

A Touch of Life

by Bassam Haddad



Throughout dentistry, dentists and technicians display their aesthetic skills predominately on anterior restoration cases. The following is a perfect example of a non-ideal aesthetic case for presentation.

The restorative case in question does not have enough room for the ideal number of pontics within the dimensions of the restorative case. The following steps will illustrate how a dental technician can create a highly aesthetic restorative case even when the aesthetic circumstances are not ideal and sometimes challenging.

To begin, we must choose the material for the infrastructure of the case. A quick cost benefit analysis of the materials available to maximize the successes of aesthetics and strengths in this situation leads us to the option of choosing zirconium oxide for the 6-unit restorative bridge. It has the required strength for the bridge span with good optical properties.

While creating a natural aesthetic look, one must follow

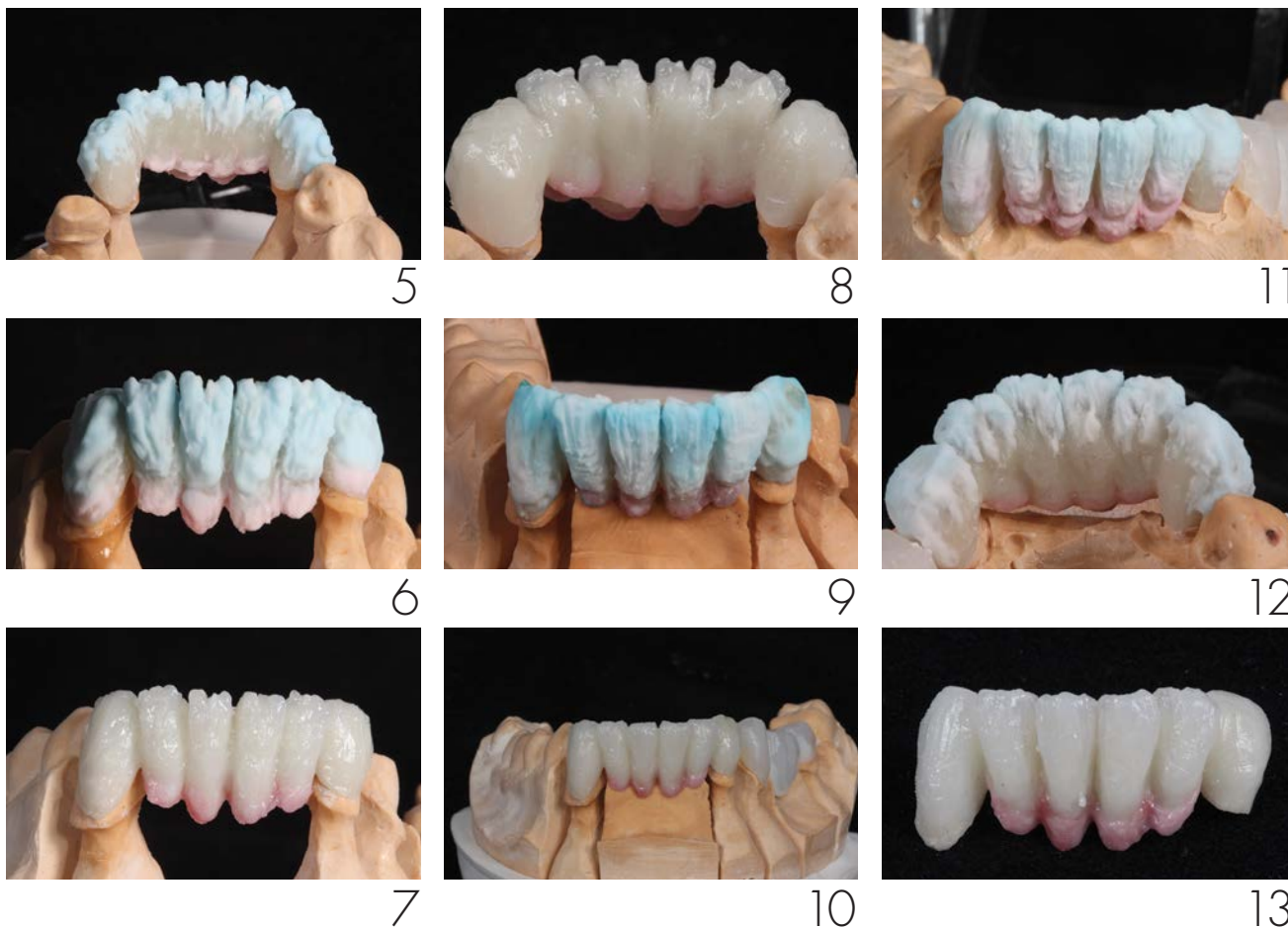


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certain guidelines in order to create the best possible result. Design of the infrastructure, awareness of inter-proximal areas as well as using the cutback method, will create a natural esthetic smile. The outcomes of using these guidelines will be the correct diffusion of light, better adaptation/degradation and fluorescence of the light within the smile. The key fact is the technician must master the transition and diffusion of light to be able to create natural esthetics in conjunction with the data given by the clinician. These may include pictures and age of the patient. The younger the patient, often more translucency is needed (Fig. 1).

I was looking to find a ceramic system which would allow me to achieve high esthetic results with predictability and consistency. I made the decision to utilize the Ceramotion ceramic system manufactured by Dentaaurum. In this documented case I have used Ceramotion Zr, which has the benefit and versatility to be layered and baked on both zirconium oxide and lithium disilicate.

The first step is to make a connection layer with the zirconium framework. For this a thin layer of dentin is applied and baked at 35 degrees Celsius, a higher temperature than the dentin bake. This is the foundation bake. When the foundation

bake is applied, it will aid with the stability and support of the subsequent porcelain shoulder firing (Fig. 2).

My philosophy is to always build up the dentin bake initially in an irregular way. By respecting the contour and shape of each tooth and by looking at both the occlusal and labial views, we notice asymmetrical mamelons. There are many advantages to layering the ceramic material in this manner.

Most importantly, by controlling the shrinkage of ceramic and by positioning the dentin correctly inside the incisal edge area, we have better control of the shade and chroma. This will allow us to avoid the unnatural straight greyish line between the dentin and the enamel of the incisal edge. Now we have the ability to control the degradation of color within the restoration. From this point on we can start feeling life in the bridge (Figs. 3-4).

The second bake consists of applying small amounts of dentin material in areas which would require more incisal and completing the contour with incisal materials and also by creating irregularities in respect to the final shape. The fitting surfaces (under the pontics) are covered with gingival dentin (G3 dark) which was previously covered by dentin (Figs. 5-6). The results can be verified after each bake, with special at-



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tention given, to not obtaining a visual straight line between dentin and enamel (Figs. 7-8).

After the second bake, I apply the appropriate internal stains and fix internally at a lower firing temperature program.

I complete the shape by layering additional translucent enamels and lighter gingival materials. (G1)

By texturing the final shape, horizontally in some areas and vertical lobes with the brush, we can obtain the abraded incisal edge, which can mimic the existing dentition, eventually bringing natural life to the bridge (Figs. 9-10).

To give a more natural look, it is possible to layer small amounts of opalescence materials such as opal honey, blue, white and gray under the translucent materials. Light shades of gingival porcelains can also be layered into the gingival embrasure areas, in order to achieve a softer transition between the ceramic and the tissue (Figs. 11-13).

Always finalize the shape, contact points and the occlusion on a solid uncut model. Since the adaptation of pontics, margins and the profile emergences have been finished on the previous die model, we can eliminate the tissue on this model. Now it is possible to adjust the overlapping by adding where appropriate and also by adding the final touches to the incisal

area, by using various translucent enamel porcelains (Fig. 14).

The glazing is completed in two stages. After the glaze, it is important to rubber wheel all areas where it is necessary to have an increase in the reflection of light. By using pumice and polishing paste, manually polishing, will assist in giving a natural light reflection and improved aesthetics to the restoration (Fig. 15).

By looking at different angles we can appreciate the final results, especially when we combine proven ceramic techniques with an aesthetic and consistent ceramic material. Notice the opalescence (amber) and the translucency, combined with the surface texture (Fig. 16).

In the next picture we notice the results of the manual polishing. This will result in variations in the reflection of light both in intensity and with a scattering effect (Fig. 21).

In the next three pictures, overlapping can be appreciated, the degradation of color in the gingival area with the internal crack lines. It is important to note that the ceramic was extremely stable after each progressive bake and maintained its shape and color. This was very important, especially after the glazing bake. In conclusion, I found the Ceramotion ceramic very forgiving and very user friendly (Figs. 17-22). ■