

# Crown or same-day onlay?

*Take a look at the advantages of indirect laboratory-processed composite resin posterior restorations*

By Lorin Berland, FAACD

“The trend in dentistry today is clearly toward more esthetic and less invasive. Indirect resin and ceramic inlays and onlays are not only compatible with this trend, but fulfill very nicely the restorative void between fillings and crowns,” said Ronald D. Jackson, DDS, FAGD, FAACD (Cosmetic Tribune, December 2008).

Regarding durability, esthetic inlays and onlays are not new anymore. They have a track record and it is good. With today’s materials, longevity is mainly a matter of diagnosis, correct treatment planning and proper execution of technique.

The problem with replacing old amalgams with tooth-colored composites is they are difficult, inconsistent and unpredictable.

Yet, the warranty on these 30-, 40-, 50-year-old silver fillings is running out. We have to remember that amalgam technology is over 150 years old.

At that time, people lost their teeth a lot earlier and died a lot earlier, too. Now, however, we have a large segment of the population that is over 50 years old and growing — and they want to keep their teeth feeling good and looking good.

Let’s think like our patients. Our patients want to replace these old amalgams, but they want to do it conservatively, consistently, efficiently, predictably and economically — and they want to do it in one visit.

So, what are the advantages of indirect laboratory-processed composite resin posterior restorations?

Restorations fabricated in this manner look better, undergo less shrinkage, help restore the strength of the tooth, have minimal porosity and excellent marginal integrity, and they have smoother surfaces that are kinder to the gums and result in less plaque accumulation. They are very durable and can be done in one visit.

Patients appreciate avoiding the inconvenient, uncomfortable and expensive second appointment. No second appointment means no temporaries, no emergency visits, and best of all, healthy tooth structure is preserved.

By contrast, replacing amalgam restorations with direct posterior composites, especially ones involving an interproximal surface, are difficult for the patient as well as the dentist.

For many reasons, these direct composite replacements frequently prove to be inadequate, especially over time.

The inherent problems of isolation, the large bulk of composite required and the layered curing of the composite, as well as the effects of shrinkage, all affect contacts, occlusion, margins and postoperative tooth sensitivity.

Gold will always be an excellent restoration for posterior teeth, but due to appearance, mass and an increasing price, it is becoming more unacceptable in today’s image-conscious society.

## The prep

This patient came in with a dental emergency. The filling had fallen out of his broken, lower right molar the day before he was going overseas for three weeks on business. He wanted a “quick and permanent solution” (Fig. 1).

The tooth was anesthetized. Next, a FenderWedge (Directa Dental) was used to further isolate the involved tooth, protect the adjacent interproximal surface and pre-wedge the teeth for optimal contacts (Fig. 2).

The Isolite was placed to obtain a dry, and illuminated field. We used caries detec-



Fig. 1: #30 pre-op.



Fig. 2: FenderWedge in place.

tor to ensure complete decay removal (Fig. 3). The tooth was then microetched, etched and desensitized with HemaSeal and Cide (Advantage Dental Products, Inc.).

Two layers of self-etching bonding agent (OptiBond All-In-One Unidose, Kerr Dental) were applied to provide reduced postoperative sensitivity and high dentin bond strength. This was then air-thinned and light-cured.

Flowable composite (Premise Flowable, Kerr Dental) was added to the internal walls and

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Fig. 3: Caries detector.

floor, creating an even floor and filling in undercuts that were originally prepared for caries removal and amalgam retention (Fig. 4).

After the tooth was insulated, the prep was refined with a flat-end cylinder fine-grit short shank diamond. Two Identic hydrocolloid



Fig. 4: Prep with liner.

impressions (Dux Dental) were taken to make the onlay in the lab (Fig. 5).

**Lab work**

After disinfecting the impressions, the assistant immediately poured them with MACH-SLO (Parkell, Inc.) and based them with a rigid, fast-setting bite registration material such as Blu-Mousse (Parkell, Inc.) (Fig. 6).



Fig. 5: Identic hydrocolloid impression.

Within two minutes, we had a silicone working model on which to build the onlay (Fig. 7).

The undercuts were then blocked out with a waxer, paying special attention to avoid the margins (Fig. 8). Starting with the Premise Indirect (Kerr Dental) dentinal shades and ending with incisal shades, the onlay is incrementally fabricated in layers.

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Megagen



Fig. 6: Basting the poured impression.



Fig. 7: Silicone model.

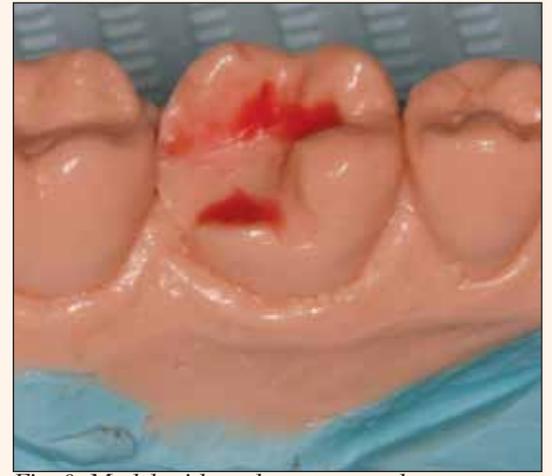


Fig. 8: Model with undercuts waxed.

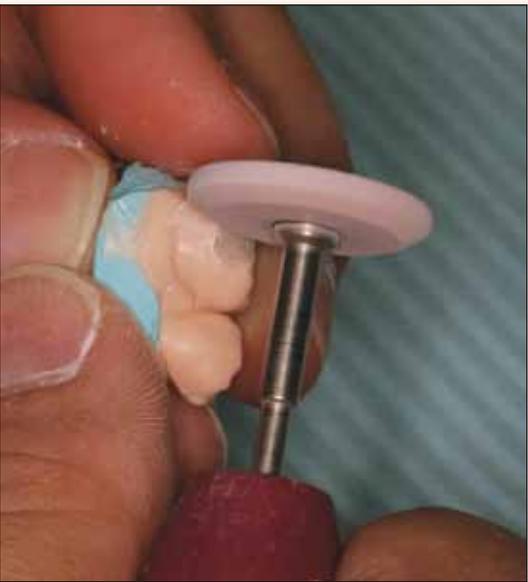


Fig. 9: Finishing the onlay.



Fig. 10: Onlay finished and polished.



Fig. 11: Expasyl prior to seat.



Fig. 12: Expasyl and FenderMate prior to seat.



Fig. 13: Adapting FenderMate.



Fig. 14: Seating onlay.

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**Mod-3**

*(Photos/Provided by  
Dr. Lorin Berland)*



Fig. 15: Final onlay.

The onlay is then placed in the Premise curing oven (Kerr Dental).

In approximately 10 minutes, the onlay is ready to be finished with various finishing burs (Fig. 9).

The onlay is polished for a high shine and then checked on the model to verify accurate interproximal contacts and margins (Fig. 10).

#### Seating the onlay

When seating the onlays, the Isolite (Isolite Systems) was reapplied for isolation, ease of placement and the patient comfort during cementation of the onlay.

Prior to cementation, Expasyl (Kerr Dental) was gently packed into the sulcus, creating a dry space between the tooth and tissue without any risk of rupturing the epithelial attachment (Fig. 11).

The aluminum chloride dries the tissue, reducing the risk of sulcal seepage and contamination.

The FenderMate (Directa Dental) was then inserted beneath the interproximal floor to slightly separate and isolate the adjacent teeth and to help facilitate seating the onlay (Fig. 12).

The Expasyl (Kerr Dental) was rinsed off thoroughly and the Fen-

derMate (Directa Dental) was adapted to the adjacent interproximal surface with a condenser (Fig. 13).

The enamel and composite core were then etched for 15-30 seconds.

A single component fifth generation adhesive (OptiBond Solo Plus Unidose, Kerr Dental) was applied in two coats and air-thinned until there was no more movement. Flowable composite (Premise Flowable, Kerr Dental) was dispensed into the prepped tooth prior to inserting the onlay into the tooth.

The FenderMate (Directa) was removed and the onlay was further seated using a condenser with gentle pressure.

Complete seating was facilitated using the contra-angle packer/condenser (Fig. 14).

An explorer is helpful in removing excess flowable before curing.

The restoration was cured from all angles, starting at the interproximal gingival floors where leakage is most likely to occur.

Occlusal flash and excess flowable composite was "buffed" with a short flame carbide while the interproximal margins were adjusted with bullet or needle carbides.

A Bard Parker #12 scalpel was used to remove interproximal cement.

Once the proper occlusion was established, a diamond-impregnated point and/or cup was used

to polish the restoration (Fig. 15).

#### Conclusion

There are certainly clear advantages for both the patient and the dentist when doing indirect composite resin restorations. These restorations have helped me save my patients' teeth, time and money.

Over the last 20 years, I have tweaked, updated and modified these restorations in terms of techniques, materials and equipment.

These restorations not only save time and conserve healthy tooth structure, they are a valuable service to provide to your patients.

Wherever you practice, however you practice, these restorations are durable, esthetic, economical and very much appreciated! **DT**

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#### About the author



Dr. Lorin Berland, a fellow of the AACD, pioneered the Dental Spa concept in his multi-doctor practice in the Dallas Arts District.

His unique approach to dentistry has been featured on television (20/20) and in national publications and major dental journals, including Time magazine.

In 2008, he was honored by the AACD for his contributions to the art and science of cosmetic dentistry.

For more information on The Lorin Library Smile Style Guide, [www.denturewearers.com](http://www.denturewearers.com), and Biomimetic Same Day Inlay/Onlay 8 AGD Credits CD-ROM, call (214) 999-0110 or visit [www.berlanddentalarts.com](http://www.berlanddentalarts.com).

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