



Achieving

Natural Smile

Enhancements
with

IPS Empress® Esthetic

Matt Roberts | Dentistry by Thomas Trinkner, DDS

IPS Empress® Esthetic

Since its introduction last year, laboratory ceramists have commented on the enhanced ease with which IPS Empress® Esthetic can now be used to create beautiful and natural-looking restorations. Never is this more important than when dentists and ceramists together are faced with the challenges of treating patients who want something other than a Hollywood smile.

It's a fact. Not every all-ceramic, multi-unit case is a Hollywood smile design. In many instances, we may encounter patients who have different needs and want restorative treatments that visually resemble

something closer to nature. These patients may want their smile enhanced to proper form and function—and maybe even more attractive esthetics—but they don't want to look like they've had their smile re-done.

For dentists, satisfying this type of patient requires a different approach to treatment planning. For ceramists, it also requires fabricating restorations that are more than just a smile design catalog stereotype. The case highlighted here is an excellent example.

IPS EMPRESS ESTHETIC

Case Presentation

The patient is a dentist who approached us about doing his case, one he called “a real case” because he didn't want his final results to resemble a Hollywood smile (Figure 1). He wanted to maintain the look and character of his previous smile (Figure 2), and his treatment would involve his four anterior maxillary teeth—the centrals and laterals.

The patient expressly wanted to maintain the general look he'd always had, while straightening up slightly to correct some occlusal issues. When he presented, he demonstrated noticeable wear of his laterals, which were lingualized. One treatment objective was, therefore, to bring those forward. We also wanted to replace the worn structure on his centrals, yet still maintain a look that would blend seamlessly with his cuspids and the rest of his teeth. Replicating his “original” look would also require mimicking the orthodontic rotation of the centrals toward the midline.

The preoperative shade of his case approximated a 1M2 (Figure 3), but the restorations would require many simulated craze lines and internal characterizations. As a result, the laboratory fabrication of the restorations would involve the application of more colors than normally applied for most of the cosmetic cases we create. We performed a wax-up and photographed it for the patient's review. We also temporized him according to our treatment plan, and he approved the restorative objectives.

The provisional restorations (Figure 4) represented the shape desired by the patient, but not the color or effect detail that can only be achieved through porcelain layering. Also, they demonstrated the manner in which tooth #7 would be moved facially, and tooth #10 repositioned slightly to the lingual. Per the patient's request, the mesial rotation of teeth #8 and #9 was maintained in the provisional restorations (Figure 5).

Using IPS Empress Esthetic to Achieve the Objectives

An incisal matrix of the provisional model was made to help maintain the position of the incisal edges. Additionally, an impression of the provisional restorations was placed on the prepared tooth model and filled with a wax injector in order to transfer the shape of the provisionals. The wax was injected onto the working model. The envelop of function was evaluated when the wax-up was complete (Figure 6).



Figure 1. View of the patient's preoperative condition. Old composite restorations would be replaced, and the position of the lateral incisors changed slightly.



Figure 2. The patient wanted to maintain the orthodontic rotation of the central incisors, as well as the great deal of character present from the many craze lines.



Figure 3. The patient's natural preoperative shade was close to a 1M2. Therefore, IPS Empress ETC1 ingots were used to approximate this shade.

A slight interference caused a fracture in the wax, and small contour changes were made to eliminate this problem. The contact areas of the wax-up restorations were heated with an electric waxer and, while still hot, a thin blade was used to separate the restorations (Figure 7). This technique results in minimal contact adjustment after pressing. A stick bite was used to evaluate the midline of the restorations, and the wax-ups were invested prior to pressing.

Because the patient's natural dentition exhibited a tremendous amount of characterization that he wanted to keep in his restorations, a close examination of the color variations and tooth morphology was necessary. His dentition inherently had a lot of honey colored incisals and more chroma in the gingival areas than typically observed in most people's cases.

Stumpf dies were made for the IPS Empress Esthetic restorations, and we began with an ETC1 ingot. Surface contouring was completed with Brasseler diamonds, and the incisal cut-back was made approximately 1 mm vertically and shaped for the desired translucency (Figure 8). This was then stained quite aggressively both inside and out in the gingival half.

The IPS Empress Esthetic Wash Pastes provide a variety of shades with which to create internal effects, such as accenting the mesial and distal lobes in this case. Additionally, these pastes offer unique handling characteristics that enabled the mamelon forms to be created.

The new IPS Empress Esthetic wash pastes were used to create the opacity and chroma patterns needed on the translucent window interface. The effects of the segmented build-up became evident in the translucency patterns, and the wash pastes were used to emphasize those effects (Figure 9). Because the patient's teeth exhibited a strong amber mid-incisal area, incisal yellow was applied to create this effect (Figure 10). A thin layer of an opalescent material—a low translucency Opal Incisal that covered the yellow—was layered over that to filter the color effects and provide density. This was completed so that the build-up would be carefully kept sub-contour on the facial aspect, with vertical ridges left for the application of the craze lines (Figures 11 through 13).

Once this was completed, we applied opacified high value stains on very subtle internal structures to create the illusion of crack lines in the teeth (Figure 14). Because we were applying detailed staining of that interface, it created some walls to which we could apply the stain. As a result, it became internalized in the porcelain and truly resembled a craze line running through the teeth. In actuality, it's just a milky white material stained in there. Across all four restorations, we created just a few of those effects—enough to create the natural look he wanted, but perhaps 10 years younger.

The final build-up was completed with the application of a low translucency Opal Incisal (Figure 15). The finished restorations then demonstrated faint craze lines and color distribution, as exhibited in the patient's original natural dentition (Figures 16 and 17).



Figure 4. The provisional restorations represented the shape desired by the patient, but not the color or characterization.



Figure 5. Mesial rotation of teeth #8 and #9 was maintained in the provisional restorations.



Figure 6. The envelope of function was evaluated when the wax-up was complete. Small contour changes were required to eliminate a slight interference.



Figure 7. A thin blade was used to separate the restorations. This technique results in minimal contact adjustments after pressing.



Figure 8. The incisal edges of the restorations were cut back approximately 1 mm vertically and shaped for the desired translucency pattern.



Figure 9. Wash pastes were used to emphasize the effects of the segmented build-up.



Figure 10. Incisal yellow was applied to the restorations to create the strong amber mid-incisal area exhibited by the patient's natural teeth.



Figure 11. This build-up carefully kept the sub-contour on the facial aspect, and the vertical ridges were left for the application of craze lines.

Conclusion

In our profession, we will likely be called upon to create all-ceramic restorations for patients who want to look better, but not so much so that it's obvious that they've had work done. Imperative to the success of this case was the communication that took place to determine exactly what the patient really did want. And this, in itself, can be a big challenge. For us, performing composite work in the mouth, developing a diagnostic wax-up, and then listening very closely to the input the patient provided was key to achieving his desired functional and esthetic objectives.



Figure 12. Note the vertical ridges.



Figure 13. Once fired, the amber incisal became visible.



Figure 14. High value paste and mamelon light were used to create the craze lines.



Figure 15. The final build-up was completed with low translucency Opal Incisal.



Figure 16. The finished restorations demonstrate the faint craze lines and color distribution that were exhibited in the patient's original natural dentition.



Figure 17. View of the completed restorations following cementation.

Author Biography

Matt Roberts is the founder of CMR Dental Laboratory and is one of 16 accredited ceramists in the American Academy of Cosmetic Dentistry. He lectures nationally and internationally and has worked with many of the leading clinicians in the country. Additionally, Mr. Roberts serves on the editorial boards of numerous dental publications, including *Practical Procedures and Aesthetic Dentistry*, *Signature and Reality*. He is also the founder of Team Aesthetic Seminars.

