Prefabricated veneers: A hybrid technique for easier and more affordable aesthetic results

By Rafael S. Beolchi and Wilton Forti

Some time ago, the creation of direct composite restorations was a dream still to be achieved. Back then, composites lacked even some basic optical properties of teeth. By the end of the 1990s, this scenario changed as manufacturers of composite resins began to improve the optical properties of this material. Composite resins started to be manufactured in a greater range of shades both for enamel and dentine and with enhanced optical properties.[1,2]

However, such a wide variety of shades can make it difficult for the dentist to make an accurate shade selection during the restorative procedure. Sadly, achieving lifelike results with a direct layering technique is only mastered by a few owing to its significant learning curve. This is especially true when it comes to the direct veneering of anterior teeth.

The veneering of anterior teeth was first proposed in 1937.[3] Almost 40 years later, the technique was revisited, unsuccessfully, owing to the materials' limitations (methylmethacrylate matrix and large glass fillers), which led to rapid loss of surface gloss and surface degradation.[4] With the advent of bonded porcelain veneers, which also have the advantage of an individual fabrication process, the concept of prefabricated veneers was practically abandoned until now.

New materials and advances in technology (dentine bonding, increased resin–filler ratio and light curing, to name a few) have allowed a rebirth of the concept of prefabricated veneering for the anterior teeth.[5] The aim of this article is to present a case in which six anterior pre-fabricated composite veneers were placed to achieve optimum aesthetic results.

Case report

A 38-year-old male patient with several aesthetic discordances in his anterior teeth presented for treatment for aesthetic purposes. Figure 1 depicts the situation before the treatment, showing large restorations with loss of natural tooth anatomy and colour, and a non-vital, discoloured tooth (maxillary left central incisor) owing to an endodontic procedure years before.

The patient also wanted to resolve the diastemas. Another request from the patient was that the teeth not have an artificial appearance after treatment, in other words, that the final result blend with the natural dentition to resolve not only shape but also colour. In this case, this was particularly important, since his teeth presented a very rich colour shift: darker and more colourful in the cervical region and much more translucent and less colour in the incisal region.

Figure 1. Initial situation.

Figure 2. Prepared teeth.

Figure 3. Edelweiss prefabricated composite veneers placed over prepared teeth.

Figure 4. Final result.

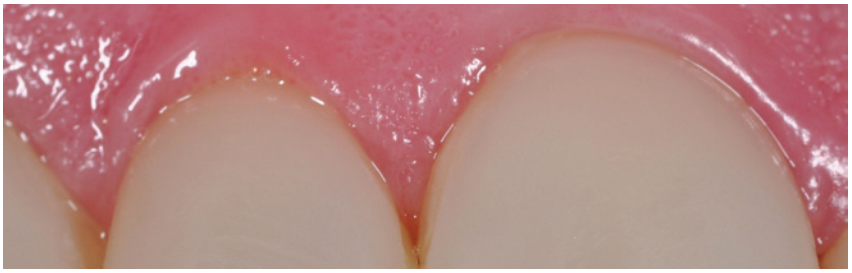

Figure 5. Close-up view of the gingival tissue 30 days post-treatment.

After various treatment options had been discussed, veneering the anterior teeth with a novel prefabricated composite veneer called Edelweiss (Ultradent) was selected. This system offers the clinician a one-visit alternative to directly placed composite veneers and is a good option compared with ceramic veneers, which were rejected by the patient for financial reasons.

Edelweiss Composite Veneer kit.

The veneers are made from composite, but they undergo pressure and thermal temporisation during the fabrication process. This allows for very strong and thin veneers (facial surface around 0.5 mm, but thinner on the cervical and thicker on the incisal edge). They also pass through a laser vitrification process, through which a pure, inorganic glass surface, homogenous and smooth like a ceramic surface, is achieved, providing an excellent gloss.

First, the gingival tissues were displaced with a cord (Ultrapak #0, Ultradent). Then, the preparation was done, first with diamond burs at high speed and cooling. The final preparation was also done using diamond burs, but with a multiplier contra-angle (KaVo). Figure 2 shows the prepared teeth. As the veneers are relatively thin compared with indirect ones, it is possible to observe that almost all the preparation took place in the enamel, except for some portions of the cervical region, where it is possible to see some areas of exposed dentine. The preparation was less than 0.8 mm deep, which is more than enough for both the veneer and the composite.

The Edelweiss system comes with a clear sizing guide for selecting the ideal veneer size. From the three available options (large, medium and small), small was selected for this case. Figure 3 shows the veneers above the prepared teeth. From the image, it is possible to see that the selected veneers fitted quite well, but some adjustments with regular composite were needed, especially in the cervical region of the maxillary left central and lateral incisors.

Figure 6a. Smile view before treatment.

Figure 6b. Smile view after treatment.

Figure 7a. Close-up view before treatment.

Figure 7b-c. Close-up views after treatment.

After proper etching and bonding of the tooth surface, the cementation was performed in pairs, beginning with both right and left central incisors; then right and left lateral incisors; and finally right and left canines. Amelogen Plus (Ultradent) was the composite used and it was placed both directly on the tooth structure (a thin layer of shade A3) and at the back of the Edelweiss veneers. In order to achieve a natural colour transition, shades A4, A3 and A2 and a final translucent shade called Trans Gray were applied to the back of the veneers in waves, beginning with A4 in the cervical region and finishing with Trans Gray in the incisal region.

The whole process proved to be faster and easier than what was initially expected. Composite colour adaptation in the interproximal areas was very good and it was performed with an enamel colour called Enamel Neutral. The same colour was used in the cervical regions of the maxillary left central and lateral incisors and blended very well with the veneers. The final result can be seen in Figure 4.

Figure 5 shows a close-up view of the gingival tissue 30 days after the procedure with proper healing evident. Figures 6a and 6b and 7a-c depict the before and after situation, demonstrating the good aesthetic integration of hard and soft tissue with respect to both shape and colour. Using this composite veneer, it was possible to address all of the patient's needs and requests quickly and economically.

Conclusion

The rebirth of the prefabricated veneer concept now offers the clinician a one-visit, cost-effective alternative to directly placed composite veneers and is a good option compared with ceramic veneers. It is a reparable solution and relatively economical and fast because there are no laboratory fees and no need for temporaries. It also proved to be quick and simple to learn to use the system. New materials and advances in technology now allow for a resistant, vitreous, inorganic glossy surface that handles almost identically to composite. When it comes to veneering the anterior teeth, this solution offers both dentists and patients a new and promising alternative.

References

1. Dietschi D. Free-hand bonding in the esthetic treatment of anterior teeth: Creating the illusion. J Esthet Dent 1997; 9:156–164.
2. Villarroel M, Fahl JR N, Souza AM, Oliveira JR OB, Direct Esthetic Restorations Based on Translucency and Opacity of Composite Resins J Esthet Restor Dent 23:73–88, 2011.
3. Pincus CL. "Building mouth personality". A paper presented at: California State Dental Association, 1937:San Jose, California.
4. Jensen OE, Soltys JL. Six months clinical evaluation of prefabricated veneer restorations after partial enamel removal. J Oral Rehabil. 1986;13:49-55.
5. Dietschi D, Devigus, A. Prefabricated Composite Veneers: Historical Perspectives, Indications and Clinical Application. Eur J Esthet Dent 2011;6:2–11.

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