



Non-Vital Bleaching for a Single Dark Anterior Tooth: A Case Report

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ABSTRACT

Restorative dentistry is a mixture of art and science, dental bleaching is a conservative, less expensive option to restore the color of endodontically treated discolored teeth. **Purpose:** the aim of this study is to report a case of a non-vital endodontically treated single dark anterior tooth by using a combination of bleaching techniques. **Case:** 35 years old man complained about a single dark upper anterior tooth which was Re-endodontically treated 4 months ago. **case management:** A combination of closed internal and external bleaching treatment was taken, and the result was satisfactory for the patient. **Conclusion:** bleaching using a combination of closed internal& external methods for a single dark tooth that has received an endodontics treatment shown to be effective. Safe and return teeth to their desired color.

Keywords: tooth discoloration, esthetics, tooth bleaching

INTRODUCTION

The primary indication for nonvital bleaching is to lighten teeth that have undergone root canal therapy. Discoloration may be a result of bleeding into the dentin from trauma before root canal therapy, degradation of pulp tissue left in the chamber after such therapy, or staining from restorative materials and cements placed in the tooth as a part of the root canal treatment.³

History

Bleaching of non-vital teeth isn't a recent clinical practice, The history of non-vital bleaching dates back to the early 19th century. In 1848, Dr. Thomas Dwinelle of New York City used chloride of lime to whiten a discolored tooth that had undergone root canal treatment. This was the first documented case of non- vital bleaching.¹over the decades, non-vital bleaching became more popular as dentists began to realize the benefits of the procedure. Hydrogen peroxide was introduced as a bleaching agent in the 1930s and quickly became the most popular bleaching agent for non-vital bleaching. Recently. In the 1960s, the walking bleach technique was developed by Dr Spasser⁵ followed by the external/internal or combined technique was proposed by Settembrini⁶ in 1997.

The evolution of Esthetic dentistry involving the manufacturing of new ceramic materials or digital technology⁴ is trending. Still, non-vital bleaching has continued to evolve over the years to be a safe and effective way to whiten discolored teeth.

Saudi Arabia

In Saudi Arabia, the Ministry of Health provides restorative dentists with bleaching agents to use it in public clinics, the patient appreciates the simple and economical treatment strategies whereas on the other hand dentists practicing conservative dentistry find it enjoyable.³ but in research conducted by *Mazen Doumani et al*⁷ A descriptive cross-sectional study was performed in a convenient sample of dental practitioners working in Kingdom of Saudi Arabia the conclusion showed poor knowledge of dentists in Kingdom of Saudi Arabia about internal bleaching techniques.

CASE

A 35 year old man came to Al Rass Dental Center complained about a single dark upper anterior tooth which was Re-endodontically treated 4 months ago. The patient felt a lack of confidence as his left upper anterior central incisor looks brownish and unesthetic while smiling. (Figure 1)

CASE MANAGEMENT

The procedure consists of several steps starting with taking History, the patient had trauma to tooth 21 five years ago and he did Re-Endodontics treatment four months ago. Crown show craze lines otherwise intact except Access cavity. Old and new digital radiographic images were obtained to assess RCT. The patient stated, "I want this tooth (pointing tooth 21) to nearly match adjacent teeth". No shade guide was matching the tooth color so, nearest shade and Patient expectation was registered. Which was realistic.

Other treatment options including porcelain veneers and anterior ceramic crowns was discussed. Consent was taken and treatment begins with preoperative photography.

The tooth 21 was isolated using Rubber dam. (Figure 2.a). Access cavity was prepared, and gutta percha remnants were removed using CALAMUS™ tip. Pulp tissues remnants were found in the cavity. (Figure 2.b). The cavity was washed with sodium hypochlorite followed by drying. Biological/mechanical barrier was applied over the root filling material.

Chemically activated in office bleaching agent Hydrogen peroxide 37% was mixed according to manufacturing guidelines and applied using micro brush for 20 minutes to labial and lingual surface of tooth 21. another product of Hydrogen peroxide 35% which was developed for endodontically treated tooth bleaching was also mixed and applied into access opening. (Figure 3)

The bleaching material was then washed using water and suction, dried using air and cotton pellet. Then a small amount of Hydrogen peroxide 35% was then applied into the access opening then closed using temporary filling. Rubber dam removed. a recorded picture was taken (figure 4).

Two appointments (2 weeks) were required to repeat the bleaching cycles. The patient expectation and opinion of satisfactory was put on the scale. The fourth visit, the patient accepted the final treatment result and wish to discontinue. (Figure 5).



Figure 1: clinical Preoperative photo



Figure 2: a. Rubber dam isolation and b. Access preparation



Figure 3: Application of hydrogen peroxide



Figure 4: Result after first bleaching cycle.



Figure 5: Result after 3 appointments

RESULT

Improvement of tooth color when using Combined internal / external bleaching technique, the patient was satisfied with the result putting in consideration that craze line which was most persistent discolorations could be lightened if the treatment is sufficiently extended.

DISCUSSION

Bleaching both removes extrinsic and intrinsic stains in or on the tooth that originated from external sources (nicotine, tetracycline, coffee, etc) as well as changes the genetic color of the tooth.

Trauma, RCT or necrotic tissue left in the pulp chamber can cause Tooth discoloration for endodontically treated tooth

Endodontically treated teeth may be treated externally, internally, or both.

According to summit *etal* 2013. External bleaching is indicated if the pulp chamber is adequately debrided, the endodontics access is adequately sealed with suitable composite shade and if internal access risk damaging the canal / tooth.in the other hand the internal is indicated if the access is not definitely restored adequately debrided.

Internal bleaching can be categorized into A combination between external and closed internal, external with open internal and internal only.

types of bleaching agents are hydrogen peroxide, sodium perborate and carbamide peroxide.

CONCLUSION

Bleaching is simple, economic, low-cost, and non-invasive to the tooth structure. However, patient selection is very important. Not all individuals will respond equally to bleaching treatments due to variations in tooth coloration and sensitivity. Hence, it is crucial to conduct a thorough examination and consider the patient's dental health history before proceeding. Ensuring the patient's suitability for bleaching will maximize effectiveness and minimize potential side effects, leading to more satisfactory outcomes.

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