AURUM CERAMIC® DENTAL LABORATORIES LLP

NEWS

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LVI Aesthetic Extravaganza

Denver, CO - May 13 - 14, 2005
Salt Lake City, UT - May 13 - 14, 2005
Calgary, AB - June 4 - 5, 2005
Cincinnati, OH - June 17 - 18, 2005
Charlotte, NC - June 24 - 25, 2005
Atlanta, GA - June 24 - 25, 2005

Call the Las Vegas Institute for Advanced Dental Studies at 1-888-584-3237 to reserve your space or for further information.

Dates subject to change. Please call to confirm course date.

A Contemporary Approach to Bread and Butter Posterior Restorations: A Case Study

Timothy C. Adams, D.D.S.



Esthetic, Aesthetic, Cosmetic, Smile Rejuvenation, Adhesive Dentistry, Smile Makeovers. These catch phrases are driving the focus of Dentistry in North America today due to dramatically heightened awareness brought on by marketing, a more educated public and an increase in post-graduate dental training. The influx of a vast array of excellent materials, an increased knowledge and improvements in technology have raised the bar of expectations associated with what we deliver to our patients in the anterior region of the mouth. What is missing to a degree, in this author's opinion, is the notion that we can fabricate and deliver the same beautiful and functional esthetic restorations in the posterior region of the mouth that we do in the anterior. Posterior restorations are the bread and butter of real life practices. To be able to consistently deliver excellent fitting, functional and esthetic restorations can and should be very rewarding. It is essential that, for the esthetic posterior restoration to come to fruition, you have an open communication with your lab. Without this critical communication with your lab concerning the proper case selection from an occlusion standpoint, proper materials, shade selection and color mapping and photography, the end result will be very average at best. The following is a case study of a quadrant of Empress restorations emphasizing the importance of lab communication and how you can raise the level of your posterior restorations to rival your esthetic anterior restorations.

Continued on page 2

"Congratulations Dr. Tim Meyer!
Empress® Esthetic Cover Model Mania Winner.
(See Page 7 for details)"

CASE STUDY:

A patient presented herself to the author with the desire to replace her existing alloys in teeth numbers 2, 3 and 4 with the strongest, most conservative restoration that was clinically possible. The patient was experiencing no sensitivity and her oral hygiene was impeccable. After discussing the options with her, it was mutually agreed that we would plan on utilizing Empress inlay/onlays to restore these three teeth to close to, if not equal to, their original strength. The advantages of adhesive dentistry in the posterior have been well documented in the literature for years. There have been some experts that have felt that bonded adhesive porcelain restorations rival gold in their longevity (Roulet: Minimally Invasive Restorations With Bonding, Quintessence Books, 1997, page 21).

With this in mind, and upon the patient's approval, pre-operative photographs were taken of teeth numbers 2, 3 and 4. (Figure 1) Shades were also taken at this time and again at the final prep. This allows for comparison of the shade of the tooth structure with (which can cause a graying effect on the actual tooth structure) and without the alloys. A rubber dam was placed (Figure 2) and the alloys were conservatively removed using copious water and high-speed suction. The existing recurrent decay that existed in all three teeth was then carefully removed. A slight pinhole exposure was noted on the mesial buccal pulp horn of tooth number 3. (Figure 3) This exposure was disinfected with Consepsis (Ultradent), rinsed with water and acid etched with phosphoric acid (Ultradent), rinsed again and lightly dried. The exposure was then saturated with Super Seal (Phoenix Dental) and the excess rewetting agent was blotted off by a microbrush (Kerr). Two layers of Optibond solo Plus (Kerr) were then carefully applied with the use of a multibrush, being careful not to get excess over the remaining exposed dentin. After removing the excess primer, the primer was lightly air thinned to dissipate any excess monomer left on the tooth surface. A thin layer of flowable resin (A-1 Revolution, Kerr) was applied. Both primer and flowable resin were light cured for 20 seconds. At this time, the rubber dam was removed and careful examination of the existing tooth structure and occlusion revealed enough solid tooth structure to consider inlays/onlays versus full coverage crowns on all three teeth. (Figure 4)

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A polyvinyl Siloxane impression (Kerr Take One) was taken with a full arch tray. Good detail with no bubbles, blood,

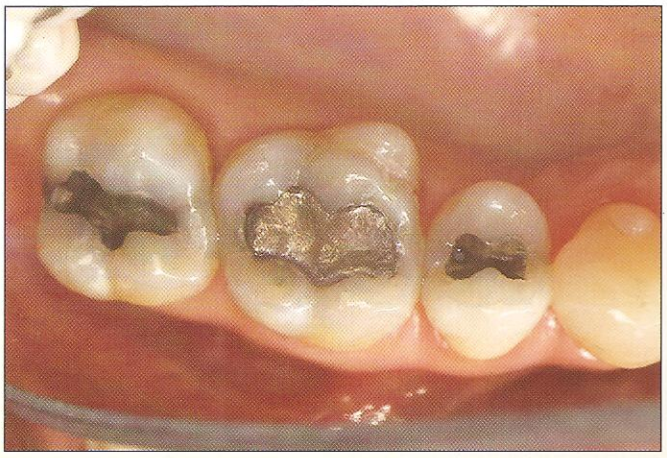


Figure 1 – Pre-operative view of teeth numbers 2, 3 and 4.



Figure 2 – Rubber dam placed.



Figure 3 – Slight pinhole exposure noted on mesial buccal pulp horn tooth # 3.



Figure 4 – Enough solid tooth structure for inlays / onlays on all three teeth.

saliva or distortion was evident. (Figure 5) A pre-operative Polyvinyl Siloxane impression (Kerr Monophase) was then used to fabricate the temporaries. To eliminate the possibility of the temporary material adhering to the pulp cap, a thin layer of Deox (Ultradent) was placed after the teeth were saturated with a desensitizing agent Super Seal (Phoenix Dental), dried, saturated with an antibacterial agent (Consepsis, Ultradent) and dried again. The temporary material (Integrity A-1, Kerr) was placed into the pre-operative monophase impression, placed over the prepared teeth for two and one-half minutes then carefully removed. Due to the fact that we used a Polyvinyl Siloxane impression for accuracy, there was little temporary material excess that needed to be cleaned up. This was quickly accomplished with an Enhance cup (Caulk, Dentsply) and water spray. The occlusion was checked and the patient was dismissed with the proper post-operative instructions, especially with the inherent concerns that the pulp cap might develop into an endodontic situation. (Figure 6) Color mapping was performed using the LVI color mapping tablets (LVI). (Figure 7) It is critical to send the color map, along with photographs, to the lab to ensure that the technician has all of the tools needed to produce an exact duplication of the natural teeth. It has been the author's experience that this step has been the missing piece of the puzzle that keeps clinicians from delivering posterior restorations that rival their anterior restorations esthetically. The author used both the Mosaic and Chromoscop Shade guides to communicate the shades, opacity, hypocalcification and translucency desired to replicate the existing natural tooth structure to the lab. Please note that it is highly unusual to have a tooth that is just one shade (with no opacity, hypocalcification and translucency). These have to be built into the Teeth. If this is not communicated to the lab, then your end result will not look natural and will not blend into the remaining tooth structure.

It is critical to send the color map, along with photographs, to the lab to ensure that the technician has all of the tools needed.

Two weeks later, the patient returned for the delivery of her three Empress (Ivoclar) restorations. She experienced no discomfort in her temporaries and was excited to get her three new restorations. The patient was properly anesthetized and the temporaries were removed. (Figure 8) The prepped teeth were cleaned with hydrogen peroxide (Ultradent) and disinfected with Consepsis (Ultradent). Upon examination, the restorations (Figures 9 and 10) were an exact match of the color

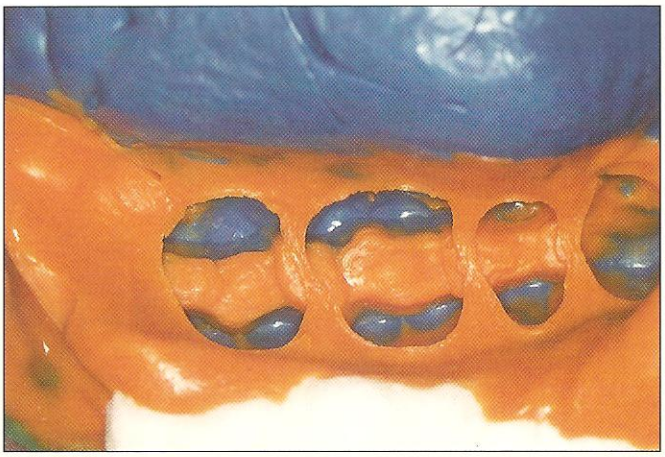


Figure 5 – Polyvinyl Siloxane impression in full arch tray with good detail.



Figure 6 – Temporaries.

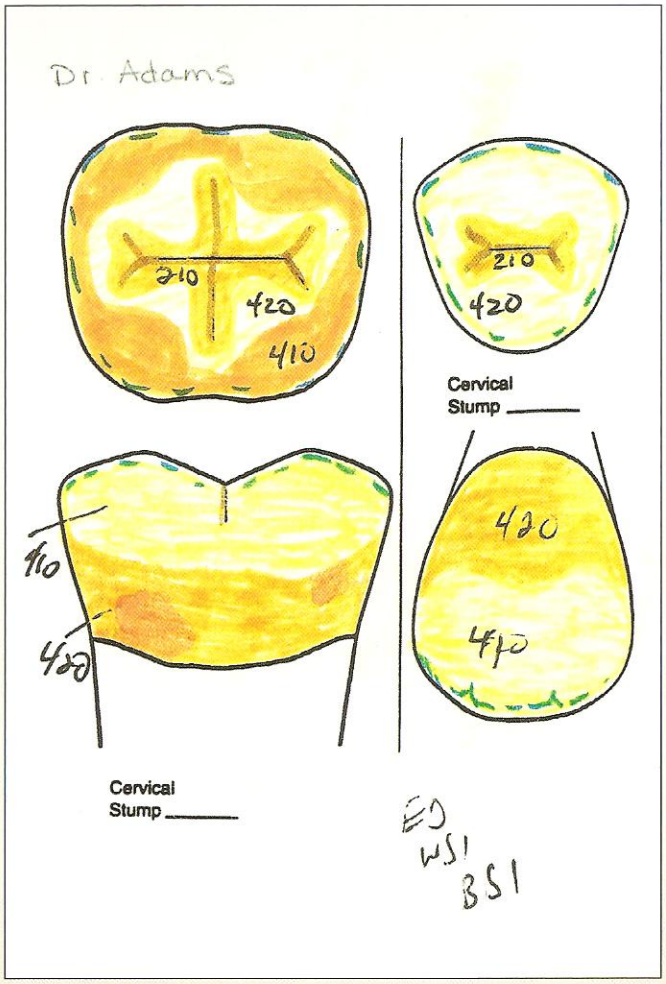


Figure 7 – Color Map.

mapping and pictures that were sent along with the case to the lab. (Figures 1, 2, 3, 4 and 5) The restorations were tried in and the fit, margins, contour and contacts were excellent. A light yellow try-in paste (Variolink II, Ivoclar) was selected to give the restorations a good blend and warmth. The restorations were removed from the teeth, rinsed with water and dried. Phosphoric acid (Ultradent) was applied on the internal aspect of the restorations to acidify the surface, rinsed with water and dried. A coating of Kerr Silane Primer (Kerr) was applied to the internal aspect of the restorations and allowed to air dry. A shiny surface should be noted on the internal aspect of the restorations. (Figure 11)

With the restorations ready to be bonded into place, a rubber dam was placed and the teeth were disinfected again with Consepsis (Ultradent), rinsed and lightly dried. The teeth were etched – the enamel first for 15 seconds and then the dentin for 10 seconds – and rinsed with a copious supply of water and lightly air-dried. The teeth were saturated with Super Seal (Phoenix Dental) for a minimum of 30 seconds to allow for proper rewetting of the dentinal tubules. The excess was blotted off with a Microbrush (Kerr), giving the teeth a glistening surface that is now ready to be primed. Two coats of Optibond Solo Plus (Kerr) were applied generously and lightly air thinned. Before the primer is cured, care should be taken to make sure there is no pooling of the primer that would create too thick a primer layer (such a thick layer could possibly impede the seating of the final restorations). After air thinning the primer, the author used a Microbrush to remove any pooled primer. The primer was light cured. The teeth were ready for the insertion of the final restorations. The prepped teeth were filled with the resin cement (Variolink, Ivoclar, Light Yellow, base light cured only) (Figure 12) and the three restorations were placed into the corresponding prepped teeth, making sure not to place too much seating pressure. If firm pressure is used at this point, before you are ready to spot tack the restorations into place, the restorations could possibly drift up due to hydraulic pressure – suck back and consequently microleakage could occur. Once the restorations were ready to be spot tacked, the excess resin cement was cleaned up with a multibrush and a rubber tip (Butler). Firm pressure can be applied and the restorations were spot tacked into place for 3 seconds on both

Without the proper tools for communication with your lab, these restorations just won't happen.



Figure 8 – Temporaries removed.

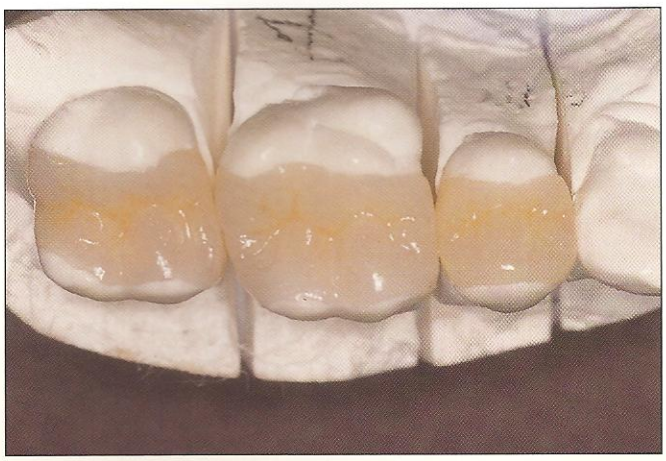


Figure 9 – Restorations on model.



Figure 10 – Restorations on counter.



Figure 11 – Primer applied to internal aspect of restorations.

the buccal and lingual surfaces. The restorations were flossed and immediately final cured for 20 seconds on the buccal, lingual and occlusal surfaces. Excess resin cement was removed using a scaler and the rubber dam was ready to be removed (Figure 13). The occlusion was checked and adjusted with a fine diamond and then a carbide bur, being careful not to remove centric stops. The final clean up and polish was performed using porcelain polishing cups and points and diamond polishing paste (Brasseler). The final restorations reveal an excellent fit and color match (Figure 14 and 15).

Conclusion

The desire to consistently deliver fantastic looking and fitting restorations in the posterior portion of the mouth is certainly in the realm of possibility. If we, as clinicians, spend the time to color map, photograph and communicate beautiful looking anterior restorations to our lab, why is it not possible to deliver the same beautiful restorations in the posterior portion of the mouth? Just because our patients might not see them as well doesn't mean that we don't see them on those 6-month recalls. There is nothing more rewarding than to see these restorations come back every 6 months and your hygienist exclaims, "I can't even tell which ones they are". Without the proper tools for communication with your lab, these restorations just won't happen.

Timothy C. Adams, DDS is a graduate of Indiana University School of Dentistry where he taught clinical dentistry for 5 years. He maintained a highly successful full-time private practice emphasizing aesthetic-restorative dentistry for 17 years. He followed his dream and moved to Las Vegas in the summer of 2002 to join LVI as the Clinical Director. An enthusiastic lecturer, instructor and author of many articles on the latest aesthetic-restorative procedures, Tim is part of the Faculty practice at LVI. Tim's wife Pam and three children Chris, Emily, and Nick share his enthusiasm and excitement in being part of the LVI family and the Las Vegas community.

Plan to Attend:

"Managing the Bite"

with Dr. Timothy C. Adams

Spokane, WA, September 30, 2005

For more information or courses in your area, please contact the Aurum Ceramic Dental Laboratories Continuing Education Department at 1-800-363-3989.

Dates subject to change. Please call to confirm course date.



Figure 12 – Prepped teeth filled with resin cement.

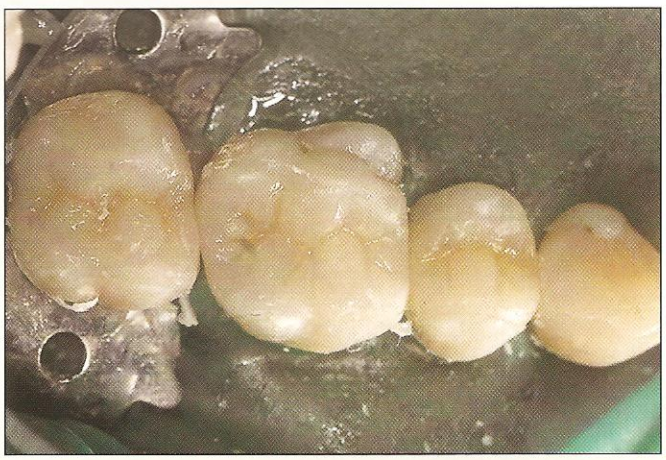


Figure 13 – Excess resin cement to be removed.



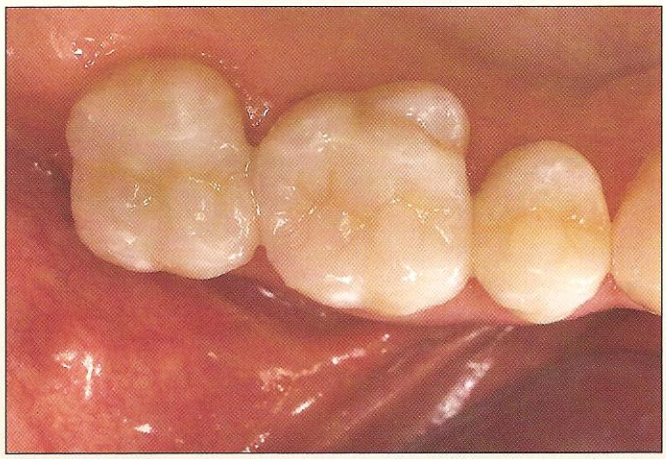


Figure 14 and 15 – Excellent fit and color match of Final restorations (right) versus original amalgams (left).