Case Report

International Journal of Dental and Health Sciences
Volume 05, Issue 03

AT HOME VITAL BLEACHING USING CUSTOM FITTED TRAY WITH RESERVOIRS, A TREATMENT OPTION FOR BANDING TYPE OF FLUOROSIS: A CASE REPORT

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ABSTRACT:

Today, society in general has become more concerned about beauty and perfect looks than ever before. People now know that smile aesthetics plays a key role in their sense of well-being, social acceptance, success at work and in relationships, and self-confidence. Hence, the aesthetic expectations and demands of dental patients have increased substantially. Fluorosis stains is one of the clinical conditions which can hamper the esthetics of the patient and a complaint that would persuade the patient to seek aesthetic treatment. This case report demonstrates the successful management of a patient having banding type of enamel fluorosis with dentist prescribed night guard vital bleaching regimen using custom fitted trays.

Keywords: night guard vital bleaching, reservoirs, carbamide peroxide

INTRODUCTION:

Discoloration of teeth is described as ‘any change in the hue, colour, or translucency of tooth due to any cause’. It can be intrinsic, that is incorporated in the tooth structure or extrinsic that is attached to the tooth surface. The various etiologies of intrinsic tooth discolouration include causes like genetic, disease related, metabolic, drug related, pulpal hemorrhage, pulp necrosis, pulp tissue remnants, restorative materials, intracanal medicaments, root canal filling materials, dental caries, calcific metamorphosis, root resorption and ageing. Whereas the causes of extrinsic discolouration are food, beverage or smoking related superficial stains, betel nut and areca nut chewing, marijuana and poor oral hygiene.[1]

Dental fluorosis is a developmental disturbance of dental enamel, caused by successive exposures to high concentrations of fluoride during tooth development, leading to enamel with lower mineral content and increased porosity.[2] The treatment options available depending on the severity, extent and location of stains are macroabrasion, microabrasion, bleaching, veneers and crowns.[3]

CASE DETAIL:

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A 20 year old female patient reported to the Department of Conservative Dentistry & Endodontics, Govt. Dental College & Hospital, Aurangabad, with the chief complaint of discolored front teeth. The patient gave a positive history of staying in Marathwada region of Maharashtra, which is considered to be a part of fluorosis belts in India. She also gave history of drinking water from tube well in her childhood.

A clinical examination revealed banding type of fluorosis on tooth no #12, 11, 21 & 22, Fig. 1 & 2. The oral hygiene was found to be acceptable and the patient did not have any other dental problems that would necessitate treatment. The various treatment options and prognosis of each were explained to the patient and it was decided to manage her condition with dentist prescribed at home vital bleaching procedure using custom fitted tray with reservoir.[4]

PROCEDURE:

As a first step a thorough oral prohylaxis is planned for the patient. This helps in removal of any superficial stains, debris and plaque which helps in identifying the intrinsic stains to be treated.

Restorative composite material is used to block the bands of stains present on tooth no #12, 11, 21 & 22 and light cured, Fig. 3. It has to be noted that there is no etching or bonding before the curing procedure as the block out composite resin has to be in place only till the completion of impression procedures. An impression of the maxillary arch is made with irreversible hydrocolloid material. Alternatively the impression can be made using a mandibular perforated impression tray for the maxillary arch as the palatal aspect of the cast has to trimmed later for proper adaptation of the tray material while vaccum forming. After the impression is made, the block out composite resin is removed from the teeth using a sharp hand instrument. The composite material can be removed easily as there is no etching or bonding procedure done.

A stone cast is fabricated. The reservoirs made on the teeth for the bleaching gel are seen duplicated on the stone cast, Fig. 4. A custom tray is fabricated, Fig. 5 using a vaccum moulding machine (Ashvac Vaccum Moulding Machine, Jaypee). The thickness of the tray material is 1 mm, which is easily tolerable to the patient and does not cause any gagging.[1] The borders of the tray are cut straight 2 mm cervical to the marginal gingiva, do not encroach on the frenum, engage any undercut or end on the rugae but rather terminate in between two rugae. A non scalloped tray design is the most comfortable to the patient, and provides the best seal against the gingival to retain the material.[5] Scalloped margins are avoided as they are found to be irritating to the gingiva. The teeth to be treated are marked with a pen for the purpose of training of the patient. The agent used for bleaching was 16% carbamide peroxide (SDI Polanight Bleaching Kit, SDI Company, Victoria, Australia), Fig. 6,

which gives 5.3% of available hydrogen peroxide for bleaching action.

At the 2nd appointment the tray is placed in the patient's oral cavity and evaluated for proper adaptation and any irritating borders, Fig. 7. The patient is trained to place the gel in the reservoirs for the teeth to be treated and for the insertion and removal of the tray. She was given the option of wearing the tray during daytime or in the night. If she uses it during day she was told to replenish the gel after every 2 hours and to wear the tray for 8 hours per day.

The patient was given a form, an example of which is shown in Fig. 8 and was told to mention the details of the date and time during which the tray was worn. This was helpful to assess the compliance of the patient. The other instructions given to the patient included the possibility of sensitivity during the procedure, the cleaning and maintenance of the tray and to report back if there is severe pain or any other untoward incident. She was also told to self assess the process of bleaching and stop the procedure if the desired effect is obtained.

The next appointment of the patient was scheduled after 2 days, and every 7 days thereafter. The whole schedule was uneventful and the desired effect for this particular patient was obtained in a 3 weeks time. After which she was told to discontinue use of the tray and terminate the procedure, Fig. 9 & 10.

CONCLUSION:

Bleaching can be divided into three groups: in-office bleaching, nightguard vital bleaching (NGVB), and over-the-counter (OTC) strips and wraps.[5] If safety, efficiency and cost to the patient are considered for the three techniques, NGVB is the preferred method. This technique is supported by many safety and efficacy studies, as well as research on long-term stability, its effects on teeth, and ease of use by the patient.[5] The success rate is thought to be 98% for non-tetracycline stained teeth and 86% for tetracycline stained teeth.[6-7] However, other treatments may be indicated based on patient preference, lifestyle, finances, and limitations to whitening effectiveness (eg. Tetracycline stains, very stark white spots, extensive restorations, or exposed root surfaces.)[8]

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FIGURES:

Fig. 1 Preoperative Intraoral View

Fig. 2 Preoperative Frontal view

Fig. 3 Blocking of heavily stained areas with composite resin

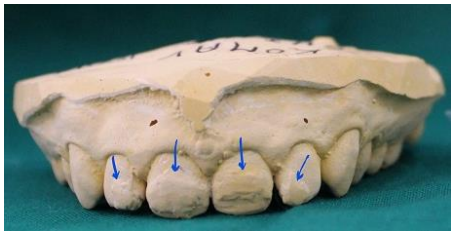

Fig. 4 Blocked out areas duplicated in stone cast

Fig. 5 Fabricated tray

Fig. 6 Bleaching agent used, 16% Carbamide Peroxide Gel (SDI Polanight Bleaching Kit)

Fig. 7 Evaluation of tray intraorally

DEPT OF CONSERVATIVE DENTISTRY AND ENDODONTICS,
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AT HOME VITAL BLEACHING SCHEDULE RECORD
(To be maintained by the patient)

NAME OF THE PATIENT: _____

OPD NO: _____ AGE/GENDER: _____

AGENT USED: 16 % Carbamide Peroxide (Polanight Bleaching Kit, SDI)

NAME OF DOCTOR: _____

SR NO	DATE	TIME		TOTAL HOURS
		WORN FROM	TO	
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Fig. 8 Bleaching schedule form

Fig. 9 Postoperative Intraoral View

Fig. 10 Postoperative Frontal view