

Aesthetic and Conservative Management of Discolored Teeth: A Case Report

Hemal Patel¹, Ankit Arora^{2*}, Sonali Kapoor³ and Purnil Shah⁴

¹Post Graduate Student, Department of Conservative Dentistry and Endodontics, Manubhai Patel Dental College and Hospital, Vadodara, Gujarat, India

²Professor, Department of Conservative Dentistry and Endodontics, Manubhai Patel Dental College and Hospital, Vadodara, Gujarat, India

³Dean, Professor and Head of the Department, Department of Conservative Dentistry and Endodontics, Manubhai Patel Dental College and Hospital, Vadodara, Gujarat, India

⁴Reader, Department of Conservative Dentistry and Endodontics, Manubhai Patel Dental College and Hospital, Vadodara, Gujarat, India

***Corresponding Author:** Ankit Arora, Professor, Department of Conservative Dentistry and Endodontics, Manubhai Patel Dental College and Hospital, Vadodara, Gujarat, India.

Received: June 07, 2022; **Published:** October 31, 2022

Abstract

Anterior teeth Discoloration can cause considerable aesthetic impact on a patient's life. There are various techniques to mask the discoloration. Bleaching or whitening of the tooth alone cannot improve the discoloration due to stubborn intrinsic stains. So, combination techniques need to be done in patients according to the severity and clinical situations. Here we have incorporated both micro abrasion and bleaching techniques for management of discoloured teeth which not only preserve natural tooth structure but their synergistic effect will actually shortens the treatment duration.

Keywords: Discoloration; Micro Abrasion; Bleaching; Antivet

Introduction

Anterior teeth discolorations can cause aesthetic, social and psychological impact on an individual's life. Such tooth discolorations are mainly classified in two categories intrinsic and extrinsic. The etiology of intrinsic stain is much complex in a way it includes pulpal necrosis, dental fluorosis, tetracycline stains, developmental anomalies of enamel and dentin, hematological factors, aging etc. Treatment options for the same are many like vital and non-vital bleaching, micro-abrasion, macro-abrasion, veneers and crowns. But most of them are invasive and results in irreversible loss of sound tooth structure; also, advancements in the minimally invasive dentistry have provided newer dimensions to treat such discolored teeth with conservative and biomimetic approach without damaging the structural integrity of the tooth. This clinical case report presents the clinical situation where discoloration can be managed by conservative techniques maintaining the structural integrity of the tooth [1].

Case Report

A nineteen year old female patient reported with the chief complaints of discoloration of upper front teeth. Clinically stains were dark brown, hard with white opaque areas and intrinsic in nature (Figure 1). Patient's prime concern was her appearance though she was totally asymptomatic otherwise. Patient responded normally to the pulp vitality tests performed on the all front teeth. No relevant systemic disorder was recorded in anamnesis. The patient did not have any other significant finding in the oral cavity. Medical and family history

was not relevant and the provisional diagnosis was enamel hypoplasia with severe discoloration affecting the anteriors. According to dean’s fluorosis index it was classified as a moderate fluorosis. After discussing all the possible modalities, the patient agreed upon the treatment protocol of In Office Vital bleaching followed by micro abrasion procedure.



Figure 1: Pre-operative image.

Clinical steps

Once treatment plan was decided and after getting the patient’s consent, oral prophylaxis was done. Following the rubber dam isolation (split dam technique) (latex rubber dam, sanctuary) (Figure 2), gingival barrier application was done (Figure 3) to protect the gingiva from bleaching agents and in office vital bleaching was done (Figure 4) using Pola office plus containing 37.5% hydrogen peroxide. The procedure was done in one application; light curing was done for 8 minutes with the bleaching LED light (Figure 5).



Figure 2: Rubber dam isolation for vital bleaching.



Figure 3: Gingival barrier placement.



Figure 4: Bleaching agent application.



Figure 5: Light curing.

After the first appointment patient was not satisfied with the results of bleaching as there was just slight lightening of the stains were there (Figure 6). Hence it was decided to perform microabrasion with Antivet (Figure 7) in the second sitting.



Figure 6: Image after vital bleaching.



Figure 7: Antivet micro abrasion kit.

In the second appointment, quadrant isolation was performed with rubber dam (latex rubber dam, sanctuary) till premolars of both the sides (Figure 8). The micro abrasion procedure was performed using Antivet kit in which tooth is treated by applying the low pH enamel cleaning solution to the tooth surface with a cotton pellet (Figure 9), and gently rubbing the solution on the tooth until the stain is removed (Figure 10). Following treatment with the enamel cleaning solution, a neutralizing solution is applied for 2 minutes (Figure 11) and the polishing was done using sof lex,3M ESPE (super snap mini kit, Shofu) (Figure 12).



Figure 8: Rubber dam isolation for micro abrasion.



Figure 9: Application of enamel cleaning solution.



Figure 10: Image after application of enamel cleaning solution.



Figure 11: Application of enamel neutralizing solution.



Figure 12: Post-operative image.

Outcome and follow-up

The patient was recalled after 1 month for follow-up examination (Figure 13). After 1 month, it was observed that the shiny aspects and the surface smoothness were maintained and there was no pain or sensitivity to cold and hot stimuli on the teeth that had been treated with micro abrasion.



Figure 13: Follow-up image.

Discussion

There are various treatment modalities for aesthetic management of discolored tooth [2]. From which combination techniques are most useful and preferred technique for treating moderate to severe discolorations that are not amenable to bleaching alone. Micro abrasion involves removal of small amount of enamel surface with the help of acid mixture whereas bleaching involves applying oxidizing agents that penetrate the enamel and dentin, resulting in tooth lightening. Vital bleaching associated with enamel microabrasion provides excellent result that are not amenable to bleaching alone and also reduces the appointment duration and sitting of the treatment [3,6].

According to celik., *et al.* combination treatment of microabrasion with bleaching results in better aesthetics although microabrasion improves the appearance of discolored teeth [4]. Long term effectiveness of microabrasion has been clinically proven in several studies with minimal post-operative and intra operative discomfort like dentinal hypersensitivity [5].

Conclusion

Conservative and biomimetic approach for discoloration management is a preferred treatment plan for both patients and clinician as it is less expensive and gives satisfactory results in very short treatment duration. So before proceeding to invasive procedure, every effort has to be made to manage the discoloration in least invasive way.

Conflict of Interest

There are no conflicts of interest.

Bibliography

1. Nandhini Ambalavanan., *et al.* "Ultraconservative treatment modalities for management of discoloured tooth: Case reports". *International Journal of Applied Dental Sciences* 5.2 (2019): 407-411.
2. Sa Y., *et al.* "Effects of Two In-Office Bleaching Agents with Different pH on the Structure of Human Enamel: an *in situ* and *in vitro* study". *Operative Dentistry* 38-1 (2013): 100-110.
3. Sundfeld RH., *et al.* "Considerations about enamel microabrasion after 18 years". *American Journal of Dentistry* 20.2 (2007): 67-72.

4. Celik EU, *et al.* "Comparison of enamel microabrasion with a combined approach to the esthetic management of fluorosed teeth". *Operative Dentistry* 38.5 (2013): E134-E143.
5. Ermis RB, *et al.* "A case report on fluorosed teeth whitening without microabrasion - Is it possible?". *Journal of Restorative Dentistry* 3.3 (2015): 83-87.
6. Baranwal AK. "A minimally invasive approach for aesthetic and smile enhancement using enamel microabrasion technique: Reports of two cases". *Archives of Dental and Medical Research* 1.4 (2015): 40-45.

Volume 21 Issue 11 November 2022

© All rights reserved by Ankit Arora., *et al.*