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THE NATION'S LEADING CLINICAL NEWS MAGAZINE FOR DENTISTS

AESTHETICS

Simplifying Direct Composite Veneer Placement

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A new system for placing direct composite resin veneers, the Uveneer System (Dental Art Innovations), has recently been introduced. It is a clear template kit that provides the clinician with preformed facial surfaces of maxillary central and lateral incisors, canines, and first premolars (which can also be used as second premolars if needed). The system was designed to make it easier and faster for dentists to create direct composite veneers with predictable shape and symmetry. Uveneer templates come in 2 sizes to better fit the facial profiles of most teeth. The template size is made to match the ideal 80% width-to-length ratio, corresponding to smile design proportion ("golden proportion") at mesio-distal widths of 1.6 mm central incisor to 1.0 mm lateral incisor to 0.6 mm canine. In addition, due to the precise anatomic "facial tooth contour" of the templates, the final result will yield different thicknesses of composite (less toward the incisal third and gingival areas and greater in the middle of the facial surface). This varied thickness of material creates different effects and values and, as a result, only one shade of composite is needed in many cases to get a natural gradient effect, obviating the need to use different shades using a layering technique.

The creation of freehand composite veneers is still considered one of the most challenging procedures for dentists to perform. With the nuances of facial proximal line angles, proper heights of contour, and facial outline form in the template, the Uveneer technique provides a fast and predictable way to create anatomically beautiful direct composite veneers in a fraction of the time.

CASE 1
The Single-Tooth Solution

The patient in Figure 1 presented with a darkened left central inci-

CASE 1

Figure 1. An intraoral 1:1 preoperative view of a darkened left central incisor tooth.

Figure 2. After preparation, tissue retraction, and adhesion steps were completed, the dark cervical areas were masked using composite tints (SDI Shade Modification, tints White and Brown + Yellow).

Figure 3. A view of the complete Uveneer kit (Dental Art Innovations) showing the 2 sizes of templates to recreate the facial surfaces of the maxillary teeth in the smile zone.

Figure 4. Composite resin was placed on the surface of the preparation and the Uveneer template pushed into the material, forming the anatomic facial surface of the veneer with the inner surface of the template. In cases where the Uveneer template fits the facial surface of the tooth precisely, the inner surface of the template leaves a smooth, high gloss surface on the composite material with no oxygen inhibition layer. This eliminates the need for extra finishing and polishing steps to complete the veneer(s).

Figure 5. After removal of the template, the finished result is shown here—a very aesthetic result in a very short time utilizing a Uveneer template. *(Dentistry by Dr. Husam abu Diab, Qalqilya, Palestine.)*

Figure 6. A full-smile postoperative view of the direct composite veneer fabricated with Uveneer on tooth No. 9. *(Dentistry by Dr. Husam abu Diab, Qalqilya, Palestine.)*

sor needing an immediate chairside solution because of an important family event *(case and photos courtesy of Dr. Husam abu Diab of Qalqilya, Palestine)*. A single direct composite veneer that would match the adjacent central incisor would be difficult enough to fabricate, but with a dark value in the "background" to be masked as well, this case could be extremely difficult to do correctly and could be time consuming in addition.

After placement of gingival retraction cord, the facial surface was prepared for a full facial veneer. Preparation was required for this case so that the thickness of composite would adequately mask the discoloration. Also, an intracrevicular margin was placed to allow for better aesthetics due to the darkened color of the root. After tooth preparation and placement and curing of the bonding resin (ExciTE [Ivoclar Vivadent]), composite tints (Shade Modification tints White and Brown + Yellow [SDI]) were placed in the cervical area; each color was separately cured to simulate the cervical coloration of the adjacent tooth (Figure 2). The next step was the selection of the proper template and tooth size from the Uveneer kit (Figure 3), followed by the selection, in this case, of an appropriate shade of a nanocomposite resin restorative material (such as Filtek Supreme Ultra Universal Restorative [3M ESPE]) to match the adjacent central incisor. The composite was then placed on the tooth. Next, the Uveneer template was lined up to coincide with the outline form of the tooth, then placed and pressed into the composite (Figure 4). After light curing through the template, the template was removed, leaving a highly polished surface. The anatomic form of the central incisor was complete by virtue of the template. A minimal excess of composite at the incisal edge was removed, finished, and the restoration was completed (Figure 5). The beautiful direct composite restoration was fabricated quickly and easily using the Uveneer facial template system (Figure 6).

CASE 2
Veneering Old Porcelain Veneers With Direct Composite

The patient shown in Figure 7 presented with a fractured porcelain restoration on tooth No. 8. In order to get an optimal aesthetic match between the central incisors,

CASE 2

Figure 7. A retracted, preoperative facial view of tooth No. 8 with an incisal porcelain fracture. Both teeth Nos. 8 and 9 have gingival recession, with root surfaces showing.

Figure 8. After depth cutting the porcelain with a 0.5-mm depth-cutting bur (834.314.021 [Komet USA]), the facial surface of the porcelain restoration was uniformly reduced with a 2-grit diamond (6844.314.014 [Komet USA] in a similar fashion to preparing enamel for a porcelain veneer.

Figure 9. An increment of bleached shade of composite (Kalore [GC America]) was placed on the facial surface of tooth No. 8 from a unidose tip after etching the porcelain with 9% hydrofluoric acid for 30 seconds; etching the cervical dentin for 5 seconds with 37% phosphoric acid; then rinsing, drying, silanation, and placement of a bonding resin (G-ænial bond [GC America]).

Figure 10. After pressing the Uveneer template into the composite to form the facial surface of the tooth, the excess was removed around the periphery with a plastic instrument (Goldstein Flexithin Mini 4 [Hu-Friedy]).

Figure 11. A serrated finishing strip (ContacEZ) was then used interproximally to remove any resin left from the bonding process that would prevent flossing of the contact area.

Figure 12. A postoperative smile view of the completed direct composite restorations on teeth Nos. 8 and 9.

Figure 13. A full-smile (retracted) view of the completed direct composite restorations. The Uveneer template provided the majority of the final contours of both of these restorations, making placement much faster but still with a beautiful aesthetic result.

the long-term treatment plan was to replace the porcelain restoration on this right central incisor, and then to also redo the restoration on tooth No. 9 due to gingival recession. However, since he was getting married in less than a week, a more immediate solution was needed. The decision was made to create some space by doing a minimal veneer preparation into the ceramic (Figure 8), and then to overlay the existing restorations and root surface with direct composite. The aesthetic demand was high, but given that the restorations would ultimately be replaced, chair time and economics were prime considerations. When compared to the option of preparing the teeth and placing provisional bisacrylic temporaries, using the Uveneer system would make it possible to more closely match the adjacent porcelain restorations, achieving a nice result in a short period of time for a fair fee.

After selecting the shade of composite resin (Kalore [GC America]) to be used, the prepared porcelain surface was etched and rinsed. Next, silane (Bis-Silane [BISCO Dental Products) was applied, air-thinned, and then bonding resin (G-ænial bond [GC America]) was placed and light cured. After placing clear matrix strips proximally, composite was then extruded onto the prepared surface (Figure 9). Next, the selected Uveneer template was placed into the composite material and the excess was removed from around the periphery of the template with a plastic composite instrument (Goldstein Flexithin Mini 4 [Hu-Friedy]) (Figure 10). After light curing (Demi Ultra [Kerr]) the composite, the template was removed. It should be noted that these templates do not stick to the surface of the composite and, as mentioned previously, the cured composite surface is shiny due to the lack of an oxygen-inhibited layer. Because of the gingival recession and shade of the root surface, a small additional amount of composite was needed to complete the cervical portion of the restoration. In order to match the incisal translucency and internal effects of porcelain restorations, a cutback was performed on the incisal edges of the composite to place some white staining. After placement of some clear incisal composite over the stained incisal edges, the restoration was finished and polished with rubber abrasives. A finishing strip (ContacEZ) was used to remove excess bonding resin and finish the interproximal surfaces of the restoration (Figure 11). Figures 12 and 13 show the completed Uveneer restorations on teeth Nos. 8 and 9. Our patient was happy and ready for his wedding!

CASE 3

Intraoral Mock-Up for a Trial Smile

Patients often do not know what they want until they see what they don't want. It is often a challenge to determine exactly what an aesthetically driven

patient is looking for. Why? Because, often, patients do not actually know what they want. They may bring in pictures of someone they know (or perhaps of a celebrity) because they want "that" smile, but they have no clue if "that" smile is even possible in their unique facial and aesthetic situation. It is really hard to make decisions on tooth shade, shape, and length until the patients see a trial smile with the framework of their own face. Clinicians frequently use the provisional restoration to help make these decisions. However, for many cases, a trial composite mock-up can give the patient and dentist some excellent direction as to where to go with the case. Again, as mentioned earlier, the downside is the additional chair time as well as the artistic ability of the dentist. This is where a system like Uveneer comes in nicely as an option.

Using the Uveneer templates, a dentist can quickly and efficiently mock up a case on a patient's teeth in a very short period of time. For example, the patient in Figure 14 was seeking a noninvasive approach to her aesthetic situation. She presented with small teeth and with multiple diastemas. Cervical erosion of the posterior teeth had helped contribute to the lack of presence of her natural teeth in the buccal corridor bilaterally. At 36 years of age, some of her treatment goals were to have larger, brighter teeth that would close spaces and fill out her smile bilaterally.

In this case, a bleach shade of composite was placed in the Uveneer template (Figure 15), pressed onto the dry labial surface, and light cured (Figure 16). Since, in this case, the intent was to have the patient wear her "trial smile" as a provisional restoration, spot-etching and placement of a drop of adhesive resin in the center of the labial surface was done to aid in retention of the composite material. Tooth by tooth, starting with the 2 maxillary central incisors, then followed by the lateral incisors, canines, and finally premolars, the composite veneers were fabricated directly on the patient's teeth in a similar fashion. Once the trial smile was in place, phonetics were evaluated to determine and adjust (as required) the incisal edge position. The little bit of excess flash was removed with an 8-fluted carbide composite finishing bur (H135.FG.014 [Komet USA]), and the composite surfaces were then polished with rubber abrasives (Jazz Polishers [SS White]) and polishing brushes (Jiffy Brush [Ultradent Products]). Figure 17 shows the patient's trial smile, completed using the Uveneer template system. Remember, this mock-up does not have to be perfect, but it does give the patient a preview of how the finished smile can look. Tooth color, mesiodistal and cervico-incisal heights can be evaluated, as well as how much to build out the facial surfaces of the premolar teeth to help fill the buccal corridor. The darkness of the facial surfaces of the teeth showing through the composite tells the dentist and laboratory technician of the need to use enough opaque ceramic to block out the natural tooth color. This case was "no prep" veneers, so the restorations would be very thin. If the patient likes the mock-up, a polyvinyl impression can be taken and poured up to use as a template for provisional fabrication or as a visual aid to the ceramist to help develop the same perimeters in the ceramic restorations. Figure 18 is a retracted view of the completed ceramic restorations for this case.

CASE 3

Figure 14. A preoperative smile view of a candidate for no-prep veneers. Her maxillary incisors were relatively small with some minor spacing and the premolars were "hiding" behind the more prominent cuspids that made the front 6 maxillary teeth more prominent in appearance.

Figure 15. The Uveneer template for the maxillary central incisor was filled with composite prior to placement and light curing on the facial surface of the corresponding tooth.

Figure 16. With the loaded Uveneer template in place on the facial surface of tooth No. 9, it could be readily seen that the change in the facial surface anatomy would slightly increase the mesio-distal width, helping fill the spaces between the teeth. Also, the central incisors would end up having a much more pleasing shape to the facial surfaces.

Figure 17. A smile view of the completed direct intraoral mock-up with Uveneer. Note the more pleasing tooth proportions and how nicely the buccal corridor was now filled. These mock-ups are not meant to be a "perfect" example of the definitive restorations, but will at least show the dentist and patient a preview of the outcome.

Figure 18. A smile view of the completed ceramics after delivery. The "trial smile" helped give the patient a preview of things to come. By taking an impression of the mock-up and sending it to the laboratory with the master impression, the ceramist gained some positive input from the dentist and the patient as to the final aesthetics goals desired.

CASE 4
Mock-Up As a Template for Fabrication of Provisionals

For many aesthetic cases, the clinician will send a preoperative impression to the dental laboratory team for a diagnostic wax-up. This wax-up is then duplicated in dental stone and a thermoplastic material is used to fabricate a clear stent to be used as a template in fabricating the provisional restorations. For an aesthetic case that does not require major changes in the occlusal scheme or vertical dimension of occlusion, these composite mock-ups can be made very easily by the dentist or dental assistant in the office using darker shades of composite (shades that are often not used clinically), saving the additional laboratory expense of a wax-up.

Figure 19 shows a facial view of a pre-

CASE 4

Figure 19. A Uveneer template was chosen to begin a composite mock-up on a preoperative stone model that would be later used to fabricate the provisional restorations after tooth preparation.

Figure 20. A thin coat of flowable resin was painted on the stone and cured. This allowed the addition of composite resin in the Uveneer template to better adhere to the oxygen-inhibited layer.

Figure 21. The composite-loaded Uveneer template was positioned in the proper location on the model and light cured.

Figure 22. Within a few minutes, the 6-tooth composite mock-up was completed and ready for the preparation phase to begin.

Figure 23. After the provisional stent was filled with a crown and bridge temporary material (Tuff-Temp Plus [Pulpdent]), the preparations were lubricated with a separator (Wink [Pulpdent]) and the filled plastic stent was then placed over the prepared teeth.

Figure 24. A retracted facial view of the completed provisional restorations on teeth Nos. 6 to 11. The treatment plan, after delivery of the restorations for teeth Nos. 6 to 11, was to remake the implant crown in the tooth No. 12 position and bring the clinical crown into proper occlusion.

Figure 25. A retracted facial view of the completed ceramic restorations on teeth Nos. 6 to 11.

operative stone model on which a 6-tooth composite mock-up was to be made. The first step was to determine which size of Uveneer central incisor would work best. Next, a flowable resin (BEAUTIFIL Plus Low Flow [Shofu Dental]) was painted on the facial surfaces of the stone teeth (Figure 20) and light cured. (The oxygen inhibition layer makes the composite to be added stick better.) Composite was then placed into the Uveneer central incisor template and pressed to the to the facial surface of the appropriate tooth (Figure 21). If needed, a diamond rotary instrument or sandpaper disc can be used to refine the shapes. In a very short period of time, using the Uveneer templates, the 6-tooth composite mock-up was completed (Figure 22). Composite mock-ups can be used directly in a thermoplastic machine to make a plastic provisional stent. A wax-up must first be duplicated in stone before a suck-down can be fabricated. Figure 23 shows the provisional stent with temporary crown and bridge material (Tuff-Temp Plus [Pulpdent]) on the preparations that began the fabrication of the provisional restoration for this case.

Figures 24 and 25 show the completed provisional restoration and ceramic restorations, respectively. Composite mock-ups using the Uveneer system offer the dentist an easy, quick way to mock-up a case, making provisional restoration fabrication proceed smoothly.

IN SUMMARY

Several clinical uses for the Uveneer system have been described in the case examples presented herein, demonstrating how this technique can help the dentist more easily create aesthetic facial surfaces of maxillary anterior teeth. This template system can be used to create direct composite veneers as definitive restorations, and in a variety of diagnostic situations that help the dentist and patient get on the "same page" when designing an aesthetic restorative case to meet a patient's individual goals.✦

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Disclosure: Dr. Lowe received an honorarium from Uveneer for writing this article.