

Direct Composite Veneering: A Case Report

Akanksha Bhatt^{1*} and Anil Dhingra²¹Postgraduate 3rd year student, Department of Conservative Dentistry and Endodontics, Seema Dental College and Hospital, Rishikesh, India²Professor and Head, Department of Conservative Dentistry and endodontics, Seema Dental College and Hospital, Rishikesh, India***Corresponding Author:** Akanksha Bhatt, Postgraduate 3rd Year Student, Department of Conservative Dentistry and Endodontics, Seema Dental College and Hospital, Rishikesh, India.**DOI:** 10.31080/ASDS.2023.07.1632**Received:** April 17, 2023**Published:** April 29, 2023© All rights are reserved by **Akanksha Bhatt and Anil Dhingra.****Abstract****Aim:** The purpose of this case report is to analyze the result of Direct Composite Veneering.**Materials and Method:** Esthetic Veneering using Direct Composite**Keywords:** Direct Composite; Dental Fluorosis; Minimally Invasive Preparations**Introduction**

Dental fluorosis, tetracycline staining, localised and chronological hypoplasia, and both amelogenesis and dentinogenesis imperfecta can all produce a cosmetically unsatisfactory dentition.

The aetiology of intrinsic discolouration of enamel may sometimes be deduced from the patient's history, and one factor long associated with the problem has been a high level of fluoride intake.

In the mild cases of dental fluorosis, clinical appearance is characterized by opaque white areas presenting as horizontal lines and cloudy patches on the enamel surface.

Bleaching and microabrasion have been recommended for these forms of fluorosis. In the moderate-to-severe level of fluorosis, all tooth surfaces are affected by white opacities. Brown stains also present in the involved teeth. Some pits and wear area may be observed on the surfaces as a result of damage to the poorly mineralized enamel. Treatments include microabrasion, direct composite restorations or combination of both methods. In some instances, esthetic veneers or crowns may be necessary for the some patients.

Case Report

A 21-year-old male patient was screened and wanted to remove the brownish staining of his teeth. The patient wanted the least in-

vasive and most cost-effective treatment to change his smile. The patient's desire to change the appearance of his teeth in the aesthetic zone was to improve his smile.

Figure 1**Preoperative image**

First, flat-surfaced round composite button samples in different shades were placed on the middle third of the maxillary right lateral incisor. The teeth were isolated with rubber dam.

Figure 2

After isolation

Minimally invasive preparations rather than full veneer preparations were performed on maxillary central incisors and lateral incisors.

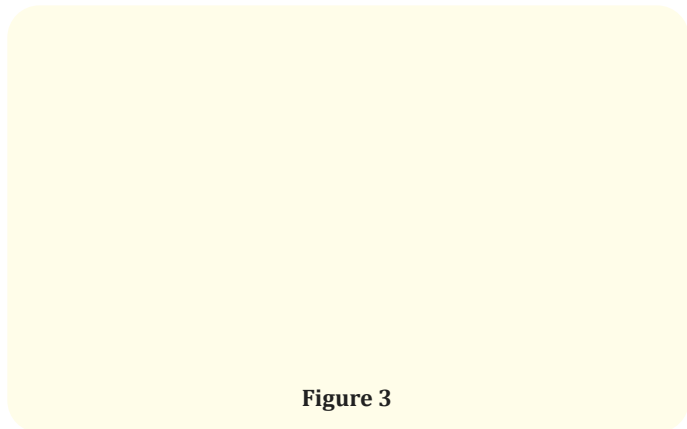


Figure 3

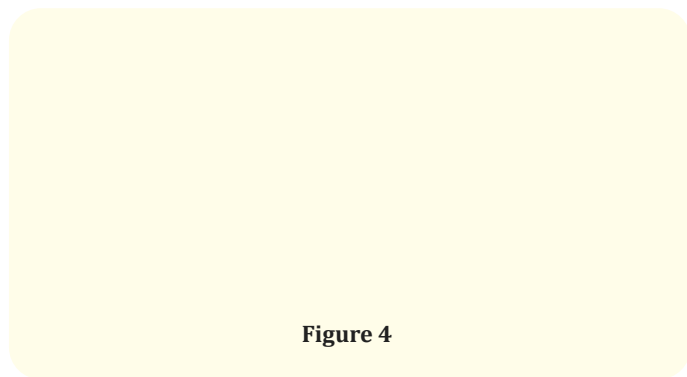


Figure 4

Preparations

- The depth of the preparations was limited in enamel tissue as much as possible.
- Then 37% orthophosphoric acid was applied selectively, washed and dried and universal adhesive agent was applied.

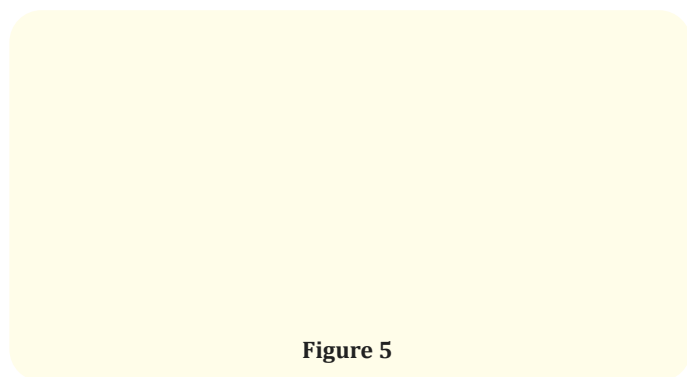


Figure 5

37% orthophosphoric acid etching

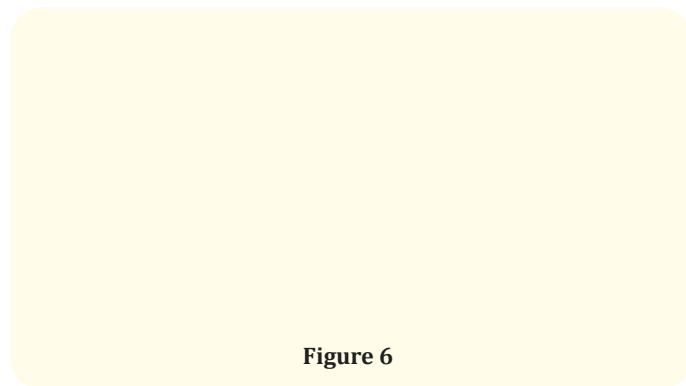


Figure 6

The layering of the restorations was carried out one by one for each tooth.

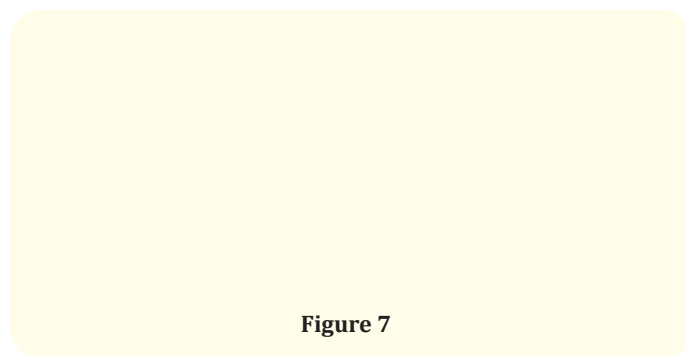


Figure 7

The rubber dam was removed and occlusal relations were controlled. The whole smile makeover procedure took 1.5 hours of chair-time. Oral hygiene instructions were given and the patient was called for recall visits at 3-, 6- and 12-month and yearly intervals thereafter.

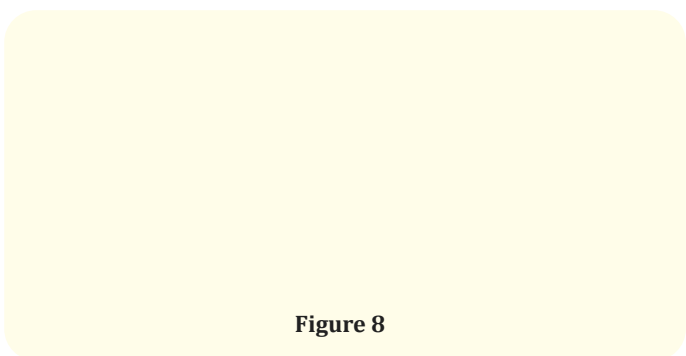


Figure 8

Discussion

The harmful effects of fluorides can be attributed to their systemic absorption during tooth development, thus resulting in dental fluorosis. Dental fluorosis is the result of chronic endogenous intake of fluorides in amounts exceeding the optimal daily dose of 1 ppm. Dental fluorosis features hypomineralization of enamel which occurs due to the effects of excessive fluoride on ameloblasts during amelogenesis. Fluorides disturb mineralization of the enamel by decreasing the concentration of free calcium ions in the mineralizing matrix, which interferes with the proteinases; thus degrading matrix proteins during enamel maturation. This causes degradation of enamel matrix proteins or an inhibition of the removal of degraded enamel matrix proteins. Fluoride-induced retention of these proteins causes impaired and incomplete crystal growth. Poor interlocking of crystals accounts for the increased porosity of enamel and thus the subsequent optical and physical changes [1-6].

The direct composite provides excellent esthetics; the fracture resistance, wear resistance and color stability of composite resin is lower than indirect porcelain restorations. Furthermore, bonding procedure to the fluorosed enamel and dentin can be challenging. However, reliable bond strength to the fluorosed enamel has been reported in the mild or moderate cases. In these cases some modifications in the preparation etching time and selection of adhesive system had been done. It is recommended to grind the fluorosed enamel surface to remove the hypermineralized layer. Etching with phosphoric acid for 15 seconds achieved the best results in the normal enamel. While the best etching result were obtained at 30 seconds for the moderate fluorosed enamel, increased etching time for severe fluorosis result in less retentive surface. The bond strength of all the adhesive systems to enamel is adversely affected by fluorosis. Etch-and-rinse systems provide the highest bond strength to fluorosed enamel. Separate steps of etching and rinsing are required with self-etch adhesive in the case of moderate and severe enamel fluorosis. In contrast to surface enamel, fluorosed dentin is more susceptible to acid, especially in the severely affected teeth. Therefore, etch-and-rinse systems are not recommended for bonding the dentin in the affected teeth. It has been reported that reliable adhesion can be obtained using two-step self-etch adhesive system.

Conclusion

Dental fluorosis is a debilitating dental condition affecting the aesthetics, psychology and confidence of the patients. In spite of the various treatment options that are available today, a single treatment modality may not suffice and there may be a need to opt for a multi-treatment approach. This case was successfully managed by direct composite veneers.

Bibliography

1. Shafiei F, et al. "Direct esthetic rehabilitation of teeth with severe fluorosis: a case report". *Journal of dentistry (Shiraz, Iran)* 15.1 (2014): 44-47.
2. Korkut Bora. "Smile makeover with direct composite veneers: A two-year follow-up report". *Journal of Dental Research, Dental Clinics, Dental Prospects* 12.2 (2018): 146-151.
3. Jhajharia Kapil, et al. "Aesthetic Management of Fluoresced Teeth with Ceramic Veneers and Direct Composite Bonding - An Overview and A Case Presentation". *Journal of Clinical and Diagnostic Research: JCDR* 9.6 (2015): ZD28-30.
4. Waidyasekera PG, et al. "Bonding of acid-etch and self-etch adhesives to human fluorosed dentine". *Journal of Dentistry* 35 (2007): 915-922.
5. Ermiş RB and Gokay N. "Effect of fluorosis on dentine shear bond strength of a self-etching bonding system". *Journal of Oral Rehabilitation* 30 (2003): 1090-1094.
6. Ertuğrul F, et al. "Bond strength of different dentin bonding systems to fluorotic enamel". *The Journal of Adhesive Dentistry* 11 (2009): 299-303.