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Clinical Case Report

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Restoring a Single Tooth with Minimal Retention

(GC America Inc.)

Introduction

When treating our patients, it is important to have confidence in the restorative materials being used. As any dentist can attest, we expect our materials to perform with an extremely high rate of long-term success while also overcoming situations where our clinical skills are limited or treatment presentations are not ideal. The universal resin cement, ***G-CEM ONE***, when used in conjunction with ***G-Premio BOND***, provides the versatility, durability and ease of use needed to perform reliable restorations with confidence — even in cases where mechanical retention is reduced.

G-CEM ONE™

G-Premio BOND™

Procedure

In this case, there was a presentation of a 46-year-old female with a severely discolored mesioincisal-facial composite restoration on tooth #7 that had aged over 13 years. At that time, the initial treatment was performed to close off a large mesial gap between the maxillary right lateral and right central incisors. The desires of the patient were simple: minimal reduction of the natural tooth but matching material and shading of the already present porcelain restorations on the central incisors. The decision was made to create a lithium disilicate restoration, and to do so on a minimally prepared tooth. To assist in overcoming the lack of mechanical retention encountered by the minimal preparation, the enhanced bonding properties of ***G-CEM ONE*** with ***G-Premio BOND*** was utilized.

Figure 1. Preoperative image with the existing composite restoration.

Figure 2. Patient desired minimal reduction with limited mechanical retention, thus creating the need to rely on chemical retention in the form of ***G-Premio BOND*** and ***G-CEM ONE*** cement.

Figure 3. 37% phosphoric acid etch, performed in a "selective-etch" fashion only on enamel surface.

Despite the ability of ***G-CEM ONE*** cement to function in a self-adhesive fashion, the more secure technique, albeit more technique sensitive process, of bonding with the universal adhesive ***G-Premio BOND*** in the presence of surrounding enamel was performed.

Treatment began by performing "selective-etch" of the existing enamel surfaces with a 37% phosphoric acid etch for 15 seconds. This assists in cleaning the surface of the teeth by removing the smear layer and opening the enamel tubules of the tooth. After rinsing of the acid etch and gentle drying of the tooth, application of the ***G-Premio BOND*** was done with a microbrush in a scrubbing technique for 10 seconds and then the material was allowed to interact uninterrupted with the tooth surface for an additional 10 seconds. A full blasting of oil-free air to thin the material and an LED curing light with a strength over 1,000 mW/cm2 for 10 seconds was completed to cure the ***G-Premio BOND*** material in preparation for receiving the ***G-CEM ONE*** cement.

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Figure 4. The prepared tooth with ***G-Premio BOND*** already applied but not yet air-thinned.

Figure 5. Initial placement of the porcelain restoration with the "seeping out" of the ***G-CEM One*** material.

Figure 6. Initial plucking off of the self-setting material with a dental explorer instrument.

After applying the ***G-CEM ONE*** cement into the prepared porcelain restoration, initial placement of the restoration onto the prepared tooth was completed. A desired and expected "seeping out" of the excess cement was seen with a constant application of pressure to the facial surface of the restoration. This pressure was applied for 30 seconds while initial self-setting of the cement occurred. There is also an ability to tack-cure the ***G-CEM ONE*** material for a faster set and clean-up if so desired. The remaining cement can be "plucked off" by use of an explorer or a #12 blade and then flossing interproximally to remove any excess. In this case, the material was allowed to self-cure for 30 seconds to allow for ideal adhesion and setup, then a light-cure was performed for added confidence.

The ending restorative result left the patient very pleased with the cosmetic similarities to the maxillary central incisors and the dentist was able to feel confident in the long lasting abilities of retention despite the mechanical limitations that were experienced.

Figure 7. Cleaned and polished restoration after cementation.

Conclusion

G-CEM ONE, when used in conjunction with ***G-Premio BOND***, is a proven solution to achieving successful treatment outcomes in a wide range of cases and circumstances, even in the uncomfortable presence of retentive limitations. Due to the enhanced versatility of the material compared to similar bonding agents, whether the clinical case calls for a more or less technique sensitive process, it can be used successfully with metal, porcelain, zirconia or other restorative materials. As the universal ***G-Premio BOND*** can also be used for traditional composite treatments, there is a minimizing of inventory needed to achieve successful bonded restoration outcomes for patients.

Figure 8. Before and After for the restoration.

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