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Esthetic rehabilitation with direct composite veneering: Two case reports

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Abstract

Introduction: One of the most common treatment modalities in routine dental practice is restoring patients aesthetic appearance. Discolorations of the anterior teeth are common and have a variety of causes. Composite veneering has grown in popularity in recent years, thanks to the concept of minimal tooth preparation and improved aesthetic properties of composite resins. Composite resin has been envisioned as an alternative treatment to ceramic laminates due to its low cost, reduced treatment time, and improved aesthetics. Direct veneers are created by directly applying a composite material to the prepared tooth surface.

Case Report: This article presents two case reports of direct composite veneering of anterior teeth using direct composite veneering with a six-month follow-up that resulted in a satisfactory outcome.

Conclusion: Both the aesthetic and functional outcomes were satisfactory. As a result, direct composite veneers can be considered as a cost-effective and time-saving alternative to ceramic veneers.

Keywords: Esthetics, composite, veneers, discoloration

1. Introduction

According to Mosby's Dental Dictionary, aesthetic dentistry is "the skills and techniques used to improve the art and symmetry of the teeth and face in order to enhance the appearance as well as the function of the teeth, oral cavity, and face" (Elsevier, 2014) Aesthetic characteristics such as tooth shape or form, symmetry and proportionality, location and alignment, surface texture, colour, and translucency, in addition to good function and phonetics, play a vital part in developing an ideal aesthetic smile (Heymann and Ritter, 2019). One or more of these aspects may be lost or absent because of dental caries, trauma, or congenital or acquired abnormalities, impairing the overall look of a smile and reducing a person's self-confidence and drive^[1].

The most common method for resolving such issues is to cover the teeth with dental crowns. However, excessive tooth preparation and damage to surrounding tissues, such as gingiva, are some of the drawbacks of crowns^[2].

Direct resin veneers have become one of the most prevalent treatment alternatives for clinical applications, thanks to recent improvements in adhesive and restorative dentistry. Using an adhesive agent and a composite resin substance, these restorations are put immediately in the dental clinic on prepared tooth surfaces or even without any preparation. When done correctly, direct composite veneers produce extremely good aesthetic effects as well as outstanding optical and physical characteristics^[3].

With the emergence of microhybrid and nanohybrid composites, these restorations may now compete with porcelain in terms of finishing and polishing. After a 5-year follow-up, Peumans, *et al.* observed an 89% success rate for direct composite veneers. The aesthetics and durability of composite materials have dramatically improved throughout time. Materials, on the other hand, have flaws such as colour instability, polymerization shrinkage, and excessive wear. Continuous developments in resin technology and the introduction of novel materials have led in reduced shrinkage, enhanced colour stability, wear resistance, and biocompatibility.

When compared to indirect restorations, direct composite veneering results in minimal invasion and maximum preservation of sound tooth structure.

These restorations are easily repaired, making them a more cost-effective and preferable option to replacement. As a result, direct composite veneers have emerged as a viable option for young patients in need of anterior restorative procedures^[4].

Here we present two case reports of single visit direct composite veneering of anterior teeth using direct composites.

2. Case report-1

A 21-year-old female patient was referred to the Department of Conservative Dentistry and Endodontics due to her concern about discoloration of anterior teeth. Her previous medical history yielded no positive results. Based on the history and clinical examination, an intraoral examination revealed fluorosis.

Different treatment options for discoloration were discussed, but she rejected crowns and indirect ceramic veneers as treatment options. As a result, direct composite veneer restoration for maxillary anterior teeth was planned after

obtaining written consent.

The maxillary anterior was prepared (from right canine to left canine). Tooth preparation included chamfering the gingival margin's edge. Interproximal extension was restricted limited to the contact region since there were no unsupported enamel patches. A2 on the Vita scale was chosen as the shade, with neighbouring and contralateral teeth acting as standards. Teeth were then etched for 15 seconds with 37% phosphoric acid (Tetric-N-etch), washed for 20 seconds with water spray, and gently dried. Total etch adhesive agent (Tetric- N- Bond) was applied in thin layers with a brush to prepared tooth surfaces and polymerized for 20 seconds with a light-curing device (Woodpecker Lux curing light). Translucent matrix bands were cut and interdentially put around the mesial and distal borders before being fastened with wedges of the right size. Tetric-N-Ceram shade composite was applied gradually and cured for 40 seconds. A yellow-banded knife-edge bur (Mani, INC. Japan) was utilised in a high-speed handpiece to begin finishing composites (NSK Pana Air, Japan). (See Figures 1a and 1b) The patient was told to keep appropriate dental hygiene and was called back in 6 months to check for discolouration and disintegration.



Fig 1a: Pre-operative View



Fig 1b: Post-operative view

3. Case report-2

A female 18-year-old patient presented to the Department of Conservative and Endodontics with aesthetic complaints related to intrinsic stains on the mandibular anterior dentition. When #31 was examined, intrinsic discolorations were discovered. The patient was given the option of composite or ceramic veneers, but she chose composite veneers for her mandibular left central incisors only. The vita scale shade A1 was chosen, and tooth preparation for composite veneers began as described in Case 1. (Figure 2a and 2b). The preparation was limited to intraenamel and stopped just short of the gingival margin. Case 1's restorative procedure was followed. Following the final polishing, oral hygiene instructions were given, and the patient was recalled 6 months later for follow-up.



Fig 2a: Post-operative view



Fig 2a: Post-operative view

4. Discussion

Direct and indirect laminate veneers have arisen as treatment alternatives for individuals with cosmetic issues with their anterior teeth in recent years. When deciding between the two treatment alternatives, the economic, social, and time concerns must all be weighed. 2 Direct composite veneering offers numerous advantages, including the fact that it is a chair-side treatment, does not require repeated sessions, has little application time, is minimally invasive, preserves natural tooth structure, and is less expensive owing to the absence of laboratory expenditures^[5].

Ceramic laminate veneer restorations offer several advantages, such as colour stability and great abrasion

resistance, but they also have some disadvantages, such as a high cost and a long chair time. They also have certain difficulties, such as the need for an extra adhesive cement. Furthermore, incorrect indications, issues with dentist-technician coordination during shade harmonisation, inability to mask the underneath discoloured dental tissue due to low preparation depth, particularly in the cervical area, long chair time for repairing simple fractures, and simple inattentions during cementation are all significant issues that must be addressed.

Indirect composite laminate veneer restorations are preferable than direct composite laminate veneer restorations owing to polymerization outside of the oral cavity and ceramic laminate veneers due to improved colour stability due to being less impacted by oral cavity fluids.

Composite resins increase physical characteristics, rectify existing defects, and are now more visually acceptable alternatives to laminate veneer applications. Furthermore, more conservative treatment choices are required in today's dentistry. As a result, one of the finest treatment alternatives is composite veneer restorations, which require little tooth structure removal^[2, 6]. Direct composite veneers are easy to polish, and any cracks or fractures may be fixed intraoral. In addition, marginal adaption outperforms indirect veneer repairs. The use of cautious direct composite resins in these circumstances resulted in symmetrical and harmonious tooth replacement^[4, 6, 7].

Case selection is critical for the success of this direct restorative technique, with ideal clinical indications including tooth discoloration, anatomical deformities, diastema, and misaligned or worn dentition^[5]. All the cases in this case report had tooth discoloration and increased aesthetic demand. In Case 1, the patient had moderate fluorosis that required treatment with direct veneering. In case 2, the patient had a single discoloured anterior tooth, and a direct composite veneer was considered to restore aesthetic integrity.

Grinding the fluorosed enamel surface should be used to remove the hyper mineralized layer. It is advised that healthy enamel and mildly fluorotic enamel be etched for 15 seconds, and moderately fluorotic enamel be etched for 30 seconds. The etching did not offer acceptable surface roughness and depth profile values for the severely fluorotic enamel, and clinical effectiveness depended on whether the surface enamel was intact or detached. The use of a micro-abrasion to remove exterior layers of fluorosed enamel prior to phosphoric acid treatment may aid to enhance the enamel surface, resulting in greater adhesive bonding retention^[4, 8-10].

Composite resins with improved material properties correct existing deficiencies, increase physical properties, and are now more aesthetic alternatives to laminate veneer applications. Composite veneering improved not only the patient's aesthetic but also functional and psychological needs. The patient received positive feedback in terms of aesthetics and function following the final postoperative treatment. Discolorations and disintegration of composite material were checked during follow-up visits. Finishing burs were used to smooth any roughened areas, and interdental plaque was removed with interdental floss^[11].

5. Conclusion

According to these case studies, direct composite veneer provides a good aesthetic result at a lower cost and time due to the lack of a laboratory procedure and the completion of work in a single appointment. When compared to a full crown, this minimally invasive technique is also a better option for treating dental fluorosis in young patients. Although there are significant disadvantages, mainly staining and fragility, with the introduction of new composite resins, direct laminate veneer restorations can be a treatment option

for individuals who have cosmetic concerns with their anterior teeth. An appealing smile may be obtained with a simplified clinical process and careful application of resin composite and comprehension of the physiologic shape and architecture of the tooth.

6. Conflict of Interest

There are no conflicts of interest.

7. Financial Support

NIL

8. References

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