Adhesive cementation of partial veneers

Achieving highly aesthetic results in the anterior region

By Dr Eduardo Mahn, Chile

The desire for aesthetically pleasing, minimally invasive and perfectly harmonious anterior restorations has existed since the beginning of dentistry. Only recently, however, has it become possible to translate this desire into reality. For many years, dentists struggled with the opacity of porcelain-fused-to-metal crowns before all-ceramic crowns became available. However, these ceramic materials were not sufficiently durable to be suitable for less invasive indications. Finally, ceramic veneers were launched.

Veneer preparations are far less invasive than crown preparations—some preparation is nonetheless still needed. In addition, the veneers have to be designed in such a way that they cover the entire buccal surface. However, given the advancements in ceramic technology and the luting composites available today, it is now possible to use partial veneers and to seat them without any difficulty.

Partial veneers

Partial veneers are ceramic veneers that only cover that part of the tooth that is missing, broken off or abraded. As a result, the tooth needs only partial preparation or none at all.

This approach has become feasible for two reasons:

1. New ceramic materials are available: Dental technicians now have the option of layering any ceramic restoration. They can choose to use a fluorapatite ceramic material such as IPS e.max Ceram (Ivoclar Vivadent) or to press the restoration from a highly translucent ingot such as the Opal or HT ingots of the IPS e.max Press range (Ivoclar Vivadent).

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Fig. 1: Pre-op situation. Fig. 2: Close-up of the pre-op situation. Fig. 3: Prepared teeth. Fig. 4: Selecting the shade of the luting composite: Variolink Esthetic LC in shade Warm. Fig. 5: Try-in of both partial veneers. Fig. 6: Before seating the veneers: the adjacent teeth were covered with PTFE tape and separated with a mylar strip. Fig. 7: Enamel etching for 20 seconds. Fig. 8: Followed by dentine etching for 10 seconds. Fig. 9: Rinsing with a water spray. Fig. 10: Applying the Adhese Universal bonding agent. Fig. 11: Close-up of the bonding procedure. Fig. 12: Applying Variolink Esthetic LC Warm to the partial veneers. Fig. 13: Seating the partial veneers. Fig. 14: Careful removal of excess cement using a brush. Fig. 15: Light curing for 5 seconds from both sides. Fig. 16: Final light curing with two Bluephase Style lights while cooling the teeth with a water spray. Fig. 17: Excess removal using a scalpel. Fig. 18: Post-op view. Fig. 19: Close-up of the final result after four weeks.
3. Luting composites have improved. A wide range of modern aesthetic cements have become available. They are offered in several degrees of brightness to match them to the brightness of the natural teeth being restored with a full veneer or partial veneer. In addition, these luting composites contain newly developed photoinitiators, which improve their curing capability and long-term shade stability.

The ceramic material selected for a restoration depends on the size of the defect and/or the optical effects and stability that the dentist intends to achieve. The layering technique is likely to be the first choice for teeth featuring multiple optical effects. If large partial veneers that do not require special effects, but include the entire incisal edge, are required, a high-strength ceramic such as lithium disilicate is a likely choice.

When it comes to selecting a luting material for full veneers and partial restorations, Variolink Veneer (Ivoclar Vivadent) is bound to be the first choice for many dentists. Not long ago, the successor product, Variolink Esthetic, was launched. This luting material is available in a dual-curing and light-curing version. The Effect shade concept on which the five shades of the product are based enables the dentist to adjust the shade effect of the restoration to make it appear warmer or lighter, as required. In addition, the shade effect can be checked prior to the final cementation with the help of try-in pastes in the corresponding Effect shades. The composite contains the newly patented photoinitiator Ivocerin, which provides the cement with long-term shade stability. In addition, Variolink Esthetic is easy to use owing to its flexible situational consistency and easy clean-up characteristics.

The clinical report below describes the placement of two partial veneers seated with Variolink Esthetic LC in the shade Warm.

Clinical case
A 46-year-old male patient visited our practice with the request to have his 20-year-old Mirage partial veneer replaced. He felt that the veneer needed replacing because of the wear of the adjacent central incisor (Figs. 1 & 2). It was decided to use partial veneers to improve the situation. Figure 3 shows the preparation performed on the teeth.

Once we had received the veneers (IPS e.max Press HT) from the laboratory, we used the Variolink Esthetic try-in pastes to determine a matching cement shade for the final cementation. In this specific case, we achieved the best result with the shade Warm (Figs. 4 & 5). Next, the adjacent teeth were covered with PTFE tape and a mylar strip was placed between the teeth (Fig. 6). The enamel was then etched for 20 seconds and the dentine for 10 seconds (Figs. 7 & 8), followed by rinsing with water (Fig. 9).

Afterwards, Adhese Universal (Ivoclar Vivadent) was rubbed in and allowed to react for 10 seconds (Figs. 10 & 11). Variolink Esthetic LC Warm was applied to the partial veneers before they were seated (Figs. 12 & 13). Excess cement was carefully removed with a brush before light curing (Fig. 14). The veneers were then illuminated simultaneously from both sides for 5 seconds using two Bluephase Style curing lights (Ivoclar Vivadent; Fig. 15).

In order to save time, final curing was also conducted using the two Bluephase Style lights, as each side had to be light-cured for 30 seconds (Fig. 16). Since light curing for this length of time with two curing lights operating at a light intensity of 1,100 mW/cm² may result in considerable heat build-up, there is the potential risk of damage to the pulp. It is therefore prudent to cool the teeth with a water spray, as shown in Figure 16. After light curing, remaining excess cement was removed using a scalpel (blade no. 12; Fig. 17). The final result after four weeks is shown in Figures 18 and 19.

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