

## ACHIEVING EXCELLENCE IN THE PRE-DOCTORAL CLINIC: A PORCELAIN VENEER CASE REPORT



by  
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### ABSTRACT

Full porcelain veneer cases can be highly technical procedures and often are discouraged in the pre-doctoral clinical setting. This article features a case presentation in which maxillary anterior teeth are prepared and temporized for the delivery of porcelain veneers. The steps and communication with clinical instructors necessary to achieve excellent esthetic and functional results by a pre-doctoral student are highlighted.

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### BACKGROUND

Porcelain veneers are restorations commonly used in dental practice. Often seen as a conservative alternative to full crowns, veneers minimize tooth reduction and periodontal involvement while maintaining future restorative options.<sup>1</sup> Porcelain veneers can serve to rebuild functional tooth surfaces, modify tooth color, modify tooth position and contour, correct occlusal alignment, and restore function.<sup>1-3</sup> The multiple purposes that veneers can serve make them a fundamental restorative option for any practicing general dentist or prosthodontist. Given their importance, this option should be equally accessible to students treating patients in teaching institutions. The pre-doctoral clinical setting is an opportunity for student dentists to utilize professional instruction in developing good technical skills. Procedures requiring a higher degree of technical skill, such as full veneer cases, should be encouraged and should receive proper instructor supervision and demonstrations of proper technique. The purpose of this case report is to demonstrate how excellent results can be achieved in a full veneer case by a pre-doctoral dental student.



Figure 1: Pretreatment clinical appearance.



Figure 2: Pretreatment occlusal view.

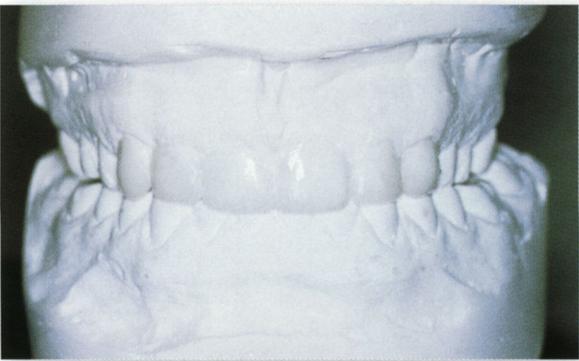


Figure 3: Mounted wax-up.



Figure 4: Prepared maxillary anterior teeth.

## CASE REPORT

This 29-year-old male patient presented to the Harvard School of Dental Medicine student clinic, interested in improving the esthetics of his maxillary anterior dentition. The patient's teeth showed diastemata between all incisors bilaterally, distal rotation of the right lateral incisor, and misalignment of the incisors despite previous orthodontic treatment (Figs 1 & 2). The diminutive size of the maxillary anterior teeth contributed to their unesthetic state. A treatment plan was formulated that involved realignment with a removable orthodontic appliance, followed by porcelain veneers on the maxillary canines, and lateral and central incisors.

However, the patient wished to forego the orthodontic treatment and restore form, function, and esthetics with the fixed prosthetics only. It was determined that this option could still achieve the desired results and the modification to the treatment plan was made.

## MATERIALS AND METHODS

### DIAGNOSIS AND TREATMENT PLAN

Prior to beginning restorative treatment on the patient, the student made casts from alginate impressions taken during the initial exam and mounted

them on an articulator. Wax-ups were then made of the maxillary anterior teeth to be restored to approximate ideal esthetics and occlusion in centric relation (Fig 3). From this wax-up, a vacuum-formed stent was made using 0.05 in.-thick plastic to be used later in fabricating a provisional restoration. This thickness of plastic is rigid, so as to minimize excess flash and allow for reusability. Tooth shade also was determined prior to beginning the restorations.

### VENEER PREPARATION

At the following appointment, the teeth were prepared for veneers using a flat-edge, semi-fine diamond bur; and



Figure 5: Prepared teeth, occlusal view.



Figure 6: Finished provisional restoration fixed with Tempbond NE™ (Kerr).



Figure 7: Veneers immediately after delivery.



Figure 8: Case complete, 3 days after delivery.

finish lines were created even with the gingiva. The supervising instructor demonstrated the technique on one central incisor, and the student finished the preparations on the remaining teeth. The amount of reduction on each individual tooth was adjusted to correct for misalignment and to ensure an even contour across the anterior teeth mesiodistally (Figs 4 & 5). All preparations were kept in enamel, including the right lateral incisor, which required the greatest reduction to compensate for its rotation. The preparations were finished and defined using a fluted finishing bur. Immediately following the preparations, Ultrapak™ (Ultradent; South Jordan, UT) gingival retraction cord

size 0 was packed around the facial surface of the prepared teeth and final impressions using Impregum™ (3M ESPE; St. Paul, MN) impression material were taken by the student, with the instructor's assistance.

### TEMPORIZATION

The provisional restoration was fabricated following the preparations and impression. Although it is argued that this step is optional, it was deemed necessary in this situation to improve esthetics until the veneers were delivered. Protemp Garant™ (3M ESPE) composite material was loaded into the stent, placed over the prepared teeth by the student, and allowed to set.

Protemp Garant is an auto-curing material and does not require visible spectrum blue light exposure, which reduces the risk of uneven or inadequate curing. Once fully cured, the provisional was removed with the help of the instructor and excess material was eliminated using fine diamond burs. The instructor demonstrated the proper contour of the provisional restoration's margins, and the student finished. The provisional was then reinserted and the margins were finished using a fine diamond point. Additionally, contours and embrasures were created interproximally to aid in cleaning and improve esthetics. The finished provisional was then polished using the Enhance® (Dentsply Caulk;



Figure 9: Case complete, occlusal view.



Figure 10: Case complete, clinical smile.

Milford, DE) polishing system and cemented using Tempbond NE™ (Kerr; Orange, CA) temporary cement (Fig 6).

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## VENEER DELIVERY

The veneers were fabricated in the laboratory using the IPS Empress™ system (Ivoclar/Vivadent; Amherst, NY), which consists of leucite-reinforced pressed ceramic. Prior to delivery of the veneers, the provisional restoration was removed and the prepared teeth were polished with fine pumice. Cord treated with Hemodent™ (Premier; King of Prussia, PA) was packed around the facial surface of each prepared tooth, exposing the finish lines. Each veneer was checked individually for proper fit with the instructor's supervision, and then together for proper contacts, shade, and esthetics. Minor porcelain adjust-

ments were made at this time where necessary. The teeth were etched and coated with bonding agent in a dry field in preparation for delivery. The veneers were permanently cemented using the Nexus™ universal luting system (Kerr), and were delivered beginning with the central incisors and moving distally in both directions. The instructor demonstrated proper luting technique with a central incisor and then assisted the student with the remaining teeth. Mylar strips were placed interproximally as the veneers were being delivered to prevent adhesion to adjacent teeth. Once all veneers were in position, excess cement was cleared from the facial and lingual surfaces and the restorations were light-cured in place. The cord was removed and the margins were finished with a fine diamond point (Fig 7). The patient was recalled 3 days later to evaluate tissue healing and esthetics (Figs 8–10), and maintenance and cleaning instructions were given.

## FOLLOW-UP

The patient was evaluated again in 2 weeks to re-evaluate tissue health and esthetics. Alginate impressions

were taken at this time for the fabrication of an acrylic maxillary occlusal guard to be delivered 2 weeks later. After delivery of the occlusal guard, the patient's treatment was completed by placing him on a 6-month recall schedule. *AD*

## REFERENCES

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