

Case Report

McInnes solution - The Forgotten Entity for Fluorosis Stains

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Abstract

Dental fluorosis is one of the major endemic diseases affecting the musculo-skeletal system and teeth. It is characterized by yellowish to brownish stains and pitting of teeth according to the severity of the disease. These intrinsic stains severely affect the confidence of the patient, making them hide their smile, which is a major expression of happiness. This case series reports, a total of five cases with mild to moderate fluorosis with aesthetic stain, treated successfully using McInnes solution. This report emphasizes that McInnes solution has to be considered in cases with fluorosis stains as an economic, effective and conservative option in relevant situation.

Key Words: bleaching; fluorosis; McInnes solution; tooth Stain

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Introduction

Fluorosis causing intrinsic discoloration of teeth is a common problem in clinical dental practice. Removal of intrinsic stains is absolute necessary in atleast, anterior teeth for its psycho social effects on the affected individuals, especially the younger ones. Although many new treatment modalities are available such as veneering, porcelain crowns, in most instances, they are not affordable for all the patients. In such cases, McInnes solution provides a viable and economic alternative for the effective management of intrinsic stains caused by fluorosis and is also very conservative in nature^{1,2,3}. This case series reports, five cases of mild to moderate fluorosis successfully treated using McInnes solution and highlights its clinical usefulness in the relevant situation, which seems to have been forgotten in the modern days.

Case series report

Patients with fluorosis attending the outpatient department at Chettinad Dental College and Research Institute were screened, and five cases of mild to moderate fluorosis in accordance to Deans index^{4,5}, were selected for treatment using McInnes solution (Figure 1-5A).

Patients were explained in detail about the treatment procedure and its outcomes (i.e. hypersensitivity and little stains and pits) and approximate amount of time and number of sittings. Preoperative photographs were taken before proceeding with the treatment for each individual case.

Oral prophylaxis was done before bleaching, using pumice paste to remove surface stains/ debris. Orabase gel applied sufficiently over the adjacent mucosa to prevent any injury from the McInnes solution.



Fig 1a: Preoperative (Fluorosis stains with pits)

Fig 1b: Post operative (Bleaching with Mc Innes solution followed by micro and macro abrasion).



Fig 2a: Preoperative (Fluorosis stains)

Fig 2b: Immediate post bleaching appearance



Fig 3a: Preoperative Fluorosis stains

Fig 3b: Post bleaching appearance

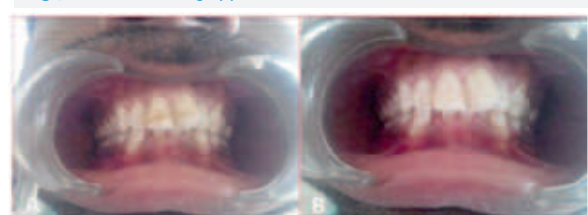


Fig 4a: Preoperative (Fluorosis stains)

Fig 4b: Immediate post bleaching appearance

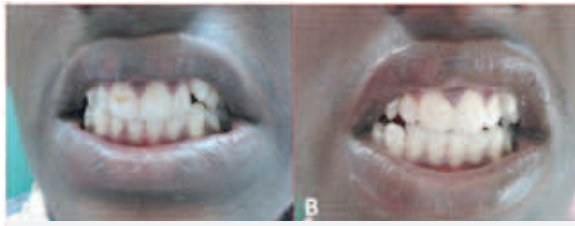


Fig 5a: Preoperative (Fluorosis stains)

Fig 5b: post bleaching

Application of rubber dam was done, dam retained with wedjets, and isolation was achieved along with low volume suction.

McInnes solution was freshly prepared, just prior to bleaching procedure, to maintain the potency of the solution. Following are the components, which makes the McInnes solution⁶.

- i) 5 parts of 35% of hydrogen peroxide - Will bleach the enamel
- ii) 5 parts of hydrochloric acid 36% - Etches the enamel
- iii) 1 part of diethyl ether removes facial debris

After the isolation of tooth, McInnes solution was applied on the stain region, for 5-10 minutes with intervals. Small gauze pieces were cut and kept over the stain for saturating the solution over the stain. Copious irrigation was done with saline, rubber dam was removed. Polishing was done with polishing paste. The small pits remaining in Case number one (Figure 1A&B) were removed by macro abrasion using flame shaped grit, followed by slow speed micro abrasion⁷.

After the successful completion of treatment, post operative photographs were taken (Figure 1-5 B). GC tooth mousse (GC, Japan) for assisting in remineralization of tooth was prescribed for all the patients⁸ and desensitizing tooth paste was advised for symptomatic relief in cases, reported with transient sensitivity.

Discussion

The treatment results in our selected cases, provides clinical evidence for the effectiveness of McInnes solution in treatment of cases, with mild to moderate fluorosis (Deans index).

The treatment results depend mainly on the etiology, proper diagnosis and selection of appropriate bleaching technique. The main advantages using McInnes includes inexpensiveness, less chair side time and immediate treatment results. With the rubber dam isolation, the McInnes solution can be utilized for the removal of stains involving either the entire dental arch or the isolated tooth^{2,3}. Also the easy control over the process of solution application facilitates continuing or terminating the treatment at any time by the dentists.

The acidic nature of the solution may cause mild demineralization of teeth structure, and this can be prevented by prescribing GC tooth mousse as it was in our cases⁸. Also precision in application of solution is

essential to prevent adjacent soft tissue injury. Metallic taste sensation and post operative sensitivity are the side effects reported by some patients, but they are transient in nature. Desensitizing tooth paste also can be prescribed in an appropriate situation.

Conclusion

McInnes solution is relatively safe, comfortable, conservative and less expensive in the treatment of intrinsic stains. Based on our treatment results, we highly recommend McInnes solution for use in routine clinical dental practice for mild to moderate fluorosis stains.

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