PORCELAIN LAMINATE VENEER ON A HIGHLY DISCOLORED TOOTH: A CASE REPORT

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ABSTRACT

Porcelain Laminate Veneer is used widely throughout the world for esthetic correction for discolored and damaged tooth structures. Esthetic treatment of a single darkened tooth represents a great challenge to the dental practitioner. The properties of dental ceramic - colour stability, mechanical strength, clinical longevity, esthetic appearance and compatibility with periodontal tissues make this material a good choice for such treatment. A case of restoration of a single highly darkened anterior tooth with a feldspathic porcelain veneer. Resolution involved preparation of the dental structure. Conservative use of porcelain laminate veneers provides satisfactory esthetic outcomes and preserves sound tooth structure. The patient was very satisfied with the result and had no complaints in the follow-ups.

Keywords: Porcelain, Veneer, chamfer, bleaching

1. Introduction:

Porcelain Laminate Veneer is used widely throughout the world for esthetic correction for discolored and damaged tooth structures[1]. Esthetic treatment of a single discolored anterior tooth presents a challenge in clinical practice. Laminates are used widely after bleaching for treating discolored and damaged tooth throughout the world as it mask or reduce the discoloration and can reproduce the characteristics of the tooth structure[2]. The biomimetic characteristics of ceramic laminate veneers allow them to behave similarly to natural teeth in terms of strain and stress transference[3]. A case of restoration of a single highly darkened anterior tooth with a feldspathic porcelain veneer is discussed[4].

2. Case Report:

A 45 year old man complained about the darkness of his maxillary central incisor. During clinical evaluation, the position of the tooth was observed to be more labial at the distal third of the crown. The severe discoloration and the position of the tooth limited esthetic resolution using direct and conservative techniques like dental bleaching and restoration with composite resin veneer. So a porcelain laminate veneer was chosen to correct position and colour mismatch.

2.1 Method: The patient had endodontic treatment of the tooth and filling cement inside the pulp chamber had caused the severe discoloration. The pulp was restored accordingly to correct it.

A round diamond bur was used to determine the margin of the cervical region of the tooth. Two vertical depth-orientation grooves were made on the labial surface with a tapered round-ended diamond bur along the longitudinal axis of the tooth. Using the depth of the grooves as a guide, the labial surface was reduced using the same diamond bur. The distal half of the labial surface was further reduced to correct the position of the tooth and better accommodate labial movement of the facial surface. The adjacent tooth was protected with a metal matrix while a thin diamond bur was used to prepare the proximal surface. Two mm of the incisal edge was also removed. The incisal finishing line consisted of a palatal chamfer resulting in enamel and composite margins. The preparation margins were finished with diamond burs to form a gingival chamfer after intra-crevicular insertion of a retraction cord. This helped define the cervical margin so that the laboratory technician could clearly identify the desired extent of the veneer. The first impression of the prepared tooth was made with silicone putty on a stock tray, with the retraction cord ensuring that a secular space was retained for the light impression material. To make space for the light material, the heavy material was partly removed by grinding the inter-proximal and prepared tooth areas of the mold. After the cord had been removed, low viscosity material was injected onto the prepared tooth and the first impression, which was immediately carried to the patient's mouth. An impression of the opposing arch and the occlusal registration are critical if the incisal edge of the veneer is involved in guidance. After the final impression was made, a temporary restoration was fabricated using a composite resin to protect dental tissues and reestablish tooth shape. The

veneer was fabricated with a feldspathic porcelain material based on a refractory die system, following the manufacturer's recommendations.

After carefully checking the proximal contacts, shade match, contour and marginal adaptation, luting was performed. A gingival retraction cord was used to prevent contamination by gingival fluid. After cleaning, the tooth surface was etched for 20 seconds with 37% phosphoric acid then rinsed for 20 seconds. Excess water was removed with absorbent paper, and an adhesive system was applied to the prepared surface. At the same time, the ceramic veneer was etched for 2 minutes with 10% hydrofluoric acid washed with water and dried. A silane agent was mixed and applied to the internal surface of the veneer; after 1 minute, a catalyst was also applied to add a chemical reaction to the light-curing process. Finally dual cement was placed on the internal veneer surface and the veneer was placed on the prepared tooth and pressed lightly with the fingers. Excess inter-proximal cement was removed with a micro-brush and dental floss. The veneer was covered with a glycerin gel as an oxygen barrier to ensure better polymerization of the resin cement and then light polymerization was carried out on both surfaces for 120 seconds. After the margins were finished and polished, occlusion was checked and no adjustments were needed. The patient was monitored clinically for few days. During that time, the marginal integrity of the restoration was maintained and no inflammation was observed in the gingival margin. The restorative treatment remained esthetically acceptable throughout.

3. Discussion:

A veneer is a thin layer of restorative material placed over a tooth surface either to improve the aesthetics of a tooth or to protect a damaged tooth surface. There are two main types of material used to fabricate a veneer, composite and dental porcelain[5, 6]. A composite veneer may be directly placed (built-up in the mouth) or indirectly fabricated by a dental technician in a dental laboratory, and later bonded to the tooth, typically using resin cement such as Panavia. In contrast, a porcelain veneer may only be indirectly fabricated[7, 8]. The use of veneers for instant orthodontics or simulated straightening of the teeth is harmful, especially for younger people with healthy teeth so it is contraindicated in these cases. Veneers are an important tool for the cosmetic dentist. A dentist may use one veneer to restore a single tooth that may have been fractured or discolored. Many people have small teeth resulting in spaces that may not be easily closed by orthodontics[9]. Some people have worn away the edges of their teeth resulting in a prematurely aged appearance, while others may have mal-positioned teeth that appear crooked. Multiple veneers can close these spaces, lengthen teeth that have been shortened by wear, fill the black triangles between teeth caused by gum recession, provide a uniform color, shape and symmetry and make the teeth appear straight[10].

Conclusion:

Porcelain veneers are useful adjuncts to dentist armamentaria and they help in the management of esthetic problems, minimizing dental tissue reduction. These are good looking in appearance and also cover up for the damaged or discolored tooth. They require the dentist to pay close attention to detail throughout the whole clinical procedure. A case of porcelain laminate veneer on a highly discolored tooth was discussed with no post operative complications.

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