4 Seasons for Aesthetics
An Interview With Lee Culp, CDT

Visualizing and Realizing the Potential of IPS Empress® Restorations
Robert G. Rifkin, DDS

Shedding Light on the Soft Tissue Laser
Michael A. Miyasaki, DDS

Direct Fabrication of the Maxillary Central Incisor: A Case Report
Frank J. Milnar, DDS

Adding "Value" to the Cementation of All-Ceramic Restorations
David E. Hombrakhg, DDS, FAAO
Visualizing and Realizing the Potential of IPS Empress® Restorations

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The versatility of the IPS Empress® (Ivoclar Vivadent, Amherst, NY) leucite-reinforced pressable glass-ceramic material has enabled clinicians to satisfy the requirements of multiple indications — veneers, inlays/onlays, and full-coverage crowns. Since its introduction, IPS Empress has provided excellent translucency and vitality, without the opacity associated with porcelain-fused-to-metal restorations. These characteristics are enhanced following adhesive resin cementation which helps conduct the color of the underlying tooth structure.

Throughout its tenure in restorative dentistry, IPS Empress has provided increased flexural strength and mean fracture toughness when compared to conventional feldspatic porcelain. Further, IPS Empress demonstrated strengths between 160 MPa and 180 MPa, crowns fabricated from the material exhibit aesthetic characteristics comparable to those of an all-ceramic crown, and often superior to those of aluminous porcelain.

When utilized for the fabrication of inlays and onlays, the IPS Empress material has an estimated 95.6% to 97.5% survival rate after two to four years, with satisfactory ratings for contour, marginal integrity, color matching, and recurrent dental caries. Additionally, studies have shown similarly impressive long-term results and a 98.8% success rate with IPS Empress veneer restorations. Following cementation with multiple- or single-step adhesives, IPS Empress crowns demonstrated successful retention after 24.5 months. Overall, IPS Empress crowns showed a 94.6% satisfaction rating and an estimated 95.35% success rate following more than five years in vivo.

Empowering the Aesthetic Dentist

The development of technological tools such as digital photography, photograph enhancement software, and presentation packages have changed how cases are presented to patients, just as biomechanical advancements such as implants have altered the manner in which missing

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Figure 1. Case 1. The patient presented with pain in the discolored maxillary left central incisor.
dentition are replaced. These tools provide nothing less than high impact and organization when educating patients on their conditions and treatment options.

Specifically, patient acceptance of more extensive treatment can be achieved through proper application and use of digital images, particularly since a patient’s comprehension and acceptance of treatment depend largely on what can be readily visualized. Photographic imaging software enables clinicians to control the size and orientation of a specific view of the patient’s dentition, to color correct images for clarity, and to simulate the requested and/or proposed restorative treatment in order to assist the patient in reaching an informed decision on the proposed treatment plan.

The aforementioned tools can also assist in treatment planning and smile design. Using digital technology, clinicians can analyze smiles that encompass tooth form, relative tooth ratios, gingival display, scallop symmetry, papillae, and embrasures. Simulated changes can be shared with the patient to enhance understanding of the smile design concept.

Case Presentations
Case 1 — Single, Anterior Nonvital Tooth
A 30-year-old female patient presented with a chief complaint of pain in the maxillary left central incisor, which also appeared dark in color (Figure 1). A thorough examination and radiographic analysis revealed a nonvital tooth that had undergone prior endodontic treatment; a large composite restoration had also been placed.

Upon probing, a hairline fracture on the lingual aspect of the composite restoration became larger (Figure 2), verifying the presence of a true vertical fracture. At this point, it was determined that the
Case involved more than a simple replacement of the composite restoration and tooth bleaching. One option was the extraction of the tooth and either the fabrication of a metal-free bridge (IPS Eris™, Ivoclar Vivadent, Amherst, NY) or the insertion of an implant. The decision was made to preserve the tooth through the placement of an aesthetic zirconium post (Cosmopolis™, Ivoclar Vivadent, Amherst, NY) (Figure 3), followed by restoration of the tooth utilizing an IPS Empress pressed crown restoration (Figures 4 and 5).^{13}

**Case 2 — Multiple Anterior Restorations**

A male patient presented with a complaint of tooth sensitivity and short teeth which were virtually invisible upon smiling (Figure 6). Clinically, the patient exhibited severe parafunctional wear from bruxing. The teeth were prepared and restored with porcelain-fused-to-metal (PFM) crown restorations in the maxillary and mandibular posterior regions (Figures 7 and 8); IPS Empress crowns were placed on teeth #4 through #13 (Figure 9).

**Case 3 — Single Anterior Implant-Supported Crown Adjacent to Veneers**

Successful placement of implants for natural aesthetics requires anatomical analysis and measurements, with specific attention to site selection. In the following case, a female patient presented with short, opaque-looking, and worn anterior maxillary dentition (Figure 10). An implant was present in tooth #9.

It was decided not to place veneers on teeth #6, #7, and #11. Instead, IPS Empress veneers were selected and placed on teeth #8 and #10, and a full-coverage IPS Empress crown restoration was placed on tooth #9 (Figures 11 and 12). The key to the success
of the case was to match the IPS Empress crown to the IPS Empress veneers. The selection of the appropriate ingot shade of the pressed ceramic material helped to ensure a seamless match and dramatic results (Figure 13).\textsuperscript{14}

Conclusion
Technology and material science have empowered clinicians to achieve results that satisfy their patients' demands for aesthetics and longevity. IPS Empress restorations continue to provide predictable enhancement and/or transformation of a patient's oral condition and overall appearance with natural, lifelike results.\textsuperscript{15}

References

Acknowledgment
The author wishes to thank Joachim Kern, MDT, for the fabrication of the restoration showcased in the presentations.