

Esthetic rehabilitation of discoloured teeth with porcelain laminate veneers - A case report

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ABSTRACT

Esthetic treatment of discolored teeth presents great challenge to dentists. The demand for tooth colored restoration has grown considerably. Porcelain laminate veneers are one of the conservative treatment options which restores the patients beautiful smile. This case report discusses about the esthetic management of moderate to severe fluorosis patient with porcelain laminate veneer.

Keywords: dental fluorosis, porcelain laminate veneers, esthetics.

INTRODUCTION

Smile is one of the facial expressions that uplifts the positive personality and confidence of an individual. The teeth forms an integral part of the individuals smile. There are some conditions that affect the appearance of the teeth such as discolorations, caries, diastemas and some local and systemic conditions thereby hampering the esthetics of an individual.

Dental fluorosis is an irreversible condition caused by excessive ingestion of fluoride during the tooth forming years.⁽¹⁾ The first documented effect of fluoride on dentition was published by McKay and GV Black.^(1,2) The prevalence of fluorosis in India was first identified by Short et al in 1937 in Nellore.^(1,3)

Dentists are offered with newer materials and treatment modalities to treat this condition. The choice of treatment depends on severity of the condition. Porcelain laminate veneers serves as optimum treatment modality in moderate to severe conditions which restores the esthetics of the teeth. This case report focuses on esthetic replacement of stained maxillary anterior teeth.

CASE REPORT

A male patient aged 26 years reported to the OPD of Department of Prosthodontics & Implantology in Chettinad Dental College and Research Institute, Chennai with chief complaint of unaesthetic appearance of upper front teeth.

On clinical examination, maxillary 6 anterior teeth were intrinsically stained and unaesthetic when the patient smiled (Fig 1). After clinical examination, radiographs, photographs, study casts were performed and case was analyzed. Porcelain laminate veneers were the treatment of choice and the treatment plan was explained to the patient. The patient gave his consent for fabrication of porcelain laminate veneers.



Fig 1: Clinical Picture – Pre Operative

At the onset of the treatment, a thorough oral prophylaxis was done. Before proceeding for tooth preparation, shade was selected using Vitapan Classical shade guide (Vita Zahnfabrik, Germany). The maxillary teeth were then prepared from right canine to the left canine to receive porcelain laminate veneers. The tooth preparation was carried out precisely and finished preparation was kept in enamel (Fig 2).



Fig 2: Prepared Tooth

After finishing the tooth preparation, gingival retraction was performed. Impression of the maxillary arch was made in addition silicone (Affinis, Coltene Whaledent) by single step double mix technique. Provisional restorations were reluted temporarily on the prepared teeth. The

porcelain laminates were fabricated by refractory die technique (e Max). The laminates were tried in for fit, marginal adaptation, shade, shape, symmetry and contacts. Patient's approval was obtained.

The internal surfaces of the veneers were etched with 9.5% hydrofluoric acid for 20 seconds. The surfaces were washed with water. The veneers were silanized with a silane coupling agent (Monobond Plus, Ivoclar Viva-dent). The enamel was conditioned with 37% phosphoric acid for 30 seconds (Total Etch). Cementation was done using dual cure resin cement (Variolink N, Ivoclar Vivadent) (Fig 3). Excess cement was removed with a brush, and each surface was photo-activated for 60 seconds.



Fig 3: Clinical Picture - Post Operative

DISCUSSION

Causes of intrinsic staining can be attributed to many causes such as caries, injury/infection of primary predecessor, amelogenesis imperfecta; drugs, eg. Tetracycline; fluorosis. In this case staining was identified due to dental fluorosis. Dental fluorosis is a local disturbance affecting the enamel formation during the time of mineralization stage due to excess fluoride exposure. The clinical appearance ranges from lusterless white lines or diffuse opacities in its mild form, while in the more severe forms generalized opaque and chalky appearance with confluent pitting and staining of hypomineralized tissue may be seen.⁽⁴⁾ Presently microabrasion and porcelain laminate veneers are the most preferred treatment options for dental fluorosis.

Microabrasion is the procedure to remove superficial stain from enamel. This technique is used for removing stains due to mild-to-moderate fluorosis.⁽⁵⁾

Porcelain laminate veneers are treatment of choice in severe fluorosis where teeth are severely discoloured and severe pitting of teeth is evident. Numerous researches has paved way for newer ceramic materials for the fabrication of laminates with high strength, translucency, smoothness, abrasion resistance thereby providing patient an optimum solution for unaesthetic anterior teeth.

Conservation of tooth structure is the first and one of the important principles in tooth preparation for any restorations. Porcelain laminate veneers satisfy this

principle as the tooth preparation is very minimal and ends in enamel. They prevent plaque accumulation enhancing healthy periodontal response. They also provide excellent esthetics due to lifelike appearance of porcelain.

As with any materials even porcelain laminates have their own advantages. They cannot be used when remaining enamel is inadequate. They cannot be used in large diastema cases. Severely stained teeth are not satisfactorily restored with veneers.⁽⁶⁾

Porcelain laminate veneers offer a predictable and successful treatment modality that preserves maximum amount of sound tooth structure. They serve as an excellent treatment modality if the treatment procedure is executed properly and the patient's maintenance is good. The estimated survival probability of porcelain laminate veneers over a period of 10 years is 91%.⁽⁷⁾

CONCLUSION

Porcelain laminate veneers provide successful esthetic long-term service for patients. Porcelain laminate veneers offer more satisfactory results when fabricated cautiously and the results achieved have been gratifying for both dentist and the patient. A thorough diagnosis and treatment planning by dentist and good maintenance by patient helps in achieving long term survival rates of these restorations.

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