Kerr™
RESTORATIVES

Conservative, no-prep, direct composite veneers – with Harmonize™

Dr Michael N. Mandikos
BDSc (Hons), MS, Cert Pros, FRACDS

Dr. Mandikos is a registered specialist in Prosthodontics. He received his Bachelor of Dental Science Degree with First Class Honours, from the University of Queensland and his Certificate in Prosthodontics and Masters Degree in Biomaterials from the State University of New York at Buffalo (USA) in 1998. His research was in composite resin materials and he has published several research papers in Australian and international journals on clinical and dental materials topics, as well as many clinical technique articles and case studies. Dr Mandikos is a Visiting Specialist to the University of Queensland Dental School and formerly to the Royal Australian Air Force. He is a Reviewer for five international dental journals and is a product evaluator for several dental companies. He has presented continuing education programs at Dental meetings throughout Australia, Southeast Asia and the USA. Dr Mandikos is in specialist private practice limited to implant and restorative dentistry in Brisbane, Australia and he teaches at the Australian Dental Centre of Excellence.

BEFORE

AFTER

Case History

This young lady presented seeking to improve the appearance of her smile. She was only 20 years old, and was concerned about her midline diastema, and also about the size of her teeth (Figs. 1, 2). She felt she had small teeth, which did not show very much and overall she felt that she had an unattractive smile.

Cases such as these are not uncommon, but the treatment decisions are always difficult. The patient is seeking an improvement in their smile and often thinks that porcelain veneers are the only approach because they have seen this on social media or they have seen celebrities having these procedures.

However, the Clinician realises that the patient is young, and has otherwise perfect, unrestored teeth, and so it is important that any procedure is very conservative.

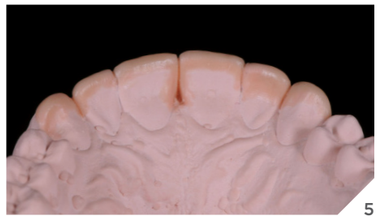
Fortunately, the continued improvement of composite materials and associated clinical techniques has meant that direct, no-prep veneers can be placed with a conservatism that is better than porcelain, and with aesthetics that are almost, if not as good.

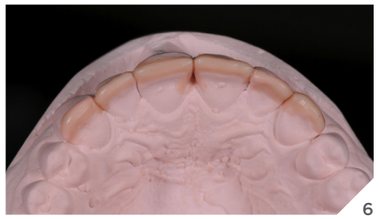
1

2


3


4


5


6


7


8


9


10


11


12


13


14

Treatment Procedure

Closing a midline diastema cannot always be achieved by just adding to the two central incisors. Often, this will make these two teeth appear too wide, and so in order to achieve the best result, additions to 4, 6 or even 8 teeth may be needed as this will spread the change in tooth proportions around the entire smile.

At the initial consultation, the patient was told that her desired result could not be achieved by adding to just 2 teeth, and that instead, multiple teeth would need to be made wider and slightly longer to improve her smile. A diagnostic mock-up was performed in composite (Fig. 3) to show her what the changes would look like, and to show her that adding to at least 6 teeth was necessary. The patient agreed that her smile looked much better with a smaller midline diastema, but she said that she wanted it completely closed. Photographs and impressions were made of this mock-up, and a wax-up of that study cast was performed to complete the planned changes in tooth form (Fig. 4).

At a follow-up consultation, the new wax-up was shown to the patient. She was advised that her teeth could be made whiter with the composite veneers, but more importantly, she was advised that this treatment could be performed with no tooth preparation, so it would be very conservative.

The patient consented to the treatment of 6 teeth and then two further appointments were scheduled. The first appointment was of 5 hours duration, and at this appointment, the composite veneers were to be placed. The second appointment, approximately two weeks later, was for the final shaping and polishing of the composite veneers.

The direct composites were to be placed with a silicone index guided approach, after the technique developed by Didier Dietschi (PPAD 1996). This technique requires that the teeth are waxed to their planned final form, and then a silicone putty impression is made over the wax-up. This silicone impression is then trimmed to create the index that will guide the palatal and incisal shape of the direct composite veneers. The key stages of the technique are explained herewith.

The wax-up showed that the best result would be achieved if some length and width was added to all 6 anterior teeth. The palatal view of the wax-up shows the importance of a lot of detail in the palatal contours and the palatal embrasures (Fig. 5). This information will be transferred into the silicone index. The occlusal view of the wax-up shows the appropriate tooth widths, and the continuity of the overall arch form (Fig. 6). It is important to have this detail as all of this information will be captured in the silicone and will be transferred to the composite veneers. A laboratory putty was used to make an impression over the wax-up, and then the labial aspect of the impression was trimmed away with a scalpel, to create the silicone index for this case (Fig. 7). The silicone index was tried into place to confirm fit and to demonstrate how much composite would be needed in the first layers of the veneer build-ups (Fig. 8). The correct amount of enamel shade of Kerr's nanohybrid composite material Harmonize™ (Enamel XL) was then added to the index, in as thin a layer as possible (approx. 0.5mm) (Fig. 9).

The teeth were cleaned with pumice, to prepare them for adhesion. OptiBond™ XTR was applied to the 6 anterior teeth and light cured. The silicone index loaded with uncured composite was then brought into position, held firmly in place, and light cured (Fig. 10). After light curing, the silicone index was carefully removed, a further light cure was applied from the palatal side, and the teeth were now ready for the remainder of the build-up procedures (Fig. 11). Harmonize™ Dentine shaded composite (A1D) was then applied to each tooth, to thinly cover the existing tooth structure, and to form mamelon-like projections on the end of each tooth (Fig. 12). Care was taken to ensure the dentine-shaded composite was placed in approximately the same anatomical position that natural tooth dentine would be. Once all of the dentine increments were placed, a light blue tint (Kolor + Plus™ Blue, Kerr) was carefully applied between the mamelons, to create an opalescent effect in the final composite veneers (Fig. 13). Importantly, only a small amount of the blue tint was used. A final layer of enamel-shaded composite (Harmonize™, XL) was then applied over the dentine and tint, to complete the build-ups (Fig. 14). If possible, the author advises that this layer be applied in one large increment, rather than in multiple smaller increments, to avoid possible air void formation. The silicone index technique can allow for the veneers to be built up to almost perfect anatomical contour, such that very little final shaping is needed (Fig.15).

The author prefers to shape the veneers with Optidisc™ system and then follow this with the Identoflex™ and HiLuster PLUS polishing systems (Figs. 16, 17).

Treatment Outcome

As the appointments for cases like these can be quite long, the author prefers to perform a relatively simple shaping and polishing procedure on the day of composite placement, and then see the patient for a review appointment approximately 2 weeks later, at which time final shaping and polishing is undertaken. This appointment generally takes a further 30 minutes, but it allows the patient to get used to their new smile, for the tissues to recover to normal, and for the clinician to see the case again with "fresh eyes" – which usually means they can better assess the tooth form and make small changes to embrasure shape, and marginal ridge position.

In the present case, the patient was very pleased with the final outcome of her new smile, and was already cleaning her teeth very well, and smiling much more than she used to. The improvement to her smile had made a very big impact on her self-esteem. Immediate post-polishing photos were then taken. (Figs. 18–21).

Conclusion

A satisfactory aesthetic result is the culmination of many factors. It is easy to drill away much sound tooth structure and replace it with laboratory fabricated porcelain restorations, but such procedures can be very invasive and expensive. The advent of anatomically shaded and highly polishable nanocomposites, has allowed clinicians to provide very aesthetic but also very conservative treatments for their patients. Whilst many composites will polish well at the time they are placed, it is the true nanotechnology in modern composite materials such as Kerr's Harmonize, that allows this polish to be maintained over the longer term. The one-year case review photographs show how nicely the aesthetic result is being maintained (Figs. 22–24).


15


16


17


18


19


20


21


22


23


24

Kerr™
RESTORATIVES