

MANAGEMENT OF MILD TO MODERATE FLUOROSIS WITH A COMBINED CHEMO-MECHANICAL APPROACH

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ABSTRACT:

The treatment of enamel fluorosis usually ranges from expensive ceramic veneers to free hand bonding restorations. Although vital bleaching does improve the esthetics to certain extent it has only met with partial success in regard to moderate to severe fluorosis. The triad combination of micro reduction, micro abrasion with vital bleaching is considered to be more promising in the removal of discoloration which is also cost effective and less time consuming.

KEY WORDS: *Micro abrasion, micro reduction, vital bleaching*

INTRODUCTION:

The etiology of intrinsic discoloration of enamel may sometimes be deduced from patient's history and one factor long associated with the problem has been with high fluoride intake¹⁻³. Although the esthetics demands for pleasing, brighter smiles are steadily increasing, economic problems are also concerning more of the population. Therefore the dentists have the dilemma of being obliged to create highly esthetic results even if a patients means are rather limited ¹.

The purpose of these case reports is to enlighten the fact that a combined chemo-mechanical approach using micro reduction with bur, micro abrasion with a slurry and conventional or traditional vital bleaching using Mc Inns solution may be considered as a promising alternate to more invasive prosthetic techniques.

Materials used (Fig.1-3)

Rubber dam kit/Opal dam
Micro abrasion slurry with rubber cups (Opalustre, Ultradent, South Jordan USA)
Cheek retractor
Petroleum jelly
Dental floss
Mc Inns solution
Fine grit diamond bur

Case 1:

A healthy 25 year old male reported to the department of Conservative Dentistry and Endodontics, his chief complaint was compromised esthetics due to discoloration of teeth. Diagnosis of moderate dental fluorosis was made based on the history and bilaterally symmetrical defect. Treatment plan comprised of oral prophylaxis followed by rubber dam application , micro reduction using a fine grit diamond point for 5 to 10 sec, micro abrasion was performed for 3-4min per tooth applying abrasive paste of 2 to 3mm on the affected tooth with a specific rubber cup attached to 10:1 contra angle hand piece. Rinsed with water for around 5min followed by vital bleaching using traditional Mc Inns solution. Esthetic evaluation was carried out after the teeth rehydration by the professionals and the patient himself. The patient was dismissed after the application of CPP-ACP(casein phospho peptide – amorphous calcium phosphate) paste and was strictly instructed not to rinse for 15min.

Case 2:

A healthy 20 year old male reported to the department of Conservative Dentistry and Endodontics, his chief complaint was compromised esthetics due to discoloration of teeth. Diagnosis of



Fig. 1. Materials Used



Fig. 2: micro abrasion slurry



Fig.3. Opal Dam

CASE 1.



Fig. 4. Pretreatment



Fig. 5. Micro Reduction

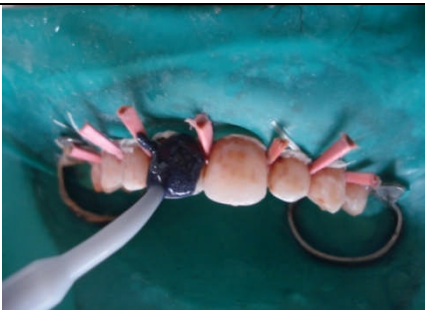


Fig. 6. Abrasive Slurry



Fig. 7: Micro Abrasion



Fig. 8 Post – Micro Abrasion



Fig.: 9: bleaching



Fig.10 Post Operative



Fig. 11 Pre Operative



Fig. 12 Opal Dam Application



Fig. 13 Photopolymerization



Fig. 14. Abrasive slurry



Fig. 15 .Micro Abrasion



Fig. 16 Removal of opal Dam



Fig. 17. Post operative

CASE 2:

moderate dental fluorosis was made based on the history. Treatment comprised of oral prophylaxis followed by same protocol as in case 1 for micro abrasion but a photo polymerizable rubber dam was applied for isolation. Vital bleaching was not performed and esthetic evaluation was carried out after teeth rehydration. The patient was dismissed after the application of CPP-ACP(casein phosphopeptide – amorphous calcium phosphate) paste and was strictly instructed not to rinse for 15min.

Discussion:

Due to the recent increase in dental fluorosis extensive research has been performed to understand the etiology and pathogenesis of this systemic disease.⁴⁻⁶

The etiology currently seems to be well established and strictly based on excessive consumption of fluoride during specific critical ages⁷. In cases of endemic fluorosis a solution of 1 part of anesthetic ether 0.2ml , 5 parts hydrochloric acid – 1ml , 5 parts of hydrogen peroxide - 1ml was used for bleaching⁸ but the technique of using micro reduction with micro abrasion is to remove around 100-200µm of surface enamel⁴ which eliminates the surface discoloration or at least minimizes it but it should also be noted that if the opacities are too deep or the teeth are hypo plastic , micro abrasion is not the treatment of choice to improve the appearance³. In our technique the combined triad of using micro reduction, micro abrasion and conventional vital bleaching did substantially

improve the esthetics than either of the techniques used alone. The reason underlying the improved esthetics with this technique would be probably due to the greater penetrating ability of hydrogen peroxide after micro reduction and micro abrasion where in action is not only confined to superficial enamel but also stains deep in enamel and sometimes in the dentin. The application of CPP – ACP was recommended to reduce the risk of post treatment sensitivity and it protects the teeth from possible demineralization⁹

CONCLUSION:

Taking in account of the presented case report it is clear that the fluorosis stains can be substantially reduced using the combined chemo mechanical approach. Further more this minimal invasive approach allows good esthetics and a possible cost reduction for the patients in treating mild to moderate fluorosis.

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