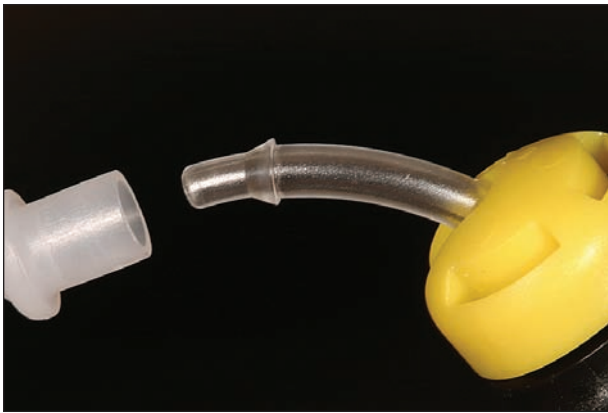


Figure 3—Attaching the injection tip to the flange on the Unicem tip.



Figure 4—The mixed Unicem ready to inject in the canal.

a new tip for cementing posts (Figure 1 and Figure 2). The technique for using this cement follows.

Prepare the post site, removing any sealer to expose clean dentin and fit a post. When using an adhesive approach it is only necessary to have a post 7 mm to 9 mm in length within the canal. Whether the post transmits light or not is not necessary, as Rely-X Unicem is light- or dual-cure; however, the use of a post that does transmit light, such as the new Rely-X™ Fiber Post (3M ESPE), allows the curing time to be controlled and the build-up to be accomplished faster. Once the post is chosen, mix the Unicem in a triturator normally, then attach the injection tip (Figure 3 and Figure 4). Although the cement may seem thick, it is thixotropic in nature, which means that its viscosity changes to a more flowable level under pressure.

Inject the cement into the canal and seat the post on top of it. If a pretreated post is being used, it is not necessary to

apply anything on the post's surface. After seating the post, excess cement can be removed at the coronal end with a dry paint brush or instrument. It is now possible to cure the cement at the coronal portion of the post, or down the canal if a light-transmitting post was used, and proceed to complete the build-up. The author usually etches the tooth with phosphoric acid, rinses, then applies a light-cured dentin adhesive (such as Adper™ Single Bond Plus, 3M ESPE), followed by a light-cured composite that matches the shade of the existing tooth preparation. This is done so that if a translucent final crown is used, there will not be any alteration in color from the preparation vs the build-up.

The use of a self-etching, self-priming, resin cement with a dispenser that places the cement directly in the canal makes the process of bonding posts easier than ever.