

Creating Composite Anteriors

Another Restorative Option

Luke S. Kahng



Conserving sound tooth structure has become increasingly important during restorative procedures. Treatment planning and material selection are the first steps toward a conservative approach. Improvements in existing technology and processes have made these decisions simpler. Where there were once limited options, dental technicians now have a multitude of materials available to them.

Advances in composite resin technology have made the fabrication of life-like restorations possible. The color palette found in today's composite materials enable dental technicians to employ the same familiar layering techniques commonly utilized in porcelain powder build-ups. Technicians familiar with these layering techniques will find it easy to transfer that knowledge to composites. The advances in the physical and mechanical properties of these materials have given dental professionals another highly esthetic, conservative, long-term restorative option.

CASE OBJECTIVE

A male patient in his forties didn't like his smile. He had a Class IV fracture at the

distal-incisal edge of tooth 9 (Fig. 1). An impression was taken and sent to the dental laboratory for treatment planning. The dentist and technician agreed that tooth preparation was not necessary. Tescera from Bisco, an indirect composite, was the material selected to fabricate the restoration. Tescera uses basic units of composite technology to create a life-like restoration. The Tescera material is unique in that it is the only indirect composite system that allows for the removal of porosities as it is being layered. This is accomplished with the ATL curing unit and by applying air pressure to each layer prior to light curing. The air pressure forces out trapped bubbles, leaving a final restoration that is dense and free of voids. This is

important because it has been determined that density is a contributing factor in composite restoration longevity.

LABORATORY PROCEDURE

Shade mapping was completed using custom-made shade tabs of the Tescera restorative system. Incisal White was chosen for the halo and incisal areas (Fig. 2). The value and body color was first checked with the Vita Classic A1 shade tab (Fig. 3). Since we were looking to restore just the incisal portion of the tooth, the A1 tab was used only to establish the restoration's value. Shade mapping was finished and color samples were made of Tescera color modifiers for internal characterization (Figs. 4-5). Root dentin was used for the

PRODUCT OVERVIEW



Fig. 1. Initial view of fractured tooth - #8.



Fig. 2. Tescera shade tab - Halo & Incisal custom shade check with incisal white composite.



Fig. 3. Value and body color mapping.

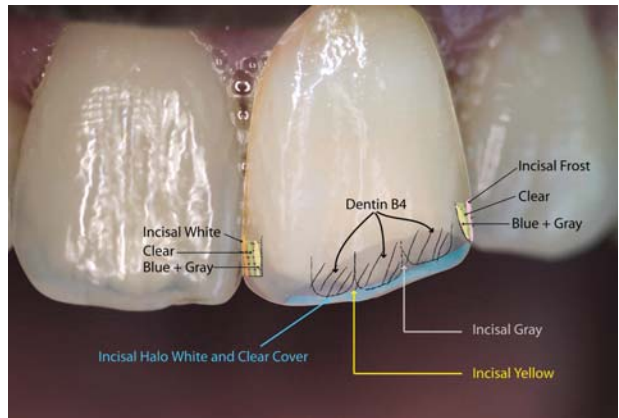


Fig. 4. Custom shade mapping by technician illustrated by computer map.



Fig. 5. Color samples for internal layering.



Fig. 6. Color samples for Interproximal effect.



Fig. 7. Color samples for incisal.



Fig. 8. Color samples for enamel.



Fig. 9. Original model with application of rubber sep material for separation.

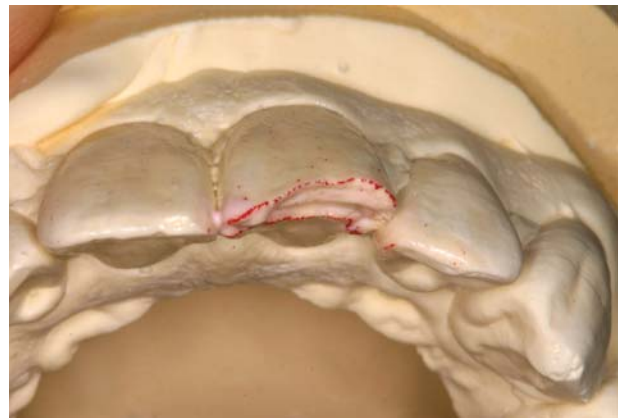


Fig. 10. Occlusion view.



Fig. 11. Apply B4 dentin composite for mamelon effect.

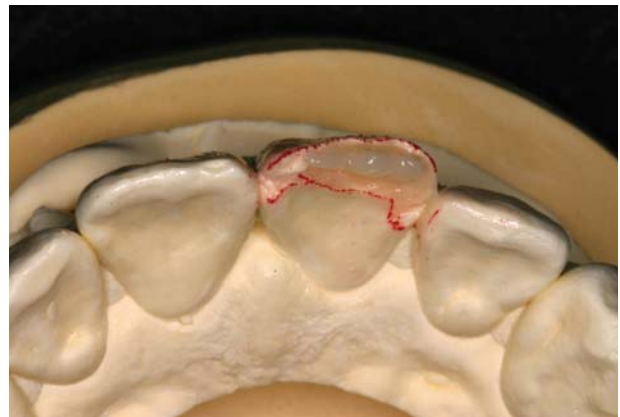


Fig. 12. Apply B4 in the middle of tooth as the outside will use only enamel and translucent on the facial and lingual.

PRODUCT OVERVIEW



Fig. 13. Lingual surface applied with gray incisal.

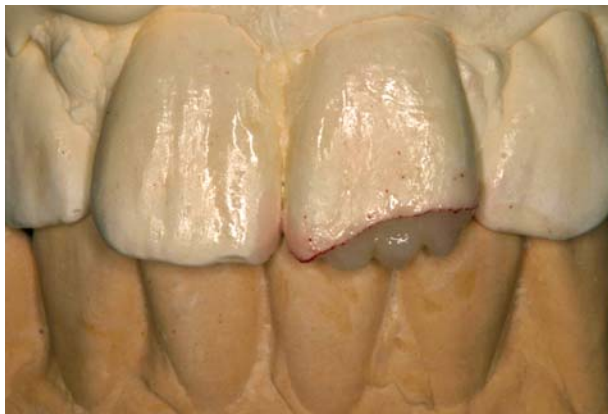


Fig. 14. Incisal yellow applied between the mamelon.



Fig. 15. Cover with clear incisal.



Fig. 16. Neutral color used to make sure you can see the mamelon effect.

interproximal effects (Fig. 6). There are five different incisal and enamel shades in the system (Figs. 7-8).

The master model was poured up and (Fig. 9) checked to verify the incisal position of the centrals (Fig. 10). I first applied the mamelon effects using the opacous dentin B4 (Fig. 11). The dentin material establishes the internal colors and must ultimately be sandwiched between the enamel layers of the restoration. Care should be taken to insure that the dentin does not cover any part of the enamel margins (Fig. 12). The lingual surface was layered with the gray incisal to give a low value effect (Fig. 13). The mamelons were built-up with incisal yellow then covered with clear incisal

(Figs. 14-15) to allow the true-to-nature color to emerge. Covering the tooth with neutral enamel ensures that the mamelon effect can be seen (Fig. 16). Along the incisal edge, I used the white incisal to mimic the halo effect (Fig. 17-18). To complete the build-up, I applied a frost incisal color (Fig. 19). Surface texture is important and will have a significant influence on the restoration's integration into the mouth (Fig. 20). The surface is composed of horizontal and vertical concavities that vary in complexity and intensity. The existing tooth has lobes on the facial surface that were replicated with the Tescera material before curing (Figs. 21-22). The lingual surface was treated in a similar way (Fig. 23). The

Tescera restoration was placed in the light pressure cup of the ATL curing unit. For the final cure, the restoration was submerged in hot water with an oxygen scavenger tablet and light cured (Figs. 24-25). The fully cured restoration was easily hand polished with Tescera polishing material using a Robinson brush at 10,000rpm for approximately 10 seconds (Fig. 26-27).

After cementation, the surface texture was checked (Fig. 28). The restoration integrated perfectly and the patient was pleased with the conservative nature of the dentistry that was performed and the improvement in his smile (Figs. 29-30). [dental dialogue](#)



Fig. 17. Small amount of white incisal is added.



Fig. 18. Mimic halo color with white incisal.



Fig. 19. Final build up with frost incisal color on lingual.



Fig. 20. The surface texture of # 8 is important to mimic.

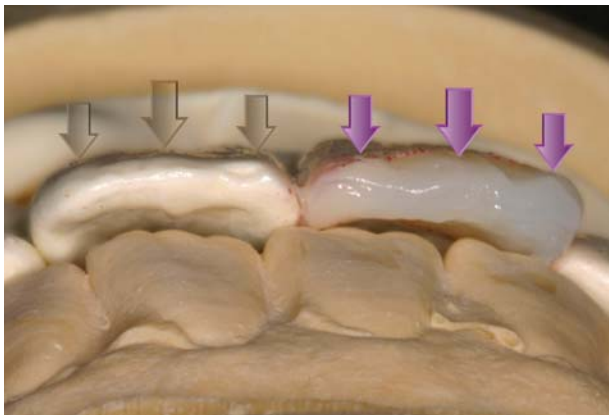


Fig. 21. Create 3 lobes compare to #8.



Fig. 22. Completed restoration on model.

PRODUCT OVERVIEW



Fig. 23. Lingual view of restoration.



Fig. 24. Pressure light cup; place composite under pressure prior to polymerization to remove air voids from pressure.



Fig. 25. Finally heat-cured under water (oxygen free) by adding oxygen scavenger in water.



Fig. 26. Diamond polishing material.



Fig. 27. 10,000 rpm with robinson brush for 10 second.



Fig. 28. After cementation, immediate view of restoration -matching the surface texture.

TesceraTM ATLTM

Indirect Composite Restorative System

Pearls of Wisdom



“Bisco’s Tescera is a composite, but thought of as another all ceramic option because of the high aesthetics you can achieve. It is nice to have another aesthetic option.”

- Luke S. Kahng, CDT

Capital Dental Technology Laboratory, Inc.



“ We have worked with Bisco’s Tescera now for over 7 years and have yet to find anything better. We evaluated Tescera at that time, along with 4 highly touted other brands and found under 31x magnification a very dense and consistent curing of the material. I couldn’t find any porosity, air bubbles or any other problems in Tescera that I found in all the others. I believe this translates into a harder material, with less water & stain absorption while delivering better shades. Tescera is easier to sell to our clients because of this. ”

- Albert Tassi, CDT

Albert Tassi Dental Studio



“ One can not be successful with knowledge and talent alone. You need the right tools to make your work look spectacular. The Tescera ATL system easily helps me score huge points in the aesthetics game. ”

- Emil Libman, CDT

Millemium Dental Aesthetics Group, Inc.

For Information on Tescera or Training
please contact Bisco at

800.247.3368 • tescera@bisco.com • www.bisco.com



Bringing Science to the Art of Dentistry

MC-1089LTC

PRODUCT OVERVIEW



Fig. 29. Lingual final view showing lingual morphology and shade matching.



Fig. 30. After three months, you can still see detailed color.

Bio

Luke S. Kahng, CDT, is the founder and owner of Capital Dental Technology Laboratory, Inc. of Naperville, Illinois. His laboratory specializes in fixed restorations. Its division, LSK 121, provides highly personalized custom cosmetic work. Kahng developed the LSK 121 Treatment Plan that incorporates a wax-up technique that focuses upon a biomechanical design of occlusal surfaces for reconstructive and esthetic dentistry. He has also developed a series of shade conversion table for porcelain.

Kahng clinics for GC America, Bisco and others. He is a frequent lecturer and program facilitator, and has been extensively published in clinical and technical journals.

He is master ceramist who has trained extensively with Russell DeVreugd, CDT, Dr. Frank Spear and Dr. Peter Dawson. He is currently a member of American Academy of Cosmetic Dentistry. Special thanks to Rick Alwan, DDS, for sharing this case.

Contact Information:

Luke S. Kahng, CDT
Tel.: (630) 355-6221
luke@lsk121.com



etkon
DENTAL CAD/CAM



Processing security

Unbeatable versatility

Etkon is the #1 choice for milling your chromium cobalt, titanium, or zirconium oxide ceramics frameworks.

Setting the standard for precision

The most cost effective scanner on the market scans 28,000 points per second for rapid modeling of crowns and bridges with unsurpassed accuracy.



- Receive unparalleled accuracy in framework fit
- Produce up to 16-unit and Maryland bridges
- User-friendly and trouble-free, Etkon sets the standard



Visit us in Chicago in February at: CDS Midwinter Meeting
(Booths 662-665/762-765), Lab day, and Spectrum Techno-Clinical Day.