

Ceramic Veneers an Alternative to Orthodontic Therapy to Enhance the Esthetics- A Case Report

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ABSTRACT: Laminate veneers are restorations which are envisioned to correct existing abnormalities, aesthetic deficiencies and discolorations. They are of two types direct and indirect laminate veneers. In this case report, indirect ceramic laminate veneer technique used for patient with aesthetic problems related to discolorations old prolapsed restoration, is described with six months follow up. Patient was satisfied with the new smile. As a conclusion, indirect laminate veneer restorations may be a treatment option for patients with the aesthetic problems of anterior teeth in cases similar to the one reported here.

I. INTRODUCTION

Complex cases with high esthetic needs represent a challenge for clinicians. With the introduction of adhesive systems, eliminating the need for full coverage for all-ceramic restorations, more conservative treatment options have been put forward. One of the most minimally invasive techniques is application of laminate veneers [1]. Ceramic veneers not only reduce the destructive approach and minimize the gingival reaction risk of full crowns but also mimic the translucency of natural tooth structure and can provide more promising esthetic results. A well-defined protocol for the treatment of complex aesthetic cases with the use of ceramic veneers has become a modern tool to mask the unpleasant smile[2]. Porcelain laminate veneers were introduced into dentistry as 'Hollywood veneers' by Pinkus (1938). Buonocore introduced the concept of acid-etching enamel as a means of mechanical retention. Simonsen and Calamia discovered composite resin's ability to bond to porcelain if the ceramic was treated with hydrofluoric acid in 1983[3]. This led to the use of ceramic veneers as a treatment option.

A veneer is a layer of tooth-colored material that is applied to a tooth to restore localized or generalized defects and intrinsic discolorations. Two types of esthetic veneers exist: Partial veneers and Full veneers. Partial veneers are indicated for the restoration of localized defects or areas of intrinsic discoloration. Full veneers are indicated for the restoration of generalized defects or areas of intrinsic staining involving the majority of the facial surface of the tooth[4]. The first important parameter for long term success of porcelain veneer is case selection[5]. The prime requirements in case selection are a high standard of oral hygiene and health and presence of an adequate area of sound enamel available for etching. Among the main reasons for placing veneer are correction of unaesthetic surface defects such as hypoplastic enamel or enamel lost by erosion[6,7] or abrasion masking of discoloration resulting from trauma endodontic treatment tetracycline stains repair of structural deficiencies such as fractured incisal edge, diastema and peg laterals.[8] Ceramic veneers are not preferred in teeth with inadequate enamel and tooth structure such as Amelogenesis Imperfecta, when there is existing large restoration or root canal treated teeth with less tooth structure. Patient with oral habit causing excessive stress on restoration and excessive interdental spacing.[4] Ceramic veneers are minimally invasive, aesthetically pleasing, durable, have ability to elicit a good tissue response but are technique-sensitive and time-consuming to place.

Repair can be difficult, More than one visit is required at the same time[4].

In this case report, indirect ceramic laminate veneer technique, used for patient with esthetic problems related to discolorations of an old prolapsed restoration, is described with six-month follow-up.

II. CASE PRESENTATION

A 27 years old Indian female patient referred to ITS Dental college and Hospital, Greater Noida, Department of Conservative Dentistry and Endodontics complaining about the discoloured restoration in maxillary incisors since 1 year. The patient's medical and dental histories were unremarkable. Her oral hygiene performance was

satisfactory and flossing was also applied by the patient. Clinical examination revealed the presence of discoloured composite restoration with respect to 11 21(Figure 1).



Fig 1: Preoperative picture - Discoloured composite restoration with respect to 11 21

Old composite restoration was removed and restored again (Figure 2).



Fig 2: Composite rerestitution with respect to 11 21

Shade selection was done prior to veneer preparation using Shade Guide (VITA toothguide 3DMASTER



Fig 3: Shade Selection

Figure3

Maxillary central incisors were prepared with a chamfered finishing line with rounded internal line angles.



(Figure4)

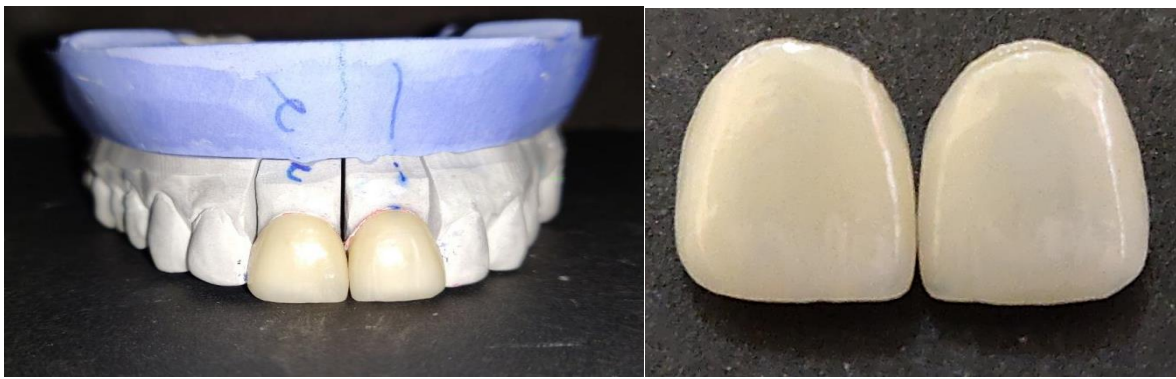
Fig 4: Ceramic veneer preparation with respect to 11 21 (Labial View)

The cervical preparation ended at the cemento-enamel junction and mesiopalatal surface to close the midline diastema not closed after reresoration. (Figure5).



Fig 5: Ceramic veneer preparation with respect to 11 21 (Palatal View)

Smooth margins were created to prevent stress concentration zones . Once the preparation was completed, impressions were made using polyvinylsiloxane impression material(Express XT, 3M ESPE, Seefeld, Germany). The veneers were waxed up to dies and they were fabricated from lithium disilicate-reinforced glass ceramic material, IPS Empress 2, using the heat press technique according to the manufacturer's recommendations. After divestment, the veneers were finished and glazed (Figure 6).



(A)



(B)

Fig 6: Ceramic veneer prepared on die with respect to 11 21 (Labial View,A and Palatal View,B)

The inner surface of ceramic veneers were acid etched with 9% hydrofluoric acid (Porcelain Etchant 10%, Angelus)) prior to silanization. (Figure 7)

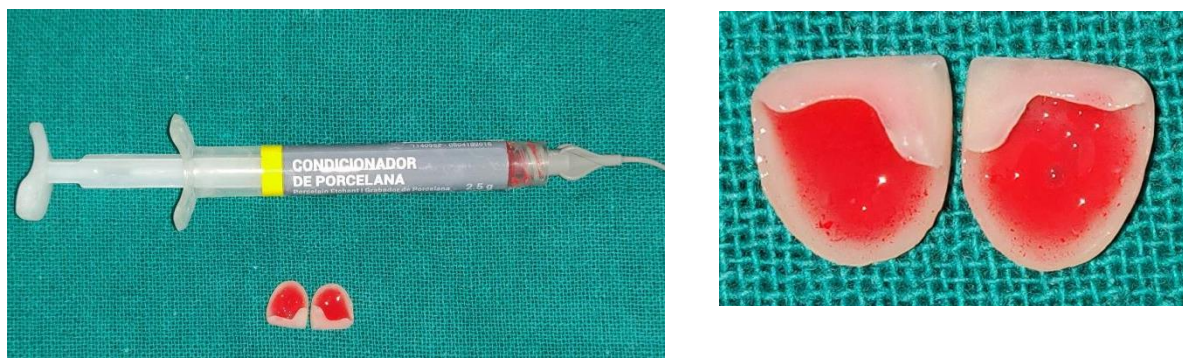


Fig 7: Surface treatment of intaglio surface of veneers

A silane coupling agent (Relyx,3M ESPE) was applied to the internal veneer surface for 60 s and air-dried.(Figure 8)

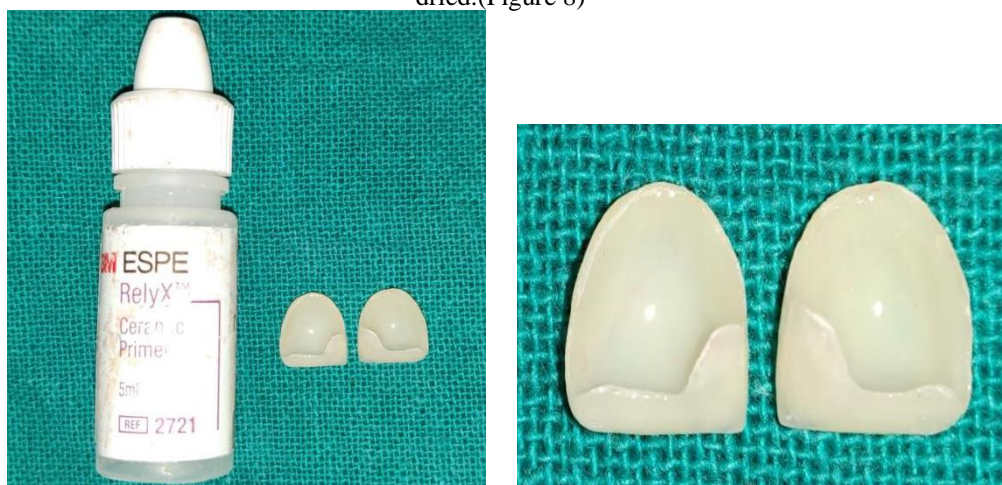


Fig 8: Conditioning of intaglio surface of veneers

During the cementation process each abutment tooth was etched for 15 s using a 37% phosphoric acid etch-gel (Alpha-Etch 37, Dental Technologies, USA).



Fig 9: Etching of tooth surface

Subsequently, the tooth surface was rinsed thoroughly and air-dried gently(Figure 10).



Fig 10: Frosted appearance after etching of tooth surface

Dentin primer and adhesive were applied according to the manufacturers' instructions (Clearfil, Kuraray, Figure 11).



Fig 11: Conditioning of tooth surface

Following the bonding application a thin layer of light polymerizing composite resin luting cement SE Cure (Parkell)(Figure 12) was applied at the intaglio surface of the veneers,



Fig 12: Composite Resin luting cement of tooth surface

placed onto the prepared teeth and light-polymerized for 40s from palatal, buccal and incisal sides(Figure 13)



Fig 13: Cementation and curing of ceramic veneers

Excess luting cement was removed and the marginal area was finished and polished with abrasive discs and strips. Restorations were checked to avoid any occlusal interference. The patient was satisfied with her new smile line and excellent view of the anterior teeth (Figure 14)



Fig 14: Postoperative Picture of ceramic veneers

and was recalled in 2 days and encouraged for better dental flossing and also recalled every 6 months for periodical controls.

III. DISCUSSION

The most conservative and common method for rehabilitating the problem of midline diastema without orthodontic therapy is utilizing ceramic laminate veneers. The goals of therapy for the orthodontic and restorative dentistry are similar; how they achieve the results is the only difference [9]. Today, development of modern bleaching techniques, advanced enamel and dentin adhesives, combined with the highly esthetic resin and ceramic materials in esthetic dentistry give clinicians a chance to mimic the natural tooth structure. Recently all-ceramic restorations have gained popularity and more frequently preferred in dentistry. Porcelain has been used successfully in dentistry in the form of all-ceramic veneers for the esthetic rehabilitation of teeth. The versatility of veneers allows them to be used with a variety of preparation forms. Ceramic veneers are one of the most conservative and aesthetic techniques that can be applied when restoring the dental arch for improved aesthetics [11]. Their fluorescence is an important physical property in order to mimic the natural tooth. Fluorescence adds to the vitality of a restoration and minimizes the metameric effect between teeth and restorative materials [10]. The use of ceramic facets to solve esthetic and/or functional problems in the anterior section of the dental arch has been shown to be a convincing option. Years of experience with both the technique and the materials employed offer satisfactory, predictable and lasting results [11]. Therefore, porcelain laminate veneers were optimal solution for the patient. This case presented herein has replicated the treatment outcomes of orthodontic therapy through the use of aesthetic and restorative techniques. The benefits include correction of tooth shapes and dimensions that result in improved tooth proportions with an aesthetically pleasing appearance.

IV. CONCLUSION

The anterior ceramic laminate veneers are a conservative and esthetic alternative to reestablish the form, shape, and color of anterior teeth. Even though it is one of the most conservative of treatment options, some rules have to be followed. The case has to be carefully selected and treatment planned. Tooth reduction for any restorative technique should be as conservative as possible, especially for ceramic veneers. No-preparation veneers are indicated for selected cases only, and a larger number of cases require some kind of tooth modification for superior esthetics, patient satisfaction, and better color change without affecting the thickness and emergence profile of the veneer.

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