

Use of Geristore in the treatment of a Split, Vital Tooth

David Ouellet, DDS

Current adhesive dentistry has helped us not only to save more tooth structure, but also more vital teeth. Many articles have been published about the extraordinary results that are possible

use of Tenure Uni-Bond and Geristore in the treatment of a split, vital tooth.

The patient (also a dentist) presented with a vital first bicuspid with a split lingual cusp (Fig. 1, 2). The lingual cusp missed the calcified or somewhat calcified pulp chamber and was still attached to the gingival tissue. The tooth was somewhat sensitive to cold. A laminate had been bonded to the buccal surface of the tooth for approximately 16 years. Two treatment options were offered to the patient. The first was to extract the tooth and complete an implant or a bridge. The second option was to try to bond the tooth together and save it. Because both clinicians had previous experience of pulp capping and using Geristore subgingivally, the decision was to save the tooth.

The lingual cusp was separated and cleaned thoroughly with a disinfectant sodium hydrochloride (NaOCl) diluted with water, a 2.25% solution (50/50). After rinsing the tooth two times, the enamel was etched for ten seconds. The area was rinsed and thoroughly dried. A mixture of equal parts of Tenure Uni-Bond A and B was then applied to the tooth structure. The mixture was blown down the split tooth to ensure the bonding agent reached the most apical portions of the crack. Geristore was then syringed into the crack while the lingual cusp was held lingually to allow access to the affected area. Before the Geristore began to set, a Toffelmeier band was placed around the tooth and tightened to hold the tooth together (Fig. 3). The dual-cured, Geristore restorative was cured for nine seconds using the Rembrandt Virtuoso Xenon Power Arc light. The Toffelmeier band was removed from the now intact tooth.

A hydrophilic polyvinylsiloxane material, Den-Mat's 1st Impression-PVS (heavy body), was used for both preoperative impressions to fabricate the temporary

(C.B.V. TEMP) as well as the base for the final impression. Unlike traditional temporaries made of methylmethacrylate, which often irritate tissues, this type of true composite temporary produces less shrinkage,

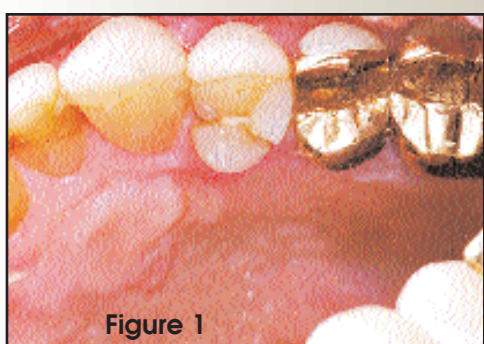


Figure 1

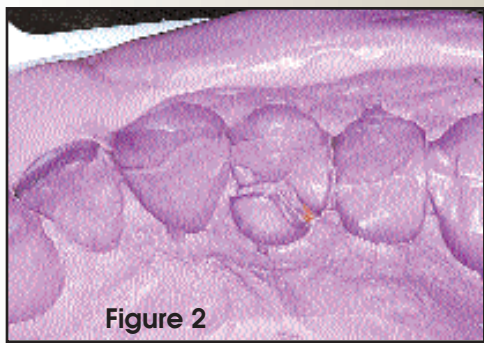


Figure 2

with Geristore. Geristore is a hydrophilic, non-aqueous, resin-based, ionomer material with a special glass formulation. It has been utilized as a subgingival restoration and shown to have gingival adhesion with unequalled biocompatibility. The unique bio-properties of this product make it ideal for many applications, which traditionally would have hopeless or impossible scenarios. The clinical application of Geristore has extended to subgingival restorations^{1,2,3}, such as: root resorption^{4,5}, root perforation^{6,7}, pulp capping⁸, root retrofilling⁹, furcation lesions¹⁰, and guided tissue regeneration¹¹. The following case report demonstrates the

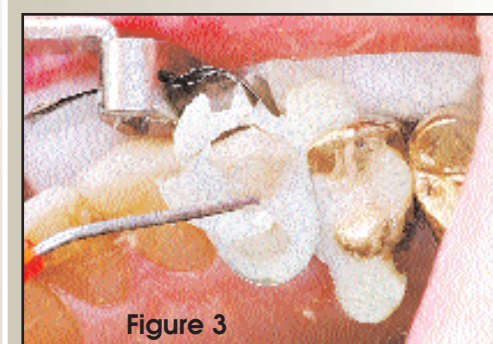


Figure 3

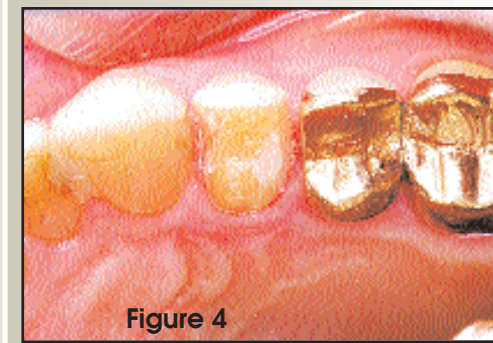


Figure 4

offers more strength, and better esthetics. C.B.V. TEMP is different than many of the newer temporaries that are bis-acryl. It can be utilized not only for single crowns but also for long-span bridges and will hold up under stress and occlusion. C.B.V. TEMP is easily modified. If the temporary has a bubble or chip and needs to be repaired, Virtuoso Flowable composite can be added to the area, contoured, and cured.

Preparation was made for a three-quarter gold crown (Fig. 4). The existing laminate was incorporated into the three-quarter crown preparation, in the same manner as if the laminate was enamel. After fabricating

Continued on page 38

Use of Geristore in the Treatment of a Split, Vital Tooth

Continued from page 36



Figure 5

the temporary, the 1st Impression base material was roughened and then 1st Impression-PVS yellow wash (light body) was syringed over the tooth and into the impression. The heavy body 1st Impression served as the base, which pushed the light body impression material into the subgingival area. The advantage of this two-step impression technique is that it dramatically reduces the need for packing the cord. After the final impression, the temporary was then cemented with non-Eugenol base temporary cement (Fig. 5). The impression was shipped to the lab for its required crown.

When the patient returned for his second visit, he stated that there was no sensitivity and when the temporary was removed, the



Figure 7

area was only slightly cold sensitive. A three-quarter gold crown was placed using the following procedure (Fig. 6, 7). First, the area was etched for five seconds. Second, the area was disinfected with sodium hydrochloride, for 10 seconds, then rinsed and dried thoroughly. Next, Tenure Uni-Bond A and B was applied to the tooth and finally, the gold three-quarter crown

was cemented with Infinity. The advantage of Tenure Uni-Bond is that it can be used with direct and indirect procedures. Many self-etching bonding agents are only compatible with light-cured composites and cannot be used in an indirect manner, thus dramatically reducing the number of clinical applications.

The post-treatment patient is currently symptom free, percussion free, and has no cold or hot sensitivity.

It is important to state that the author's experience has been excellent when using this successful technique to bond split teeth together.

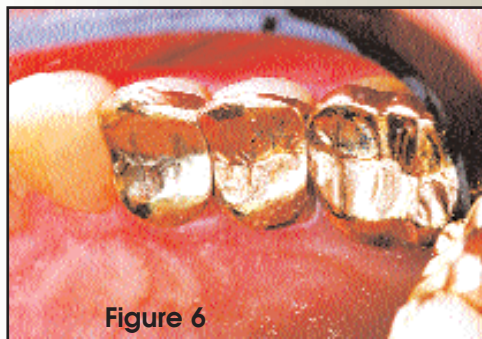


Figure 6



David Ouellet, DDS is a native of Boston and graduate of Georgetown University Dental School. He has conducted clinical research for placement and evaluation of composite resin and is a consultant for a large dental materials manufacturer. David has published numerous clinical and research oriented papers and is an accredited member of the American Academy of Cosmetic Dentistry. David is in private practice, where he specializes in adhesive cosmetic dentistry. He has conducted lectures and hands-on workshops on aesthetic materials and techniques throughout the United States and overseas. You can contact Dr. Ouellet at DrO123@aol.com or 805-925-8767.

References:

1. Dragoo, M., "Resin-Ionomer and Hybrid-Ionomer Cements: Part I. Comparison of Three Materials for the Treatment of Subgingival Root Lesions," *The International Journal of Periodontics & Restorative Dentistry*, Vol. 16, No. 6 (1996).
2. Dragoo, M., "Resin-Ionomer and Hybrid-Ionomer Cements: Part II. Human Clinical and Histologic Wound Healing Responses in Specific Periodontal Lesions," *The International Journal of Periodontics & Restorative Dentistry*, Vol. 17, No. 1 (1997).
3. Breault, Lawrence, et. al., "Subgingival Restorations with Resin Ionomer: A Periodontal Alternative," *Compendium*, Vol. 21, No. 9 (2000): 733-737.
4. Kurthy, Rodger, DMD, "Use of a Resin-Ionomer for Subgingival Restorations (External Root Resorption)—Case Report," *Dentistry Today*, Vol. 20, No. 2 (2001).
5. Scherer, W., Dragoo, M., "New Subgingival Restorative Procedures with Geristore Resin Ionomer," *Practical Periodontics and Aesthetic Dentistry*, (1995).
6. Behnia, Ali, Strassler, H., Campbell, R., "Case Report: Repairing Iatrogenic Root Perforations," *JADA*, Vol. 131 (2000): 1960-201.
7. Resilez-Urioste, F., Sanandajt, K., "Use of a Resin-Ionomer in the Treatment of Mechanical Root Perforation: Report of a Case," *Quintessence International*, Vol. 29, No. 2 (1998): 115-118.
8. Ferrari, Marco, MD, DDS, Ph.D., "Biocompatibility of Geristore Restorative Material in the Absence of Bacterial Infection in Humans," *The Research Center for Dentistry, Livorno, Italy*.
9. Murray, M., Vertucci, F., Nixon, E., "The Sealing Ability of Retrograde Filling Materials: Spectrophotometric Study," *Journal of Dental Research*, Abstract No. 1104, (1998).
10. Perry, R., "Geristore Furcation Study," Tufts University Dental School (1997). Unpublished data available on request.
11. Abitol, T., Santi, E., Scjerer, W., Palat, M., "Using a Resin-Ionomer in Guided Tissue Regenerative Procedures: Technique and Application—Case Reports," *Periodontal Clinical Investigations*, Vol. 18 (1996): 17-21.