AESTHETIC REHABILITATION OF A PATIENT WITH DENTAL FLUOROSIS USING COMPOSITE VENEERS: A CASE REPORT

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ABSTRACT

When it comes to dental fluorosis, the severity of the condition determines which treatment method is the best. Considering the good aesthetics, wear resistance, biocompatibility, and ease of manipulation of direct composite veneers, they are considered the treatment for mild to moderate cases of fluorosis. In this case study, a 20-year-old female underwent a step-by-step rehabilitation of fluorosis teeth with resin composite as direct veneers. The patient presented in the department of operative and restorative dentistry at the College of Dentistry, Sharif medical and dental college with tooth discoloration.

KEYWORDS: *Composite Veneers, Aesthetic Rehabilitation, Dental Fluorosis*

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INTRODUCTION

Fluoride is an essential mineral for children of all ages. Bacteria in our mouth interact with sugars in the foods we eat and the beverages we consume. The acid produced destroys tooth enamel and causes tooth decay. Fluoride is a mineral that protects teeth and can help cure early signs of decay. However, today's vastly increased accessibility of fluoride has led to an increase in a condition known as dental fluorosis.[1] Dental fluorosis is a developmental disorder of the tooth enamel that occurs due to excessive exposure to high-fluoride during tooth development, resulting in enamel with a decreased mineral content and high porosity. Fluoride is a very significant component in controlling and preventing dental caries. It can be found in fluoridated community water sources and fluoridated oral care products. There has been an upsurge in the incidence of fluorosis as the prevalence and severity of dental caries has decreased.[2] The morphology of fluorosed teeth ranges from white ridges to discolored and stained pitting of the enamel. Dental fluorosis is caused by a long-term consumption of fluoride during the developmental ages when the enamel of permanent teeth is being developed, even before they erupt in the oral-cavity.[3]

CASE REPORT

A 20-year-old female presented to the department of operative dentistry of College of Dentistry, Sharif medical and dental college Lahore with complaint of an unattractive smile due to widespread tooth discoloration. The patient was in an otherwise healthy sate and she wanted the removal of stains from anterior teeth. Clinical examination revealed mild fluorosis with loss of the outermost enamel in irregular patches covering less than half of the whole surface, as well as morphological alterations and significant attrition. Patient also had class III cavities on mesial aspect of maxillary central and lateral incisors. On percussion there was no pain or tenderness. The patient was diagnosed as a case of mild fluorosis according to Dean`s fluorosis index as shown in figure 1.

Figure 1: Pre-operative Intra-oral Picture of the Patient Showing Fluorosis.

A rubber dam was used to isolate the teeth with floss ligatures to achieve the cervical seal, which is especially important in this type of restoration. The shade selection for direct composite veneer was done and A2 shade was selected. A diamond taper fissure bur was used to remove a thin layer (about 0.5mm) of discolored enamel. A selective etching process was applied (only enamel etch for 30 seconds, followed by 60 seconds of water rinse). After applying multiple coats of bonding agent, the solvent was evaporated by blowing air through an oil-free syringe for 20 seconds and light cured for 30 seconds. The composite was applied on the teeth in layers and cured for 30 seconds. The fine needle with yellow band bur was used to finish the line angles and labial contour.

Figure 2: Post-Operative Intra-Oral Picture of the Patient

DISCUSSION

Following the development of new materials and techniques in adhesive and restorative dentistry, direct composite veneers have taken on a significant role in dental treatment. The fundamental process, as well as the advantage of these restorations, is their direct application on prepared tooth surfaces, or without any kind of preparation, with a bonding agent and a composite resin material in a single visit.[4] The objective of treatment in this scenario was to restore the patient‟s aesthetics. Direct composite veneers were used to achieve this purpose, which are a good treatment option for masking tooth discoloration in cases of mild fluorosis.[5] Direct composite veneers can completely camouflage the discolored tooth with minimal loss of sound tooth structure as they require a minimum invasive design preparation. Furthermore, advancements in resin materials have aided this procedure. Direct composite veneers offer reliable and long-term aesthetic improvement. Although direct composite restorations have good aesthetic they have lesser durability and wear resistance than indirect porcelain veneers.[6] The bonding technique to the fluorosed enamel and dentin can also be difficult. In mild or severe situations, however, adequate bonding strength to fluorosed enamel has been documented.[7] Grinding the fluorosed tooth enamel to reduce the hypermineralized layer is recommended. In typical enamel, 15 seconds of phosphoric acid etching has been reported as yielding the greatest results. While the optimum etching results for moderately fluorosed enamel are acquired at 30 seconds, greater etching time for severe fluorosis results in a slightly retentive surface.[8] Fluorosis has a detrimental effect on the bond quality of all adhesive systems to enamel. The highest bonding strength to fluorosed enamel is achieved using etch-and-rinse systems. The success of aesthetic rehabilitation depends upon the choice of material and skill of dentist.

CONCLUSION

Direct Composite veneers may be a great choice for people who desire an esthetic rehabilitation, especially if they need it immediately. The direct veneering process allows the dentist to create and produce a beautiful, natural-looking smile in only one visit, with minimal invasion. It is also a cost-effective treatment for the patient

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