Esthetic management of Dental Fluorosis
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Abstract
The demand for tooth colored restoration has grown considerably during the last decade. Porcelain veneers are a useful adjunct to the armamentarium of dentist to help in the management of esthetic problems in patients both young and old. This case report discusses about the esthetic management of moderate to severe fluorosis patient with porcelain laminate veneer.

Key Words: Laminates; Veneers; Dental Fluorosis

Introduction
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 dated back in 1916 published by McKay and GV Black.(1, 2) It was Trendly Dean 1934, who developed a classification for fluorosis which is still widely used. Dean and McKay suggested that optimum level of water fluoride should be between 0.9 to 1.0 ppm.(1, 3) The fluorosis in India was first identified by short et al in 1937 in Nellore.(1, 4) This case report is about successful esthetic management of a moderately fluorosed male patient.

Case Report
A 23 year old male patient reported to our clinic with a chief complaint of compromised esthetics due to discoloration of teeth. On clinical examination patient had generalized enamel fluorosis affecting all of the permanent teeth. Confluent pitting was present on most of the surfaces of the teeth with wide spread of yellow brown stains (Figure 1a).

Occlusion was in a class 1 relationship. Oral hygiene was good and the gingival tissue was in a healthy condition. Radiographic examination showed no caries or alveolar bone loss. Diagnosis of moderate dental fluorosis was made, based on history, clinical findings and dean’s index. Given the age of patient and severity of fluorosis porcelain laminates were given as treatment option and was accepted by the patient. The initial phase of treatment started with smile analysis, preliminary shade selection, photographs, study models to evaluate the occlusion and diagnostic wax up was done.

Next clinical appointment tooth preparation was performed, followed by final shade selection with chromascopic shade guide and final impression. The teeth were desensitized. Temporization was not done since 0.5 to 0.8mm tooth reduction was performed. Porcelain laminate veneers were fabricated using pressable ceramic system IPS Empress II (Figure 1b). The correct fits of veneers were verified both individually and collectively on the model then on the teeth. The patient was satisfied with the form, shape, and shade of veneers. Final cementation was done. The contacts and occlusion were checked. Final finishing and polishing was done after 24 hours of cementation. Post-operative photographs and instructions concerning oral hygiene and avoidance of habits causing trauma to veneered teeth were given. One year post-operative evaluation shows no caries involvement, breakage or discoloration of veneers (Figure 1c).

Discussion
Dental fluorosis is a disturbance affecting the enamel formation during the time of mineralization stage. The clinical appearance reflects a spectrum of change. Lusterless white lines or diffuse opacities are present in its mild form, while in the more severe forms generalized opaque and chalky appearance with confluent pitting and staining of hypo mineralized tissue may be seen.(5)
Fluorosis disturbs enamel significantly and affects esthetics quite adversely which can cause psychological distress to the affected person. The etiology of intrinsic discoloration of enamel is commonly associated with fluorosis. The treatment of enamel fluorosis usually ranges from ceramic veneer to free hand bonding restorations. Although vital bleaching does improve the esthetics to certain extent it has only met with partial success in regard to moderate to severe fluorosis.

The concept of veneering was first described in dental literature sometimes ago, although it is only with the advent of efficient bonding of resins to enamel and dentine and the use of etched, coupled porcelain surfaces that esthetically pleasing, durable and successful restorations can be made. Porcelain veneers have traditionally been made from aluminous or reinforced feldspathic porcelains, which have relatively poor strength in themselves but produce a strong structure when bonded to enamel.

A key element in success with porcelain veneer is carefully controlled but appropriate tooth tissue reduction. Veneers are generally prescribed for the buccal aspect of maxillary anterior teeth, but there are numbers of nonstandard applications, like the palatal/lingual aspect of teeth which have been worn or fracture, diastema elimination using slips restricted to the proximal aspects of teeth, lower incisors, and posterior occlusal onlays. Incisal coverage of porcelain has to be sufficiently thick to be durable under continuing rubbing contact with the opposite tooth. In this case porcelain laminates were chosen for its esthetic performance, biocompatibility, durability and the translucency provided by the restoration which allows light transmission through to the underlying tooth which minimizes gingival shadowing and yields an appearance of vitality.

Conclusion

Fluorosis is a major health problem in India with over 6 million people at risk. Veneering the fluorosed teeth with laminates is one of the best possible management options esthetically.

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