

Minimal-Preparation Veneers

From the laboratory's perspective, using the platinum-foil technique with minimally invasive preparation techniques can yield very satisfactory results.

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Porcelain veneers and their preparation designs have come full circle over the last 30 years. From the original designs of minimal tooth reduction to the gross over-reduction of tooth structure, we are now heading back to a more conservative preparation, which can yield a very satisfactory result. Minimal or no-preparation veneers are heavily advertised as the answer to our patients' cosmetic needs—which they can be if they are used correctly in the appropriate case.

For years, laboratory technicians have asked clinicians for more room on the veneer preparation to allow for the placement of several different porcelains to give a natural look to the veneer. The room needed for some types of veneers was actually 0.8 mm to 1.5 mm. This is quite a difference from the original idea of not destroying any tooth structure to help the patient receive an improved smile. In some carefully selected cases of no-preparation veneers, the author has seen outcomes that parallel a full-preparation veneer case in copying nature's beauty. So when a

clinician asks about the laboratory's perspective on no-preparation veneers, the authors' answer is that success depends on proper case selection and the patient's goals. Several factors lend themselves to a successful outcome in no-preparation veneer cases: spacing between teeth, teeth that need to be lengthened, and teeth that do not need to be lightened more than three shades. The following case will illustrate how even when all three of these rules are violated, with careful use of the multi-porcelain layering technique, a successful result can still be achieved.

Case Description

A 17-year-old boy presented with significant discoloration on all of his teeth, in particular the anterior teeth (Figure 1 and Figure 2). He and his parents sought esthetic correction of this problem, and they had been presented with a treatment plan of veneers with reduction of the tooth structure. They were a little reluctant to proceed with that course and sought a second opinion. Because of the patient's young age, the clinician's first thought was to try to restore the anterior dentition in a non-invasive technique using a conservative composite approach. Several mock-ups were performed to evaluate whether the discolorations could be masked by the direct bonding technique. Several different shades were used along with a composite opaquing system to try to mask the discoloration while restoring the teeth to natural brilliance. After mixing and matching composite material as a possible solution, it was determined that the composite results were not the solution that had been hoped for. It was at this point that the clinician called the laboratory about the possibility of using a minimal-preparation veneer technique as a solution to the problem. The laboratory's thinking was to fabricate a trial veneer that would determine if

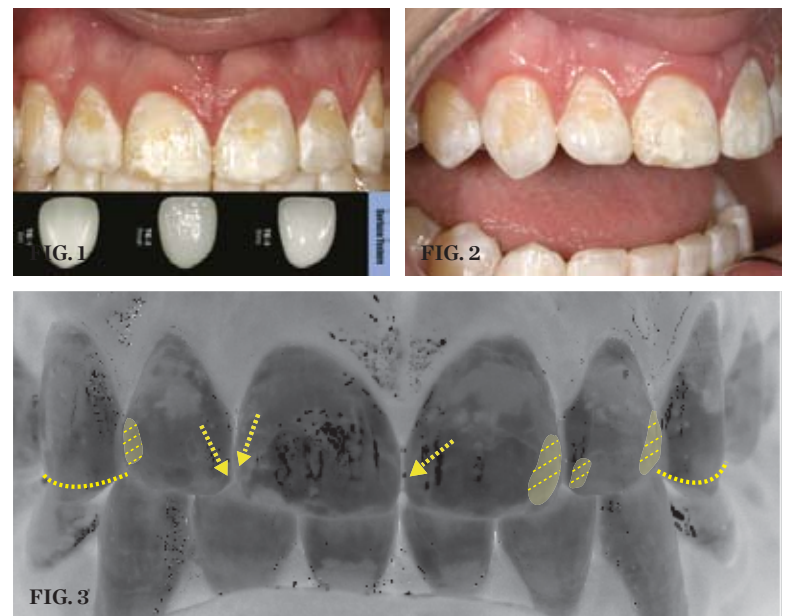
the multi-porcelain layering technique would cover the discoloration and result in a harmonious smile. After speaking to the laboratory, the clinician gathered the necessary information, which included digital photographs, polyether impressions of the patient's teeth, and a request that the patient visit the laboratory to evaluate the trial veneer. Several veneers were fabricated for the evaluation process. When the patient arrived for his scheduled appointment at the laboratory, the trial veneers were tried in with water soluble try-in paste and evaluated by the patient and his parents. The multi-porcelain veneers were well received by the patient and he and his parents scheduled an appointment at the clinician's office for minimal-preparation veneers.

The appointment for minimal-preparation veneers is a very simple appointment. The laboratory generates

a computer image that acts as a guide for the clinician as to where he or she needs to reduce the convex areas and how to eliminate any undercuts (Figure 3). Teeth Nos. 6 and 11 were deemed to be 1 mm long and were reduced with a medium-grit diamond. The sharp edges and convex areas were also reduced. All of the reduced areas were polished with a rubber cup to give the technician smooth surfaces with which to work. Polyether impressions were taken, the co-author's proprietary Chair Side Shade Selection Guide was used to help laboratory communication (Figure 4), and the patient was dismissed. By using this minimal-preparation technique, no anesthesia or temporaries were necessary, to the delight of the patient and the clinician.

Laboratory Procedures

The platinum foil had to be prepared before the porcelain build-up could be applied (Figure 5). GC Initial™ (GC America; www.gcamerica.com) porcelain was applied to the dentinal area, as well as placed to get some side-effect enamel (Figure 6). In the next step, GC Initial cervical translucency modifier was applied (Figure 7). The eight finished veneers fabricated by using the multi-layering technique are displayed



PRETREATMENT (1. & 2.) A 17-year-old boy presented with significant discoloration on all of his teeth, in particular the anterior teeth. Using the Chair Side Shade Selection Guide, the patient's surface texture was checked as part of the custom shading process. **(3.)** A computer image generated by the laboratory acts as a guide for the clinician as to where he or she needs to reduce the convex areas and how to eliminate any undercuts.



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on a mirror (Figure 8). Measuring the veneers with a caliper reveals their contact lens-like thinness, 0.2 mm in the lateral areas and 0.3 mm in the body of the veneer (Figure 9).

The veneers for teeth Nos. 8 and 9 were tried in the mouth for fit and appearance (Figure 10). After the patient approved the two centrals, teeth Nos. 9 through 12 were tried in with a water-soluble try-in paste and evaluated by the patient for any possible changes that he would like accomplished before final cementation (Figure 11). After final approval, the teeth were pumiced, etched, and bonded into place (Figure 12).

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In a photograph taken while looking down over the top of the patient's head, the beautiful thin margins are clearly evident (Figure 13). One of the clinician's main concerns about this case was the marginal thickness, but the technician found that he could reach natural tooth form because the previous gingival area was under-contoured. Figure 14 shows the finished restorations immediately after cementation, and Figure 15 is a portrait of the patient.

Conclusion

No-preparation veneers are a sought-after treatment for esthetic smile improvement. There are several reasons for this popularity. Obviously, the lack of preparation is one; this alone is a

psychological bonus for the patient. With minimal or no preparation, there is no temporization involved, which is a plus for the patient, too, because most patients do not care for anesthetization. But when the clinician considers the amount of preparation necessary for a porcelain veneer, he or she must keep in mind the patient's goal, as well as the cant, lip position and fullness, color,

incisal edge position, tooth contours, and occlusion.

Often, patients cannot really describe what they want to accomplish by having veneers placed on their teeth. If they are looking for opal and clear translucency and mamelon, this cannot be accomplished with no or minimum preparation. A traditional preparation will be needed to create this illusion.



PLATINUM FOIL (4.) The proprietary Chair Side Shade Selection Guide was used to help laboratory communication. (5.) The platinum foil was prepared. (6.) Porcelain was applied to the dentinal area and placed to get some side-effect enamel as well. (7.) Cervical translucency modifier was applied.

CEMENTATION (8.) The eight finished veneers are displayed on a mirror. (9.) A caliper reveals the veneers' contact lens-like thinness, 0.2 mm in the lateral areas and 0.3 mm in the body. (10.) The veneers for teeth Nos. 8 and 9 were tried in the mouth for fit and appearance. (11.) Teeth Nos. 9 through 12 were tried in with a water-soluble try-in paste.

FINAL RESULTS (12.) After final approval, the teeth were pumiced, etched, and bonded into place. (13.) In this view, taken over the top of the patient's head, the beautiful thin margins are clearly evident. (14.) The finished restorations immediately after cementation. (15.) A portrait of the happy patient.