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Case Report

Smile Shaping with Porcelain Laminate Veneers

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Abstract

Confidence is an important aspect of one's personality and a confident smile makes the picture complete. With the increased awareness and changing times people seeking dental treatment for aesthetic purpose has significantly increased. One of the commonest cause for unaesthetic smile is the presence of discolored teeth. Though there are various reasons for the discoloration of the teeth, Flourosis which is endemic in various parts of world is one of the major causes of the discoloration. Various treatment options are available to conceal the discoloration. This case report represents one such modality of smile makeover using ceramic laminate veneers.

Keywords: Laminate veneers, smile, Teeth Discoloration.

INTRODUCTION

The prettiest thing anyone can wear is a perfect smile and it is of prime importance for a person to feel confident. In modern day world an unesthetic smile will have an impact on the self-confidence of the person. One of the commonest cause for unaesthetic smile is the presence of discolored teeth. Fluorosis is one of the many causes of tooth discoloration. There are various treatment options for such conditions [1]. Bleaching and composites seem not to be preferred because the effect of bleaching may be transient and composite may chip off [2, 3]. Pincus, in 1930, stated that, in restoring esthetics of anterior teeth, Laminate veneers which is a conservative alternative to full coverage restorations for improving the appearance of anterior teeth have evolved over the last several decades to become esthetic dentistry's most popular restoration [4]. Ceramic laminates also offer the advantages like long-lasting color stability and excellent biocompatibility [5, 6]. The following is one such case report of smile makeover for a patient with fluorosis using ceramic laminate veneers.

CASE REPORT

A 20-year-old reported with a chief complaint of unhappy smile due to the discolored teeth. On clinical examination, it was observed that the teeth were affected by dental fluorosis (Fig-1) characterized by typical fluorosis stains.

Treatment Plan

All the treatment options were explained to the patient. Considering the advantages of the ceramic laminates patient chose ceramic laminates as his preferred treatment plan. The Proposed treatment plan was porcelain laminate veneers for upper anterior teeth (13 to 23) with lithium disilicate (IPS e max) material.

Teeth Preparation

Before the tooth preparation a wax mockup was done and was shown to patient. To begin the tooth preparation for the ceramic veneers, depth indicating grooves of 0.5 mm were marked using depth indication bur . Remaining tooth surface was reduced to the level of the grooves. Labial reduction was done in two planes. Proximal reduction was extended as lingual as possible. Incisal wrap design was finalized and the tooth reduction extended to the upper third of the palatal surface of the tooth (Fig-2). Gingival retraction was done and the impression was taken using polyvinylsiloxane impression material (Fig-3). Shade selection was done using the VITA shade guide and temporization was done using light cure composite.

Fig-1: Pre operative-Fluorosis Smile

Fig-2: Prepared Teeth

Fig-3: Polyvinyl siloxane Impression

Bonding Veneer

Temporary crowns were removed and the teeth surface was cleaned with pumice. The ceramic laminates (Fig-4) were tested on the teeth for marginal fit and occlusal interferences. Upon satisfactory results, the veneers were prepared to be cemented onto the teeth. Rubber dam isolation was done to prevent moisture contamination and also for effective bonding. Etching was done and rinsed with water (Fig-5). The surface was dried. The bonding agent was applied to the prepared tooth surface and also to the inner surface of the veneers and cured according to the manufacturers instructions. A dual cure resin cement (Variolink) was used for bonding the veneers to the tooth surface. Light cure luting cement was applied on to the inner surface of the ceramic laminates. The ceramic laminates were seated on to the tooth surface and the curing was done using UV light curing unit for 10 sec (Fig-5). The excess cement was removed and curing was completed according to the manufacturer's instructions (Fig-6). Post cementation instructions were given to the patient and patient was asked to maintain her oral hygiene properly. On follow up after 6 months the marginal fit of the crowns were precise and the patient was confident with the new smile.

Fig-4: Laminate veneers (IPS e max)

Fig-5: Bonding of Veneer

Fig-6: Laminate veneer Restored smile

DISCUSSION

Porcelain laminate veneer can be defined as a thin, bonded ceramic restoration that restores the facial, incisal, and part of the proximal surfaces of teeth requiring esthetic restoration [7].

Indications

Porcelain laminate restorations are recommended in case of:

- Extreme discolorations in the anterior teeth, which include tetracycline staining, fluorosis, devitalized teeth, and teeth darkened by age, which are not conductive of bleaching.
- Small enamel defects say cracks can be masked by veneers.
- Diastemas and multiple spacing between the teeth are better treated by laminate veneers.
- Laminates can be further used to restore localized attrition and root sensitivity due to cemental exposure.
- A functionally sound metal ceramic or all ceramic restoration with unsatisfactory color can be repaired by veneers.
- Malpositioned teeth and abnormalities of shape: Peg laterals ndrotated teeth can be esthetically restored by porcelain veneers.

Contraindications

- Full coverage restorations are preferred over veneers in case of insufficient coronal tooth structure. A fractured teeth, with more than one-third of loss of tooth structure, are a poor case for veneers.

Actively erupting teeth should not be subjected for veneering.

- Patients with parafunctional habits like bruxism should hardly receive veneers.
- Endodontically treated teeth are again not recommended for veneers as they present a poor receptive surface for bonding and full coverage restorations are indicated.

Conservation of tooth structure is the primary advantage associated with partial veneer crowns. Other advantages are they offer better access for oral hygiene. The gingival involvement in laminates is less than the full veneer restorations. During cementation of a partial veneer, the luting agent can escape more easily. Because of direct visibility, verification of seating is possible and cement removal are simple. After cementation, the remaining intact palatal or lingual tooth structure permits electric vitality testing [8]. There are three preparation designs for anterior laminate veneers. They are No incisal involvement, feathered incisal edge and Incisal overlap. Incisal lapping is frequently used preparation design because it facilitates the accurate seating of veneers upon cementation and improved esthetics of incisal edge [9]. In situations like when the enamel is affected by trauma, abrasion or wearing, no preparation veneers are recommended [10].

Veneers can be made with various materials like composite, ceramic. IPS e-max veneer is prepared from a single block of lithium disilicate. It offers superior lifelike appearance because of it's translucency [11]. Sravanthi Y *et al.*, Ramani did a study and found that among various materials like Alumina – CAD-CAM Procera, Lithium disilicate – Pressable IPS e.max Press, Zirconia – CAD-CAM Lava, Lithium disilicate – Pressable IPS e.max Press has better translucency [12]. Dune and Millar stated that marginal adaptation determines the clinical longevity of porcelain laminate veneers [13, 14]. Hence, it can be understood that cementation is one of the most important parameters for success of porcelain laminate veneers [15]. For cementation of porcelain laminate veneer, etching the surface and application composite resin luting agent is recommended. This type of cementation offers best bonding interference with least interfacialmicroleakage [16]. Materdomini has reported that the contact lens effect concept can enhance porcelain veneer esthetics [17]. It states that when the veneer is cemented to tooth structure, it should blend optically with the substrate for becoming difficult to detect. To achieve translucency/opacity of porcelain veneer and translucency/opacity of luting composite must be controlled. Insufficient clinical skills or operator experience resulted in restoration failure (especially color changes), which was found in one-third of patients [18].

CONCLUSION

It is vivid from the above discussed case that the clinician can effectively use the ceramic laminates in the treatment of discoloured teeth with the objectives that the smile designing has to be as conservative as possible unlike the past and also less reduction of tooth structure with greater esthetics and durability. Hence in scenarios of discolored teeth, the laminate veneers can be used as an effective treatment option inorder to achieve an esthetically appealing and functionally sound smile.

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