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CASEREPORT

Revisiting Walking Bleach- A Case Report

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ABSTRACT

Internal post-eruptive discoloration of teeth commonly results from pulp haemorrhage, necrosis, infection, or trauma, and often presents an esthetic concern, particularly in young patients. Conservative treatment approaches that preserve tooth structure are preferred over invasive restorative procedures. The walking bleach technique is widely used intracoronal bleaching method for endodontically treated teeth. The case report describes the management of discoloration in a 14-year old female patient who presented with greyish-black discolored maxillary left central incisor following a history of trauma five years earlier. Clinical and radiographic examination revealed a non-vital tooth with a periapical lesion. Endodontic treatment was performed followed by surgical intervention and intracoronal bleaching was initiated after confirmation of periapical healing. Sodium perborate mixed with distilled water was used as the bleaching agent. Significant improvement in tooth shade was achieved within 9 days, resulting in satisfactory esthetic outcomes. The walking bleach technique proved to be a simple, effective, and minimally invasive method for managing discoloration in endodontically treated teeth.

KEYWORDS: Non- vital bleaching, Sodium perborate, Walking bleach.

INTRODUCTION

Internal post-eruptive discolouration of teeth is most frequently brought on by pulp bleeding, necroses, infections, and iatrogenic reasons[1]. This kind of discolouration is commonly treated using veneers, bleaching or full coverage restorations. The foundation of contemporary dentistry is the idea of minimal intervention, or the preservation of dental tissue. The treatment for tooth discolouration is specifically discussed in this idea.

In 1961, Spasser recommended the use of sodium perborate and water inside the pulp chamber[2]. In 1967, his technique was modified by Nutting and Poe, who substituted the water by 30% hydrogen peroxide and suggested the term "walking bleach" be used to refer to the technique[3]. It is called as Walking Bleach procedure because bleaching happens between visits outside the clinic. The procedure is also called as sealed bleach technique as the chemical is placed inside the tooth making it safe to use and requiring less chair time.

CASE REPORT

This case report was prepared in accordance with the guidelines of the CARE (CAse REport) checklist. A 14-year-old female patient reported with the chief complaint of discoloured tooth in the upper front region. (Figure 1) History reveals that patient had trauma before 5 years. On, visual examination, greyish- black discoloration was noted in proclined 21 with Ellis Class IV fracture. The intraoral periapical radiograph revealed matured tooth with closed apex, widening of PDL space, discontinuity of lamina dura and a well circumscribed periapical radiolucency in relation to 21(Figure 1). Endodontic treatment was planned followed by bleaching through walking bleach method.

After obtaining informed consent, root canal treatment was commenced. Adequate healing was not obtained by conventional root canal treatment and hence surgical approach was carried out. (Figure 1) Bleaching was started 2 months post endodontic treatment once periapical healing was complete. The colour of the tooth was noted before commencement of treatment using vita shade guide (classic) and the treatment was planned (designed) to quit (stop) when appropriate colour matching with adjacent teeth was obtained. After rubber dam isolation, the access cavity was re-established.

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Gutta percha was removed upto 2mm apical to cemento-enamel junction and the orifice was sealed upto 2 mm with Glass ionomer cement as intra- coronal barrier. Sodium perborate powder was mixed with distilled water to form a thick paste and was filled in the pulp chamber covering the entire facial surface and the access cavity was again closed with Glass ionomer cement. (Figure 2) The patient was recalled after 48 hours and significant improvement in color was observed. By 9 days, the shade of the tooth was significantly lighter and similar to adjacent teeth. The access cavity was re- entered and a paste of calcium hydroxide and sterile water was placed in the pulp chamber for 1 week after which permanent restoration was done with composite.

DISCUSSION

Restoring the dental aesthetics has been considered one of the chief purposes of modern dental medicine especially in younger individuals because it causes an impact on social interaction. Novel materials and treatment methods are being developed every day to reach this goal.

Dental bleaching is a conservative treatment compared to other treatment methods used for treating discoloration; such as, laminate veneers and full crowns. The intracoronal bleaching procedure uses oxidizing agents within the coronal portion of an endodontically treated tooth to treat tooth discoloration[5] (American Association of Endodontists, 2003). The bleaching of endodontically treated teeth is based on dentin permeability, allowing the oxidizing agent to penetrate directly into the pigment in the dentin, and eliminate or alleviate the problem of discoloration. The oxidizing chemical agent removes intrinsic stains via chromogenic degradation, and by breaking down the larger pigments into smaller ones, the colour of the teeth is lightened. Sodium perborate is an oxidizing agent available as a powder. It is stable when dry; however, in the presence of acid, warm air, or water, it breaks down to form sodium metaborate, hydrogen peroxide, and nascent oxygen. Friedman, et al. (1988) reported the incidence of external cervical resorption in 6.9% of the 58 non-vital teeth after intracoronal bleaching with sodium perborate and 30% hydrogen peroxide for a period of 1-8 years[5]. However, Holmstrup, et al (1988) did not verify external cervical resorption in pulpless teeth after intracoronal bleaching with sodium perborate mixed with water after evaluation of 3 years[6]. Rotstein, et al. (1991) verified that sodium perborate with water presented similar effectiveness of bleaching compared to other bleaching materials, and prevented or minimized the occurrence of external root resorption7. Hence, Sodium perborate mixed with water was opted for bleaching in the present case. The patient was on follow up for the 3 months and no signs of cervical resorption was observed. Excellent colour matching was observed which motivated the patient for pursuing fixed mechanotherapy for correction of proclination.

CONCLUSION

In the modern era where individuals demand for immediate results, bleaching technique is vanishing. Hence, our intention was to obtain the same promising results of the immediate alternatives but in a more physiological way.

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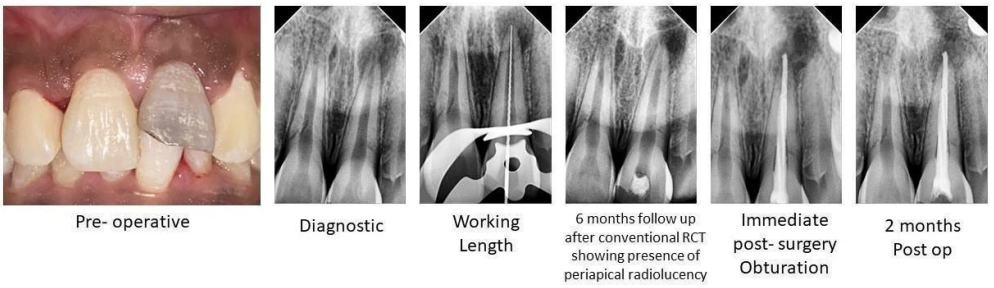

Figure 1: Pre- operative photograph and radiograph and endodontic management

Figure 2: Procedure of walking bleach

Figure 3: Follow-up after Bleaching Procedure

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