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Case Report

Zirconia Veneers In Fluorosis Patient: Case Report

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ABSTRACT

Satisfying patients' high expectations in dental esthetics is one of the challenges faced by dental clinicians. Dental fluorosis is found commonly in some areas. This case report describes the use of zirconia veneers to restore the esthetics in anterior esthetic zone in a patient with different levels of fluorosis. An 18 year male old patient with dental fluorosis had his maxillary anteriors prepared and incisal coverage zirconia veneers were cemented. The choice of zirconia was made on the basis of its esthetic characteristics, biocompatibility and durability. In addition, it has good abrasion resistance and tissue response.

INTRODUCTION

Dental fluorosis is a condition of enamel hypo-mineralization due to effects of excessive fluoride on ameloblasts in enamel formation, resulting in impaired or incomplete crystal growth producing hypo-mineralized porous enamel which is esthetically compromised teeth characterized by white spots, striations or opacities at lower severity to dark brown to black in increased severity[4].

Smile is the first contact in human relationships and esthetic concerns of patients are increasing[3]. The metal ceramic prosthesis have their disadvantages in the esthetic zones like blockage of light, corrosion, cervical tattoo etc. In accordance to overcome these, fully ceramic restorations give best natural tooth mimicry when requirement is in esthetic zone.

The advancement of new technologies for the creations have been inspired by the demand of materials, capable of bearing new specifications Alumina and Zirconia are used as a material of choice.

In this case report, patient who has generalized fluorosis is given zirconia veneers in the esthetic zone.

CASE REPORT

An 18 year old male patient reported to Department of Prosthodontics at Dashmesh Dental College, Faridkot with a chief complaint of compromised esthetics due to Fluorosis (figure 1). On examination, it was found that patient had generalized fluorosis. The brownish spots were found to involve more than two third of all permanent teeth. Mild spacing also find in the maxillary and mandibular anterior teeth. The patient

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Figure- 1

Figure 2 Figure 3

Figure 4 Figure 5

had Angle's Class I occlusion. Good oral hygiene was maintained by the patient. There were no carries or bone loss found and the patient had teeth of shade B2. Following the examination, diagnosis of generalized moderate Grade III Fluorosis was made based on history, clinical findings and Dean's index (figure 2 & 3). The patient was explained all the treatment options. Considering patient's age, profession, interests, awareness and oral health, zirconia veneerswere chosen to esthetically rehabilitate all the maxillary anterior teeth, i.e. maxillary central and lateral incisors and canines.

After diagnosis and treatment planning, diagnostic impression was made using irreversible hydrocolloid (Alginate, Zhermack). The diagnostic cast was poured in type III dental stone (kala bhaikalastone dental stone). After analyzing the diagnostic cast and correlating it with the clinical findings, incisal coverage zirconia veneers were finalized.

Figure 6

Figure 7 Figure 8

Figure 9 Figure 10

In the next appointment, all the teeth involved were reduced 0.3mm approximately from facial and incisal aspects (figure 4 & 5). The long chamfer finish line was given. Following the reduction, secondary impression was made using addition polyvinyl siloxane (Gcflexceed putty with Gc light body) using double mix single stage technique (figure 6). The provisional restoration was given using tooth colored auto polymerized acrylic resin. The secondary case was poured using type IV dental stone.

Secondary casts were send to lab for final zirconia veneers fabrication by hard milling technique using Vita in ceram shade 3d master 1M1 (figure 7). The zirconia veneers were delivered in the final appointment by luting using dual cure resin following the manufacturer's instructions and the patient was given post-operative instructions (figure 7 to 10). The patient was extremely satisfied with the prosthesis.

The post-operative recall was done the next day and further the recall visit was scheduled after a month.

DISCUSSION

Zirconium is strong grayish-white, soft, ductile and malleable transition metal that is mainly obtained from metal zircon. Pure zirconia cannot be used in the manufacturing of the constituents, deprived of addition of stabilizer such as Yittrium Oxide. Yittrium tetragonal zirconium polycrystals (Y-TZP) based systems are recent addition to the high strength all ceramic systems that are used in the aesthetic zone and in the stress bearing region[1].

Zirconium dioxide is used to fabricate prosthodontic restorations such as single crowns, bridges, veneers, onlays, inlayas, endodontic posts as well as zirconia abutment for implants[1]. The material has minimal distortion during firing. There is no or less plaque accumulation and salivary proteins cannot react. The main limitation in zirconia veneer is its cohesive nature. Along with esthetic restoration the material shows advantages of abrasion resistance, color stability, translucency and excellent tissue response. Bleaching or microabrasion of fluorosed teeth is often ineffective or gives transient results. Whereas composite resin veneers not only discolor or wear with time, but quite often chipped and debonded[2]. In the current case, zirconia was the best suited to mask the fluorosis induced discoloration for a long time period and also to maintain the internal strength and vitality of the teeth.

CONCLUSION

The study shows the restoration of esthetics of fluorosed and discolored maxillary anterior teeth with zirconia veneers as they offer good long term behavior and mechanical properties.

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