CERAMIC VENEERS: A SUITABLE OPTION FOR TREATING DENTAL FLUOROSIS

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ABSTRACT
Ceramic veneers have become increasingly popular nowadays as a material of choice for the rehabilitation of anterior teeth discolouration. This paper reports the rehabilitation of discoloured anterior teeth due to dental fluorosis in a 45-year-old female patient using Ceramic Veneers.

Keywords: Ceramic Veneers; Dental Fluorosis; Teeth Discolouration

Introduction
Aesthetic dentistry has expanded dramatically in the last two decades and re-establishing dental aesthetic appearance is a clinical challenge.1 Porcelain Laminate Veneer or ceramic veneers is a thin bonded ceramic restoration that restores the facial surface and part of the proximal surfaces of teeth requiring esthetic restoration.2 This was introduced into dentistry as Hollywood veneers by Pincus3 with a survival rates ranged from 92% at 5 years to 64 % at 10 years.2,3 One of the most popular reasons involved in teeth discoloration is dental fluorosis, which is serious problem compromising aesthetics.2,4 Mc Kay and G.V. Black in 1916 published that fluoride can have beneficial effects on dental caries due to its topical effect on the teeth erupted in the oral cavity and detrimental effects on the dentition due to its systemic absorption during tooth development resulting in dental fluorosis.4 Its clinical manifestations vary from enamel changes seen as white flecks to moderate and severe tooth surface changes seen as pitting and mottling areas, with or without brown to black staining.5 Various treatment options available for dental fluorosis. This paper reports the rehabilitation of discoloured anterior teeth due to dental fluorosis in a 45-year-old female patient using Ceramic Veneers.

Case Report
A 45-year-old female patient reported to the department of prosthetic dentistry, with a chief complaint of unattractive smile because of her discoloured teeth. Complete history of the patient along with preoperative photograph was taken (Figure 1). Medical history was non-contributory. Extraoral examination showed an ovoid face with a convex profile. Intraoral examination revealed dental fluorosis involving the central incisors with cracks identified under illumination. Oral prophylaxis was done and dental hygiene maintenance instructions were given. Radiographic examination and tooth vitality tests were performed and were positive. Anterior guidance was evaluated. A mock up simulating the final outcome was performed using resin composite to determine the final shade. Diagnostic casts were waxed to assess the treatment plan and discussed with the patient and the technician. Using addition silicon, a silicon index was prepared on the cast and tried in the patient’s mouth. It was cut into labial and palatal half and used as a reference for tooth preparation. After a comprehensive examination, the decision of two porcelain veneers restoring central incisors was decided because it offers a higher aesthetic potential due to the preservation of optical conditions and the improvement of light transmission. Based on the presence of micro cracks on teeth surfaces, non-invasive techniques such as bleaching were not considered as they may increase dentine permeability exposing, thus, the teeth to hyposensitivity. The treatment plan was discussed with the patient and consent was taken. Teeth preparation was carried out, by grooving technique involving the incisal edge. The grooving started with labial surfaces. A three-depth cutter was used for labial reduction with a depth ranging from 0.3 to 0.5 mm in order to maintain enamel surface for a strong bond and 1.5 mm of incisal reduction was achieved. The remaining tissue provided adequate support for bonded ceramic. An adequate even thickness of ceramic and minimum thickness of luting composite is essential to reduce the stress at the surface and interface of the restoration.

Preparation was extended till the inter proximal contact areas without opening the contact points with all efforts to confine the preparation in the enamel and not exposing the dentin (Figure 2) because bonding to enamel is more reliable.7 The preparation was equigingivally done to ensure a secure bonding and optimal integrity with soft tissues. Index silicone guide was used to control the reduction. An adequate facial preparation was done to prevent over contour. A full arch impression was made with silicon material without gingival retraction. Temporization was immediately done using resin composite followed by spot etching of the prepared surface. Using the colour scale of VITA, Colour selection was performed.

A Lithium disilicate reinforced glass ceramic was used to make porcelain laminate veneers Via CAD/CAM procedure (Figure 3). During bonding, composite luting agent with appropriate shade was selected. A retraction cord was placed in order to avoid gingival fluids contamination. Teeth surfaces were cleaned and etched for 15sec and rinsed off. When the internal surface was treated by hydro fluoric acid the external surface should be waxed in order to protect it from etching. Saline coupling agent was applied. The prepared surfaces were coated with bonding agent in thin layer and polymerized for 15sec. The composite was placed on the laminates. These were then placed on the teeth and initially polymerized during 15sec in order to remove the excess of luting agent. Final polymerization was 40sec for each. Postoperative photographs (figure 4) showed the final aspect of restorations, which allowed a natural, and a pleasing smile.
Ceramic veneers: a suitable option for treating dental fluorosis

**Discussion**

When treating dental fluorosis based on a correct diagnosis and a score characterizing of the anomaly the clinician has to choose between a full crown and veneers. Recently, with the development of more reliable adhesive systems, the least invasive option conducting to aesthetic goals should be preferred. The usual treatment for fluoride had been performed by either direct or indirect techniques using composite. The choice between these techniques depended on teeth conditions. Direct techniques using composite veneers could have been a viable option for treating fluorides teeth realizing an acceptable degree of aesthetic with a cost significantly less than other options. Veneers are, recently, a good alternative for treating moderate dental fluorosis. Preparing a tooth for a direct laminate veneer should ideally consist on only removing the pellicle. Both techniques were extremely conservative but according to authors composite veneers had 2.9% failure rate and this was related to marginal defects and colour instability.

A successful aesthetic result using ceramic veneers requires an artistic ability on the part of laboratory technician and a skilled clinician when selecting the case, preparing the tooth and bonding. Laminate bonding is indicated for mild to moderate colour anomalies, position and form of teeth. They are especially indicated for discoloration, which cannot be completely eliminated by bleaching. According to some clinicians, provisionalization is not necessary because tooth reduction is minimal, but in reality, it’s an important step in the treatment plan as it gives to both patient and clinician the opportunity to access the final planned result. In this case, a medium opaque ceramic was recommended to mask the residual discoloration.

**Conclusion**

In conclusion, ceramic veneers are a suitable option for treating discoloured teeth. The success of this procedure is related to a correct diagnosis and the quality of communication with the laboratory technician.

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