Componeer: An Emerging Esthetic Solution

ABSTRACT

Componeer is an emerging esthetic solution for the treatment of discolored, fractured, or congenitally malformed teeth, which once required full-coverage restorations. Componeers combine the superior esthetic of ceramic veneers, and the bondability to tooth structure like direct composite veneers. Precontoured enamel shells with excellent color stability, no laboratory procedure, and cost effectiveness provide an added advantage. It represents an innovative approach that bridges between ceramic veneers and direct composite veneering and overcomes the limitation of either approach. This case report presents the management of peg lateral and overall anterior esthetic rehabilitation using componeer.

Keywords: Adhesion, Componeers, Diastema, Laminates, Peg laterals, Veneers.

INTRODUCTION

For many years, color, shape, structural, and positional abnormalities of anterior teeth have led to important esthetic problems for patients. A plethora of treatment options has been described to resolve the esthetics concerns of patients, which include procedures, such as ceramic veneers, all ceramic crowns, metal ceramic restorations, as well as direct composite veneering. From the mid-1970s, boosted by the development of adhesive materials and techniques, various concepts have emerged. The most conservative approach for correcting tooth shape is direct resin composite veneers because it can be achieved without removal of tooth structure. The tooth can be easily reshaped and polished using these veneers, especially in the emergence angle of the crown.

In addition, this treatment is less expensive compared to ceramic veneers. However, a composite veneer abrades and discolors with time.

Indirect ceramic veneers, another conservative option, possess high-abrasion resistance and good color stability. Although ceramic veneers are expensive than direct composite veneering, they provide superior esthetics and a more natural appearance. The limitations associated with ceramic veneers are technique-sensitive laboratory preparation and they are time-consuming. Despite this, adhesive strength of the ceramic to the composite cement layer remains low, and this is the region where most failures occur.

Therefore, an alternative treatment, which combines the superior esthetic of ceramic veneers, and the bondability to tooth structure like direct composite veneers, is required. Componeer represents an innovative approach that bridges between ceramic veneers and direct composite veneering and overcomes the limitation of either approach. It represents a high quality, long-lasting esthetic restoration that is both conservative and cost-effective. The shiny and naturally designed surface adds a look of vitality to the restoration. Precontoured enamel shells with excellent color stability, no laboratory procedure, cost-effectiveness provide an added advantage. There is no difference in modifiability compared to a direct composite veneer and yet its ease of application makes it extraordinarily time-efficient. However, unlike ceramic veneer, they can be easily repaired.

Componeers are manufactured from nanohybrid composite that ensures excellent homogeneity and stability of the enamel shells. The extremely thin veneer (0.3 mm) allows conservation of tooth structure. The micro-retentive inner surface ensures a lasting bond, therefore, conditioning of the veneer is not required, making it a milestone in veneers.

Literature review reveals limited case reports on the use of componeer for the esthetic management of malformed/malposed teeth, but there is no case report published until now on the use of componeer for the management of peg lateral. This case report presents the management of peg lateral and overall anterior esthetic rehabilitation using componeer.

CASE REPORT

A 25-year-old male patient came to the Department of Conservative Dentistry and Endodontics with a chief
complaint of spacing in upper front tooth region. On clinical examination, tooth #12 revealed peg-shaped incisor, tooth #22 was missing, maxillary centrals showed slight lingual tilt, with diastema in maxillary anterior region mainly in the left anterior quadrant was seen (Fig. 1). Thermal and electric pulp test was positive for all the above-mentioned teeth.

Preoperative impression was made and diagnostic cast was fabricated for the treatment plan (Fig. 2). Comprehensive treatment was planned with minimal tooth preparation using componeer and direct composite veneering.

- Direct composite veneering with respect to (wrt) 11, 21
- Tooth #12, 13 to be restored using componeer
- Tooth #23 to be restored using lateral incisor componeer (to modify canine into a lateral incisor 22)
- Facial surface of tooth #24 was simulated as tooth 23 using canine componeer (to modify 1st maxillary premolar into canine) (Fig. 3).

Wax mockup was prepared according to the treatment plan and was discussed with the patient. The tooth surface was cleaned using pumice. Enamel and dentin shade was matched using shade guide under daylight. With the help of the contour guides, large size was selected (Fig. 4). After local anesthesia and rubber dam application, teeth were prepared minimally. The prefabricated veneers were customized using abrasive disks (Swiss Flex, Coltene) and tried-in. One Coat Bond was applied onto the inner surface of the componeer and left undisturbed without light curing (Fig. 5). Teeth were etched with 35% phosphoric acid for 15 seconds and rinsed, followed by the application of bonding agent for 15 seconds and dried.
Thereafter, dentin composite shade was applied onto the tooth surface, while the enamel shade was applied on the inner surface of the componeer, and was gently placed without excessive pressure using componeer placer. While holding the veneers in position, the excess was removed. The entire complex was then light-cured from the lingual and facial side 40 seconds cervically and 40 seconds incisally. Finishing was done with flexible aluminum disks.

**DISCUSSION**

With componeer, quality esthetic restoration of anterior teeth can be performed efficiently in just a single session. Until now, the clinician could only choose between directly modeled composite restorations and elaborate veneer technology. The componeer adds a new and interesting dimension to existing treatment options and gives dentists and patients a new economic perspective. The preshaped componeer is available in various sizes ranging from small, medium, large to extralarge in sets of six. The unique transparent guides permit precise contour conformity and thus aids in the selection of the right tooth shape. The componeer provides optimum customization by careful grinding using abrasive disk to give an exact fit.

Componeer is fabricated from nanohybrid composite (coltene, whaledent) and cemented using pure synergy composite, creating a monoblock restoration that provides enhanced fracture toughness, but simultaneously reparable. The compressive strength of enamel is 384 MPa, which is comparable to that of componeer, i.e., 392 MPa. Componeer in this minimal preparation case acted mainly as an additive restorative material with high esthetic quality and adhesive strength, thereby minimizing retention failures.5,11

In this clinical case report, the patient was explained all the possible treatment modalities, and a componeer was opted for the correction of peg lateral. A diagnostic wax-up acted as an initial visualization tool representing the desired treatment outcome and an aid in communicating with the patient.12 Ceramic veneers were ruled out as the patient was assertive on minimal tooth preparation. Direct composite veneering has a limitation of durability and color stability with time.

**CONCLUSION**

Mock-up-driven preoperative treatment planning and preparation provides satisfactory esthetic outcomes and preserves sound tooth structure. As a more conservative esthetic treatment modality, componeer acts as a bridge, which combines the superior esthetic property of ceramic veneers, and the bondability to tooth structure of composite veneers. Additionally, the restorations can be customized (color and shape) and are more affordable than other indirect restorations, resulting in an esthetic outcome.

**REFERENCES**