

3M ESPE

Introduction to Layering
with Filtek™ Supreme
Plus Universal Restorative

Expertise
Filtek™

Supreme Plus
Universal Restorative

2. Multishade Class IV Restoration

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Treatment Diagnosis

2 This patient presented with sensitivity on endodontically treated left central. It was determined the existing large Class IV restoration may not have properly sealed the canal and endodontic retreatment was necessary. The treatment plan was to provide a direct composite restoration (long-term provisional) after endodontic retreatment and postpone indirect treatment options until the tooth is conclusively non-symptomatic. (Figure 1)



Fig. 1 Pre-op

Diagnostic Mock-up, Lingual and Facial Matrices/Guides.

A quick mockup was accomplished using a composite material directly in the mouth to establish proper length, shape and facial contours of the left central. (Figure 2)



Fig. 2 Mock-up image

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A fast-setting bite registration material was used to impression the lingual surfaces and incisal edges of the right central through the left lateral to create the lingual matrix. The lingual matrix is an excellent tool that allows the dentist to easily reproduce the exact length, shape and lingual anatomy created by the composite mockup. (Figure 3)



Fig. 3 Lingual matrix

Shade Selection

The shades should be selected prior to isolation of the tooth to eliminate the effects of dehydration. Shades selected when teeth are dehydrated often results in the selected shades being too light.

The most important factor for obtaining highly esthetic results is the proper value (brightness) of the restoration. If this is accomplished, along with proper shape and finish/polish to the restoration, the likelihood of a pleasing final result is extremely high.

The second most important factor in producing a highly esthetic result is to maintain the restorative shade recipe during the restorative procedure. Second guessing the selected shades during the procedure is generally not recommended since the dentist is now attempting to esthetically match a “moving target” due to the effects of isolation, etching, etc., and results in the restoration appearing too light compared to the rehydrated tooth.

Establishing the “shade recipe” for the restoration

The Vitapan Classical Shade Guide is an excellent starting point for determining the shade recipe. Since it is a “guide”, one must remember to place a sample of the selected shade on the tooth, cure it, and polish it before performing the restoration. Restorations not supported by natural tooth structure require greater utilization of dentin shades than those restorations backed by natural tooth structure.

2 To assess the shade and opacity of the required restorative materials, the dentist placed, cured and polished samples on the existing and missing tooth structure. He selected Supreme Plus Universal Restorative shades WE (white enamel) to create a lingual shell (lingual enamel), A2D to replace missing tooth structure (unbacked) to create dentin opacity and prevent shine-through or graying, and a limited amount of GT (grey translucent) over the mammelons toward the incisal edge to enhance translucency in the incisal third of the restoration. The WE shade will also be used for the final facial increment.

Preparation Design

Preparation design is a critical element in obtaining a strong functional and esthetic result. Where a minimal bevel may generally be used to complete many restorations, particularly in posterior situations, a more aggressive preparation design is desirable to obtain predictable and consistent strength and better esthetic results.

A #1, non-impregnated retraction cord was placed to provide isolation and greater tooth surface accessibility to properly restore the tooth. The large existing restoration was removed and a long bevel was placed. A feather margin was extended toward the cervical aspect to enhance the blending potential and attain greater esthetic success. The lingual margin also required an aggressive beveled margin using a fine diamond preparation bur. This helps ensure strength of the restoration through the mechanical adhesion to the tooth. (Figure 4)

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Fig. 4 Prepped tooth

Etching

When etching the tooth surface, extend the etch onto the unprepared tooth surface.

The etching process involved a gentle stirring action to help remove any bubbles that could prevent adequate etching. Etching beyond the preparation margins helped ensure there would be no visible line between the tooth and the restorative material. Copious amounts of water were used to thoroughly rinse the etchant for at least five seconds. High vacuum suction, or a damp pleget can be used to remove excess water and leave a moist dentin surface.

A generous amount of Adper™ Single Bond Plus, a single component light-cured adhesive, was applied and reapplied two to three times with gentle agitation to the etched tooth surfaces using a micro-brush or similar instrument. To ensure the solvent was thoroughly volatilized from the adhesive, high-vac suction was used across the surface of the restoration for 10 seconds. A gentle stream of water- and oil-free air may also be used.

Light Curing

The adhesive was thoroughly light-cured before placing the composite material.

Properly curing this interface is extremely important for the long-term success of the restoration.

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Placement of Composite

The lingual matrix was seated. A very thin increment (roughly .3 mm) of the Filtek Supreme Plus Universal Restorative WE (white enamel) shade was placed against the surface of the matrix where the lingual tooth structure is missing. The composite was manipulated to the incisal facial line angle and the proximal contacts. (Figure 5,6)



Fig. 5

With the light guide as close as possible to the composite, it was cured for 10 seconds using the Elipar Freelight 2 curing light.

If the light guide diameter is too small to cover the entire area, reposition the light guide to ensure the entire lingual shell is cured.

The lingual matrix was removed and the shape and length of the restoration was established. (Figure 6)



Fig. 6

At this point, one can determine if the amount of opacity at the incisal edge is adequate to achieve the desired “halo” effect. If additional halo is required, the appropriate shade (WE in

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this situation) can be formed into a thin rope by rolling in the finger tips. The material can then be placed, manipulated and light-cured along the incisal edge. (Figure 7)



Fig. 7

Replacing Dentin Tooth Structure and Creating the Invisible Restoration.

To create the “invisible restoration” using only three different materials, the dentist used Filtek Supreme universal restorative A2D (A2 dentin) shade at the facial margin, just short of the desired final facial surface (roughly .2 to .3 mm). The increment is thinner toward the incisal edge. Mammelons were created using an #6 Hollenbeck or interproximal carver. (Figure 8)



Fig. 8

Before curing this increment, it's important to view the restoration from the incisal and proximal positions to verify the thickness of the increment in relationship to the adjacent tooth facial surface. It's essential to leave room for the final facial increment. Inadequate room will result in two outcomes: either excessive finishing for achieving a proper facial profile

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will be required or there will be inadequate room to place an appropriate thickness of any subsequent increment(s). Both situations prevent the ability to produce a restoration with appropriate translucency and the outcome will be too opaque.

Assessing Invisibility

Understanding the degree of translucency at this point is important for two reasons. First, the restoration should appear virtually identical in opacity as the tooth structure at the gingival margin. Only opacity can be verified because to attempt to assess value, hue or chroma is virtually impossible due to the change in the teeth due to de-hydration, etc.

If the restoration and the teeth do not have a comparable opacity, and the perception of “invisibility” at this point, there is no benefit to completing the restoration. Subsequent increments will not address the shortcoming and the dentist should evaluate the opacity selection and increment thickness and re-do this step prior to light curing the material.

Assessing Translucency of the Incisal Third

An assessment of the degree of translucency in the incisal third compared to the adjacent tooth will determine if the restoration can be completed using a final increment of an enamel shade or if some translucent material must be incorporated to produce comparable translucency.

Since additional translucency was desired, a translucent shade, GT, was incorporated between the mammelons and blended into the incisal third of the restoration. This created a smooth transitioning of translucency. (Figure 9)



Fig. 9

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Placing the Facial Increment

The remaining facial increment involved opacity comparable to the enamel on a natural tooth. This final increment was placed using an enamel shade (WE, white enamel).

If using a capsule, the nozzle of the capsule can be held with light pressure in the middle of the restoration while the material is dispensed. This creates a thin and fairly uniform layer of the enamel shade that can help control the possibility of porosity by minimizing manipulation of the restorative material.

An interproximal carver was used to establish initial facial anatomy and embrasure contours.

A sable haired brush that was slightly stiffened by wiping it with a 2 x 2 “dampened” with an adhesive resin was used for manipulation without sticking. It helped incorporate a natural texture on the surface. (Figure 10)



Fig.10

Caution: If an adhesive resin is used to “wet” the brush, it should be used very sparingly. Only use the resin component of a 4th generation adhesive (i.e. Scotchbond™ Multipurpose adhesive). Do not use a primer from a 4th generation adhesive or a 5th generation adhesive as they can adversely affect the restoration.

Prior to curing this increment, the restoration was viewed from the incisal edge and the proximal position to ensure the desired reference points (including embrasures) were properly established. Once satisfied, the entire restoration was thoroughly cured.

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Contouring and Finishing to Create Facial Anatomy

While the value of the restoration has the greatest affect on success, ensuring proper shape and facial anatomy is also important for a successful restoration.

Carefully note the proximal/facial line angles of the adjacent tooth (right central in this situation). It is often beneficial to “pencil” these on the adjacent tooth as well as the tooth being restored. This will allow additional assessment to determine necessary contouring to the left central.

2

Initial contouring was accomplished using a coarse 3/8” Extra-Thin Sof-Lex Finishing Disk used in a slow-speed handpiece at roughly 10,000 RPMs

If facial secondary anatomy requires refinement, a fine diamond or multi-fluted carbide bur can be used.

Once the contouring was completed, the facial texture of the adjacent tooth was assessed to determine what texture was needed for the restoration. A medium or fine diamond bur, run at a very slow speed (at virtual stall) with light pressure was used to create a very natural texture.

Polishing

The final key to creating a successful esthetic result is to achieve the proper luster through use of the correct polishing instrumentation. So as not to destroy the natural anatomy, the use of polishing brushes, soft polishing cups and/or buffing disks with polishing paste are very effective.

Postoperative

The immediate and one week post-operative photographs are shown in figures 11 and 12, respectively. The photographs show a very natural looking restoration and Dr. Vargas has demonstrated how the use of three shades of Filtek Supreme Plus Universal Restorative coupled with his technique and skills have resulted in an exceptional level of clinical success.

The tooth was initially symptomatic and the restoration is functioning as a long-term provisional, at least until the tooth is conclusively non-symptomatic. At that time, comprehensive diagnosis and treatment plan options will be determined.

The patient will then be informed of the various approaches to address long-term functional and esthetic considerations. Care and precautions for the restoration are essentially the same as with natural dentition.

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Fig. 11



Fig. 12