

# An Esthetic Solution for Missing Anterior Teeth: The Procera® AllCeram Bridge



**Michael C. DiTolla, DDS**  
Private Practice  
Santa Ana, California  
Phone: 949.440.2659  
Fax: 714.633.9647  
Email: mcditolla@cs.com

Despite the many recent advances in esthetic dentistry techniques and materials, certain cases remain difficult to restore. Specifically, many dentists have complained about the lack of an esthetic replacement for missing anterior teeth and, as a result, have placed ceramometal bridges lacking the premium esthetics of all-ceramic restorations. The Procera® AllCeram bridge (Nobel Biocare) represents a significant step forward in the esthetic replacement of missing teeth. Dentists can now confidently prescribe all-ceramic bridges, regardless of whether the adjacent teeth are natural or all-ceramic restorations.

**The ability to fabricate three-unit bridges with the Procera® system fills a gap that has always existed in esthetic treatment.**

The Procera® system for creating single-tooth restorations has proven to be durable while achieving excellent marginal fit.<sup>1,2</sup> Most dentists say that, in addition to the esthetics of Procera® crowns, the ability to cement them conventionally is their favorite feature (personal communication during seminars, 1996-2001). To understand the importance of this feature,

consider this real-life situation, which occurs almost daily:

A patient wishes to replace a couple of anterior crowns because of the gray line now showing at the gumline. The dentist correctly decides that all-ceramic restorations would provide the desired esthetics. While removing the old crowns, however, it is found that the margins are 2 mm subgingival, and the patient does not require any gingival recontouring. If the dentist chooses to provide all-ceramic restorations that need to be bonded into place rather than cemented, the result will be compromised by the inability to control moisture during the bonding steps on margins that are 2 mm subgingival. In fact, most dentists have seen failing bonded all-ceramic restorations that appear to be porcelain-fused-to-metal (PFM) because of the grayish-black microleakage at the margins.

This is the perfect situation for a Procera® crown, because, in

addition to five adjacent single Procera® crowns.

## PROCEDURE

This case was selected because it was one in which the achievement of optimum esthetics would have been very difficult before the introduction of the Procera® AllCeram bridge. The patient was a 25-year-old man who requested the replacement of two missing teeth, as well as the replacement of some unesthetic anterior PFM crowns with visible metal margins. Teeth Nos. 3 and 7 were both missing, and the patient was dissatisfied with wearing a stayplate. Teeth Nos. 10 and 11 were both in crossbite, and correction of that situation was desired as well. It was decided to place a Procera® AllCeram bridge from Nos. 2 through 4 and from Nos. 6 through 8. The connector height would be kept to a minimum in order not to impinge on the surrounding periodontal structures. Single-unit Procera® crowns were placed on teeth Nos. 5 and 9 through 12. Crown lengthening procedures on teeth Nos. 6 and 11 were discussed with the patient, and he declined this pro-

cedure because he felt his low smile line did not reveal these areas. The patient agreed that the mandibular teeth would be whitened after finishing the maxillary restorations, to blend the arches.

At the initial examination, the patient's preoperative condition was evaluated, in addition to the esthetic requirements (Figure 1). Using a study model that had a single-unit Procera® crown and a three-unit Procera® AllCeram bridge on it, adjacent to a single-unit PFM and a three-unit PFM bridge, the patient was allowed to view the two kinds of restorations and take them off the models to inspect the internal aspects. Needless to say, our practice has yet to see a patient who is given this choice request a PFM restoration. From a practice management standpoint, Procera® is unique in its ability to sell itself to the patient. No other cementable restoration has that kind of "wow" factor with patients, in the author's experience.

For cases exceeding three units, a diagnostic wax-up is used (Glidewell Laboratories), such as the one shown in Figure 2. White wax was used for these wax-ups, so the patient would be excited



Figure 1—Preoperative view of the maxillary arch showing a missing right lateral incisor and a missing right first molar. Several unesthetic ceramometal crowns also needed replacement.



Figure 2—A diagnostic wax-up was used to help determine esthetic and functional requirements.

the author's opinion, conventional cementation with a resin-reinforced glass ionomer (RelyX™ Luting Cement, 3M ESPE) performs much better in subgingival situations than do resin cements. The ability to fabricate three-unit bridges with the Procera® system fills a gap that has always existed in esthetic treatment. The following clinical case illustrates the use of an anterior and poste-



Figures 3 through 6—Facial, right lateral, occlusal, and left lateral views, respectively, of the preparation on a model.

by the changes seen. (Diagnostic wax-ups created with yellow wax sometimes fail to inspire patients, because many are turned off by the sight of yellow wax on a yellow model.)

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Procera® is dentist-friendly as a standard PFM preparation is used. For anterior preparations, Procera requires 1.5 mm to 2.0 mm of reduction on the facial and incisal surfaces, while the lingual surface requires 1 mm to 1.5 mm of reduction. A 1-mm to 1.5-mm chamfer preparation is the preferred margin. For posterior teeth, 1.5 mm to 2 mm of occlusal reduction is necessary, while 1.5 mm is standard for buccal and lingual surfaces. A 1-mm to 1.5-mm chamfer preparation is the preferred margin and, as with any all-ceramic system, rounded internal line angles are indicated (Figures 3 through 6).

Many dentists mistakenly think they need to prepare a shoulder for Procera® restorations, which is a much more difficult margin to cut, and is actually contraindicated for scanning purposes. Use of a diamond kit developed specifically for Procera® crowns, such as the All Ceramic Preparation Set LS-7514 (Axis Dental Corp.), help to ensure optimal reduction, taper, and marginal shape.

Final impressions and bite registrations were made, in addition to a horizontal stick bite and clinical photographs for the laboratory.



Figure 7—BioTemps™ provisional restorations were fabricated for the patient using the diagnostic wax-up as a blueprint.



Figure 8—Two three-unit Procera® bridges and four single-unit Procera® crowns were fabricated.



Figure 9—Facial view of the final restorations on the model.



Figure 10—Lateral view of the final restorations on the model.

For all cases exceeding three units, laboratory-fabricated provisional restorations should be used (BioTemps™, Glidewell Laboratories), which are relined with a methyl-methacrylate to achieve optimum fit (Figure 7). The provisionals were designed from the diagnostic wax-up so that both the patient and practitioner could preview the final result. Any esthetic changes made to the provisionals were communicated to the laboratory for use in the final restorations.

The final restorations were examined for proper esthetics after return from the laboratory (Figure 8). Note the excellent esthetics, both on the inner and outer surfaces. The restorations were then tried on both the master model and the solid model to confirm fit (Figures 9 and 10).

One of strengths of the Procera® system is its ability to be conventionally cemented.

The restorations were placed in the mouth, first as individual units to check the marginal fit of each of the restorations, and then collectively to verify contacts and occlusion (Figure 11). Unlike many all-ceramic restorations, the strength of Procera® allowed the checking and adjustment of the occlusion before permanent cementing. All of the porcelain polishing could therefore be accomplished extraorally, which was much quicker and cleaner than intraoral polishing.

One of strengths of the Procera® system is its ability to be conventionally cemented;



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**Why Prescribe Procera?**

- Procera uses a basic PFM chamfer margin preparation
- It is strong enough to be conventionally cemented
- The ceramic is wear compatible with natural enamel
- Procera crowns can be adjusted and polished chairside




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**Figure 11**—Occlusal view of final restorations at the try-in appointment. Note the excellent arch form and occlusal anatomy.



**Figure 12**—Postoperative view of highly esthetic, nonmetal restorations.



**Figure 13**—Close-up view of cemented final restorations. Note incisal and labial surface characterization.

## REFERENCES

1. Oden A, Andersson M, Krystek-Ondracek I, et al: Five-year clinical evaluation of Procera AllCeram crowns. *J Prosthet Dent* 80(4):450-456, 1998.
2. May KB, Razzoog ME, Lang BR, et al: Marginal fit Procera AllCeram crown [abstract]. *J Dent Res* 76:311, 1997. Abstract 2379.

delivering Procera® restorations is as quick and easy as delivering PFMs, although the same cannot be said of bonding other all-ceramic restorations. The provisionals were removed and the preparations were cleaned with Consepsis® Scrub (Ultradent Products, Inc.). The prepared teeth were then rinsed and lightly dried. Hemaseal & Cide (Advantage Dental Products) was painted on the preparations, and a light stream of oil- and moisture-free air was blown on the teeth. The restorations were then cemented with RelyX™ Luting Cement. Clean-up of excess cement was simple and straightforward and, unlike most bonded cases, only one or two areas were slightly traumatized during clean-up (Figure 12).

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## SUMMARY

Figure 13 shows a close-up of the final restorations on this difficult combination case, calling for the use of both crowns and bridges. Avoiding the use of ceramometal restorations on the anterior teeth and bicuspid made this type of case challenging to treat. The strength, durability, and esthetics of the Procera® AllCeram bridge make it a win-win restoration for dentists and patients alike. ○