

Example - Accreditation Clinical Case Written Report

Treatment List:• Boost in-Office Bleaching
• All-Ceramic Veneers on #8 and #9

Restorative Materials:• IPS e.max HTA1 ingot
• e.max Layering Porcelain

Type of Adhesive• Acid Etch (Lincoln Dental)

System & Luting Agents• Bisco All-Bond Universal

(When Applicable):• 3M ESPE RelyX Veneer Cement A1/Light Yellow Shade

Introduction and ChiefThe central incisors are the centerpiece of our smile. The veneer technique offers the

Complaint:patient a minimally invasive option to improve their smile. Sometimes veneering one or two teeth is all that is needed to improve a smile. While this procedure involves minimal tooth preparation, there are the esthetic challenges of blending the veneers with the natural dentition and creating the proper shape and proportion. Material selection is a key component to blending restorations with natural dentition. Modern ceramic materials offer the ceramist many choices when presented with the challenge of restoring two anterior teeth. This patient was dissatisfied with the tooth discoloration on #8 and chipped incisal edge of #9 and the facial composite discoloration. She recognized that her smile would be greatly improved if she could fix these problems

History (Medical andThe patient is a 43 year-old woman in good physical health. She wanted to enhance
Dental):her smile by improving the esthetics of her two maxillary central incisors. She did not like the vertical depression and discoloration of #8 and the chipped incisal edge and discoloration of #9. During the consultation appointment she was presented with the options of repairing her anterior teeth with composite resin or porcelain veneers. Since she was unhappy with her current discolored composite on #9, she chose the porcelain veneers. The patient also decided to whiten her teeth.

Diagnosis andA comprehensive oral examination was completed by the dentist and no abnormal
Treatment Plan:pathology was noted. She was examined for cancer, periodontal disease and evaluated for TMD. She had acceptable function. The patient decided to have her maxillary centrals restored with veneers and bleach her teeth.

The treatment goals were:

- Bleach existing dentition
- Correct the discoloration and vertical depression of #8
- Remove old composite on facial of #9 and correct discoloration
- Improve chipped incisal edge of #9

The dentist and ceramist discussed the details of the case and decided to use an all-ceramic press technique. The dentist wanted to maintain the contact areas and keep the margins labial to the contact areas.

After bleaching was completed she returned for the preparation appointment. Before prepping the teeth, the shade was determined and photos were taken with the appropriate shade tabs to aid in communicating the shade to the ceramist. The twelve standard AACD photographic views were taken.

Photographs, patient-approved diagnostic wax-up, pre-op models, and impression of the prepped teeth and opposing arch were sent to the laboratory to begin the fabrication process.

Description of Treatment: The laboratory made putty matrices of the diagnostic wax-up using Sil-Tech Putty (Ivoclar Vivodent). These matrices will aid in the incisal edge position and overall shape of the veneers. The impressions were poured up, pinned and mounted on a Stratos 100 semi-adjustable articulator (Ivoclar Vivadent). A second pour of the prepped tooth impression was made creating a solid model to be used to check contacts.

The ceramist reviewed all photographs sent with the case, including final shade photographs and stump shade. By placing the putty matrix over the working model the ceramist could clearly see the space available facially for creating the veneers. This information is critically important when selecting the ingot necessary to achieve the desired final result.

The facial depth of the conservative tooth preparation was about 0.5mm. The margin prep broke the midline contact area and the margins were placed more lingually. The distal margin was kept labial to the contact area. The prepped teeth showed some color variations, with patches of ND1, ND3 and ND7 (Ivoclar Natural Die Shade Guide). The final shade selected was A1.

The patient's pre-op photos showed translucency and halo effect at the incisal one-third. Although she completed a one-time in-office bleaching session, she did not have a dramatic shade shift.

Material selection for this case was a challenge. The ceramist was concerned that the patchy prep colorations would be too visible under a very translucent material. The

space available for the veneers limited the thickness of layering porcelain, therefore a more opacious ingot could not be used to mask the preps and still achieve the final results. The ceramist selected the e.max HTA1 ingot.

The two veneers were waxed up to full contour using the matrices made from the diagnostic wax-up as a guide for the shape of the veneers and incisal edge position. The margins were sealed, the wax-up was sprued, invested and burned out according to the investment manufacturer's instructions.

The restorations were pressed in an Ivoclar EP600 press oven, cooled and devested. The sprues were cut off and the restorations were placed in Invex Liquid (Ivoclar Vivadent) and ultrasonicated for 30 minutes to loosen the reaction layer created during the pressing cycle. After steam cleaning and air drying the restorations, the reaction layer was removed by sandblasting with 100 micron aluminum oxide at 1 bar pressure. Each veneer was placed on the master die model and the margins and fit were adjusted where necessary. Stump dies were fabricated representing the color of the preparations as shown in the photographs taken of the prepped teeth.

The sprue areas were reduced and the facial surface of the veneers was reduced slightly using a combination of diamond-impregnated rubber wheels and diamond burs (Komet). The incisal one-third area was reduced facially and contoured to mimic mamelon shapes using a diamond-impregnated rubber wheel (Cardinal Rotary Instruments). The veneers were lightly sand-blasted with aluminum oxide, steam-cleaned and placed on the master model for a final check against the putty matrices.

IPS e.max Ceram Transpa Neutral was applied as a thin wash coat over the facial surface. The veneers were placed on metal pegs on a honeycomb tray cushioned with Custom Peg Putty (Hankins Laboratories) and fired at 750 degrees C.

The second bake consisted of Transpa Incisal 1 porcelain applied to the veneers to start developing the shape and fired at 750 degrees C.

The next application of porcelain consisted of Cervical Transpa Orange at the gingival one-third, Opal Effect 3 in the central middle one-third and alternating columns along the incisal edge of Opal Effect 1, Opal Effect 3 and Transpa Incisal 1. The veneers were fired at 750 degrees.

After cooling the veneers were placed on the master model and checked for fit.

Contacts were adjusted using the solid model and the midline and incisal edge positions were confirmed. Facial contouring was done with various diamond burs and checked with the putty matrices, paying particular attention to the development of the three facial planes of contour and the labial grooves. The veneers were moistened with glaze liquid and placed on the stump dies to check the shade.

A correction bake was done using Transpa Incisal 1 to adjust the contours. The veneers were fired at 745 degrees.

The facial contours were refined using diamond burs (Komet) and green stones (Shofu). Surface texture was developed with a fresh diamond bur. The pre-op and shade photos were referred to regularly as a guide to the development of the surface texture.

The veneers were steam-cleaned. A small amount of white stain and blue stain was added to the incisal edge to blend with the existing dentition. A thin coat of glaze was applied to the gingival and middle one-thirds areas and fired at 730 degrees C.

Surface luster was accomplished by using a diamond-impregnated rubber wheel (Shofu), Robinson Bristle brush and ceramic polish (Dental Ventures of America). The veneers were placed on the solid model to confirm fit.

The internal surfaces of the restorations were coated with Ceramic Etching Gel (Lincoln Dental Supply) for 20 seconds then steam-cleaned and air-dried.

The restorations were packaged up and shipped to the dental office. Upon try-in the dentist determined that no additional adjustments were necessary and he completed the seating of the veneers. Post-op photographs were taken one month later.

Conclusion

This case presented the ceramist several challenges: minimal reduction, preps with dark patches and blending the restorations with the surrounding natural dentition. Knowledge gained from years of experience with an all-ceramic system gives the ceramist confidence when this type of case arrives in the laboratory. The patient had a simple request to improve her smile by restoring only two teeth. She was very happy with the results and now has a more confident demeanor. The ceramist has gained satisfaction knowing that her skills have been used to improve someone's life.

- References:**
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