

Non-Vital Bleaching and Aesthetic Rehabilitation of Common Dental Caries

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Abstract: Discoloration in the non-vital teeth leads to physical and psychological problems in patient especially since it can be easily distinguished in the anterior region. Although the discoloration occurring in non-vital tooth is usually symmetrical, it occur by influencing several teeth. In this case report, the restorative treatment of patients concerning about the aesthetic problems in maxilla anterior part.

Keywords: Devital bleaching, aesthetic, generalized caries.

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I. Introduction

The discolored teeth can be distinguished easily when formed in anterior teeth after canal treatment. The discolored anterior teeth creates aesthetic concerns in patients and lead them to apply the surgeons. In these kinds of treatments, thermocatalytic method, walking bleaching, home bleaching, Office bleaching or a combination of them can be applied (1, 2) [1,2]. Whitening treatments can lead to increased permeability of the enamel. External cervical resorption can be seen based on these treatments. External resorption is thought to occur owing to inflammatory changes in periodontal tissues resulting from the microleakage of material through dentinal tubules (3, 4).

II. Case Report

The patient complaining about discoloration in anterior teeth, caries and crowding applied to our clinic for being unpleasant about aesthetic appearance. Depending on the medical history of the patient, not any systemic disease was detected. After the intraoral examination, it was determined that the teeth with number 11 and 12 were applied canal treatment and then discolored. And also secondary caries was detected the teeth with number 22. After applying devital bleaching (40 % of hydrogen peroxide and sodium perborat were used during this process) in 11th and 12th teeth of the patient, 4 incisors in anterior region were restored with composite veneer technique and the patient's physical, aesthetic and psychological concerns were resolved.

III. Discussion

The material used in whitening the teeth is the 30 % (weight/volume) solution of hydrogen peroxide among bleaching agents. This solution is called süperoksol. It is a colorless and odorless liquid. It should be kept in fridge, in dark colored glasses or plastic bottle caps. Because it leads to spontaneous oxygen in hot places. This material shouldn't be left in touch with easily oxidizable substances. 25 % of solution of hydrogen peroxide in ether is called pyrozon. It has effects related to süperoksal. But pyrozon has a smell of nausea and loses its stability when the bottle opened. The low surface tension of ether enables a better diffusion of solution towards dentine canals. But because ether does not mix with water, diffusion becomes more difficult owing to the moisture in dentine canals. Therefore, the cavity must be dried. However, because süperoksal contains water, moisture in the dentine canals can not prevent the diffusion. In contrast, the presence of water may increase diffusion. Because it can rapidly mix with water (5, 6).

For this reason, süperoksol is preferred in intraoral whitening and this mixture of hydrogen peroxide with ether not only can be applied in dental fluorosis, but also in case of superficial whitening (2, 7).

IV. Conclusion

In this study, we examined the use and the effect of bleaching agent containing 40 % of hydrogen peroxide and sodium perborate in the field of whitening. As a result, it was found that the use of hydrogen peroxide and sodium perborate provided necessary aesthetics in teeth in a short time and eliminated the psychological as well as aesthetic concerns of the patient.



Fig. 1. Pre-treatment and post-treatment images of the patient’s teeth

	Material Name	Manufacturer	Material type	Matrix type	Filler content	Filler ratio %
1	Estelite® Sigma Quick	Tokuyama Tokyo, Japan	Submicron filled composite resin	Bis-GMA, TEGDMA	Spherical silica-zirconia filler and silica-zirconia prepolymerized fillers	82
2	Estelite® Flow Quick	Tokuyama Tokyo, Japan	Low viscosity, medium flow, light cured, radiopaque composite resin	Bisphenol A polyethoxy Methacrylate (Bis-MPEPP), TEGDMA, UDMA	Silica- zirconia filler and silica-titania filler	71
3	Tokuyama Bond Force	Tokuyama Dental, Japan	3D-SR monomer, TEGDMA, BisGMA, HEMA, Glass fillers, Isopropyl alcohol, Photo-initiator, Water	-	-	-
4	Curing Light Lamp	Woodpecker USA	Dental Wireless LED	-	-	-
5	Bleaching Agent	Ultradent South Jordan, UT, USA	Opalescence Boost 40% Refill - Dental bleaching	-	-	-

Tab. 1: Materials used in this study

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