One-Visit Biomimetic Composite Resin Inlays/Onlays

INTRODUCTION
More and more people are demanding reliable, functional, and aesthetic alternatives to conventional crown and bridge dentistry. As the population is aging, people are seeking out treatment to improve their teeth and still conserve their natural, healthy tooth structure.1 According to Dr. Ross Nash, “Laboratory-processed composite resin may be a viable option for the patient who desires an aesthetic alternative to gold. While ceramics can provide many of the same benefits, composite resin has some advantages, including ease of adjustment and repair, resilience for comfort and shock absorption, less chance for differential wear at the luting agent-restoration interface, and no wear of opposing structures in functional contact.”2 Unfortunately, 2-appointment procedures for crowns are inconvenient, uncomfortable, and expensive. Furthermore, more preparation may be required for additional mechanical retention of temporary restorations, defeating the purpose of trying to save the most tooth structure. So, what are our options—direct resins, indirect resins, and porcelain crowns? Crowns, we all know, will require the removal of even more tooth structure, 2 appointments, and provisional crowns.

Let’s think like our patients. Our patients want to replace old, ugly, and failing restorations, but they want to do it consistently, efficiently, and predictably—and they would prefer to do it in one appointment. Direct fillings can be done in one appointment, but when wide, deep, and/or interproximal surfaces are involved, they can prove difficult, time-consuming, and inadequate.

Adhesive dentistry offers a more conservative restorative approach to patient care. Why take away healthy tooth structure? Why not attempt to save the good and just replace the bad? A laboratory-fabricated composite resin system is a valuable and worthwhile option to preserve both tooth structure and long-term dental health. After all, preserving natural tooth structure is always in the best interest of the patient, whenever possible. This article will demonstrate a conservative and biomimetic approach to restorative care.

CASE REPORT
Diagnosis and Treatment Planning
Our patient presented with large Class II amalgam fillings on her lower right quadrant and a 3-unit bridge on her lower left quadrant (Figure 1). She told us that she wanted to avoid having crowns, root canal treatments, extractions, and bridgework on her lower right teeth. Previously she had spent a lot of money for invasive treatments done over multiple appointments in having her lower left teeth treated. This time, she was determined to find an alternative that would prevent her from having to relive that experience when she had her lower right teeth restored.

After thorough clinical and radiographic examinations, we presented her with a new treatment option which she had not heard of previously: biomimetic same-day resin inlays/onlays. When she learned the amalgam was removed, Caries Detector (Kuraray) was applied to ensure complete decay removal from the teeth. The internal surfaces of the preparations were micro-etched. Disinfectant (HemaSeal & Cide [Advantage Dental Products]) and a seventh-generation adhesive (OptiBond All-In-One Unidose [Kerr]) were applied according to the manufacturer’s instructions. Flowable composite (Matrixx [Discus Dental]) was used to fill in the undercuts from the previous preparation.

Treatment and Techniques
We began by placing the nitrous oxide mask. By wearing the mask, the patient is protected from inhaling any potential mercury aerosols during amalgam removal. Local anesthesia was administered and placed. The rubber dam acts as another barrier to protect the patient from ingestion/aspiration of any amalgam particles during removal. In addition, the rubber dam keeps the area isolated, dry, and clean. The split dam technique was employed because multiple teeth were being prepared in the quadrant.

A Fender Wedge (Directa) was then placed to protect adjacent tooth during amalgam removal. Split rubber dam technique used with multiple teeth.

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ous amalgam preps. The preparations were then refined and impressions were taken with Identic Syringable and alginate (Dux Dental). The syringable material was placed around the preparations while an assistant loaded the quadrant tray with alginate. Placing the alginate over the syringable cools the material, while the tray acts as a carrier. We took 2 impressions, as there were 3 interproximal surfaces affected.

In-Office Laboratory Techniques

The impressions were taken into our in-office lab and disinfected. They were then refined and impressions were taken with Identic Syringable material. Syringable material was placed around the trays as a carrier. We took 2 syringable impressions, as there were 3 interproximal surfaces affected.

Inlay/onlay restorations are optional benefits. The onlay component replaces the cusp tip so as to maintain and/or restore the vertical dimension in the preparation. When the cusp tips are sound (Figures 3, 6, and 8), the original vertical dimension is not altered.

The coding sequence provides for a single code number to identify an inlay with an associated onlay component. As we all know, it is a technical impossibility to construct an onlay without first identifying the surfaces of the inlay. Hence, the descriptions are currently somewhat misleading. With regard to third-party reimbursement, few if any benefits plans consider an inlay in the absence of an onlay component to be a contractual benefit. Since an inlay is nothing more than a cusp stop that adds little or no strength to the remaining natural tooth structure, it is traditionally reimbursed at the level of a traditional, direct restoration.

Inlay restorations (Figures 6, 7, and 9) are optional benefits when the tooth can be restored adequately with a similar direct restoration. An allowance is generally made for that similar material, and the patient is responsible for the difference in cost.

Table. 2010 Resin-Based Composite Inlays/Onlays

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Lower</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Higher</th>
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<th>National RV</th>
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<tr>
<td>D2650</td>
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<td>$205</td>
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CONCLUSION

A laboratory-processed composite restoration is recommended whenever...
er a highly aesthetic one-visit restoration is desired. These fully-cured and durable restorations exhibit desirable characteristics, including: excellent marginal integrity, minimal porosity, minimal polymerization shrinkage, fully-cured, very durable, high tensile strength, high surface hardness, and very smooth surfaces resulting in less plaque accumulation and better gingival health.*

Laboratory-fabricated indirect composite resin restorations provide an incredible solution that will preserve, not diminish, natural tooth structure for our patients. Patients in your practice will recognize the value of these services and will appreciate your efforts—what an excellent practice builder!

References

Dr. Berland is a Fellow of the American Academy of Cosmetic Dentistry, the co-creator of the Lorin Library Smile Style Guide, and the developer of the Web site denturewearers.com. He also is the founder of Berland Dental Arts, a multidoctor specialty practice celebrating 25 years in the Dallas Arts District that pioneered the concept of spa dentistry. He currently serves as the editor of the Cosmetic Dental Tribune. Dr. Berland is also the creator of “Biomimetic Same Day Inlay/Onlays,” and “The Latest and Greatest in Cosmetic Dentistry—A Full Mouth Rehab in 2 Visits,” both awarded 8 Academy of General Dentistry credits. His unique approach to dentistry has been featured on television and publications such as 20/20, Time, Town & Country, Reader’s Digest, GQ, US News & World Report, Woman’s World, Details, Dallas Morning News, Good Morning Texas, and D magazine. In 2008, The American Academy of Cosmetic Dentistry honored Dr. Berland with the 2008 Outstanding Contributions to the Art and Science of Cosmetic Dentistry Award. He can be reached via email at the address drberland@dallasedentalspa.com.

Dr. Kong began her career working with a master ceramist in one of the world’s finest dental laboratories. She graduated from Baylor College of Dentistry, where she has served on faculty. She can be reached via e-mail at drkong@dallasedentalspa.com.

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