EDUZONE: International Peer Reviewed/Refereed Multidisciplinary Journal (EIPRMJ), ISSN: 2319-5045
Volume 14, Issue 1, January-June, 2025, Available online at: www.eduzonejournal.com

Management of Discolored Non Vital Teeth- A Comprehensive Case Report of Two Cases

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ABSTRACT

Discolored non-vital teeth can be a significant concern for patients, particularly when aesthetics are a priority. Intracoronal bleaching offers a conservative and effective solution to enhance the appearance of such teeth. This report highlights two cases of non-vital tooth bleaching using the walking bleach technique. The successful outcomes emphasize the technique's ability to address discoloration while preserving the natural tooth structure and improving overall aesthetic harmony.

INTRODUCTION

Tooth discoloration is a common problem caused by both intrinsic and extrinsic factors. Intrinsic discoloration often results from pulp necrosis, trauma, or the use of certain restorative materials, and addressing it may require advanced cosmetic interventions. Non-vital bleaching, a minimally invasive procedure, utilizes bleaching agents applied within the pulp chamber to lighten the tooth. Among various methods, the walking bleach technique is widely recognized for its simplicity, safety, and predictable results.

This case report presents the treatment of two patients with discolored, non-vital anterior teeth using the walking bleach technique. The cases underscore the importance of precise diagnosis, adherence to bleaching protocols, and thorough follow-up care.

CASE REPORT 1

Patient History
A 30-year-old male patient sought treatment for his discolored upper left central incisor (tooth #21), which had darkened progressively since a trauma five years prior. Concerned about the appearance of his smile, he expressed a strong desire for aesthetic improvement.

Clinical Examination
Intraoral examination revealed:

- Tooth #21 displayed a grayish discoloration.
- There were no visible caries or fractures.
- Periodontal health was satisfactory, with no signs of mobility or tenderness upon percussion.
- Pulp sensibility test with electrical pulp test andcold test reported neative response.

Radiographic Findings Confirmed:
A narrow root cnal with no periapical pathology.

Treatment Plan
Root canal treatment followed by walking bleach technique was selected to manage the discoloration. The procedure, potential risks, and expected results were discussed with the patient, and informed consent was obtained.

PROCEDURE

1. **Isolation and Access:**
    - Tooth #11 was isolated with a rubber dam.
    - Root canal treatment was initiated and obturation done with cold lateral compaction technique.
2. **Pulp Chamber Preparation:**
    - A 2 mm layer of resin-modified glass ionomer cement was placed over the root canal filling to protect it from the bleaching agent.
    - The pulp chamber was thoroughly cleaned and dried.

3. **Application of Bleaching Agent:**
    - A mixture of30% carbamide peroxide and sodium perborate was placed into the pulp chamber.
    - The cavity was sealed with a temporary restorative material.

4. **Evaluation and Follow-up:**
    - The patient returned for weekly evaluations. After two applications over two weeks, the discoloration significantly lightened, achieving a shade consistent with adjacent teeth.
    - The bleaching material was removed, and the cavity was restored with composite resin.

Outcome
The patient was very pleased with the aesthetic improvement. At a six-month follow-up, the tooth maintained its improved appearance with no signs of recurrence or adverse effects.

Fig 1- Preoperative Photograph

Fig 2-Post Perative Photograph

CASE REPORT 2

Patient History
A 40-year-old male presented with discoloration of his upper left central incisor (tooth #21). The tooth had darkened over the years following root canal treatment performed a decade earlier due to trauma.

Clinical Examination
Intraoral findings included:

- Tooth #21 had a grayish discoloration.
- There were no signs of caries, cracks, or structural compromise.
- The gingival tissues appeared healthy, and the tooth was asymptomatic.

Radiographic Findings Confirmed:

- Adequate obturation of the root canal system.
- No evidence of periapical pathology.

Treatment Plan
The walking bleach technique was chosen to restore the tooth's natural color. The procedure was explained to the patient, who provided informed consent.

PROCEDURE

1. **Isolation and Access:**
    - A rubber dam was used to isolate tooth #21.
    - An access cavity was created through the palatal surface.
2. **Pulp Chamber Preparation:**
    - A 2 mm layer of resin-modified glass ionomer cement was placed over the gutta-percha to protect it from the bleaching agent.
    - The pulp chamber was cleaned and dried.
3. **Bleaching Agent Application:**
    - A combination of 30% carbamide peroxide and sodium perborate was applied to the pulp chamber.
    - The cavity was sealed temporarily.

4. **Evaluation and Follow-up:**

- Weekly reviews were conducted. After two applications over two weeks, the tooth's color improved significantly.
- The bleaching material was removed, and the cavity was permanently restored with composite resin.

Outcome
The patient expressed satisfaction with the result. A follow-up after one year confirmed stable aesthetics and the absence of any complications.

Fig 3- Preoperative Photograph

Fig 4-Post Perative Photograph

DISCUSSION

Non-vital tooth bleaching is a conservative and effective solution for intrinsic discoloration in endodontically treated teeth. The walking bleach technique allows for gradual whitening by introducing a combination of a bleaching agent and a carrier material into the pulp chamber. This approach is preferred due to its minimally invasive nature and its ability to preserve tooth structure compared to alternatives like veneers or crowns.

KEY CONSIDERATIONS FOR SUCCESSFUL OUTCOMES INCLUDE:

Diagnosis and Case Selection:

- A thorough evaluation of the cause and extent of discoloration is essential.
- Ideal candidates are teeth with successful root canal treatments and no periapical pathology.

Choice of Bleaching Agents:

- Common agents include hydrogen peroxide, carbamide peroxide, and sodium perborate.
- Sodium perborate is often favored for its safety profile and low risk of external cervical resorption.

Sealing the Root Canal System:

- Proper sealing of the root canal filling is critical to prevent leakage of bleaching agents and minimize complications.

Follow-up Care:

- Regular follow-ups ensure the stability of results and allow early detection of any adverse effects.

In these two cases, the walking bleach technique achieved excellent aesthetic outcomes without complications. The careful selection of materials and strict adherence to the bleaching protocol were instrumental in the success of the treatment.

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