

# Case Report

## Mclnnes solution - The Forgotten Entity for Fluorosis Stains

Sadasiva Kadandale\*, Sriram K\*\*, Vijikarthikai Balan I\*\*\*

\* Professor, \*\*Senior Lecturer, Dept. of Conservative Dentistry and Endodontics, \*\*\*Senior Lecturer, Dept of Oral and Maxillofacial Pathology, Chettinad Dental College and Research Institute, Chennai, India.



Dr.K.Sadasiva currently working as Professor in Conservative Dentistry and Endodontics, Chettinad Dental College and Research Institute, graduated from Tamilnadu Govt. Dental College and finished his Masters from the same College in 2001. He has several National Publications to his credit. He has paper presentations in international laser conference and Ministry of Health in Saudi Arabia. His areas of interest are bleaching of teeth, endodontics, full mouth rehabilitation and currently involved in ICMR Project of Silver Amalgam recycling.

Corresponding author - Sadasiva K ([drsadasiva@yahoo.co.in](mailto:drsadasiva@yahoo.co.in))

### 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 Mclnnes solution. This report emphasizes that Mclnnes solution has to be considered in cases with fluorosis stains as an economic, effective and conservative option in relevant situation.

**Key Words:** bleaching; fluorosis; Mclnnes solution; tooth Stain

Chettinad Health City Medical Journal 2014; 3(3): 139 - 140

### 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, Mclnnes solution provides a viable and economic alternative for the effective management of intrinsic stains caused by fluorosis and is also very conservative in nature<sup>1,2,3</sup>. This case series reports, five cases of mild to moderate fluorosis successfully treated using Mclnnes 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<sup>4,5</sup>, were selected for treatment using Mclnnes 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 Mclnnes solution.



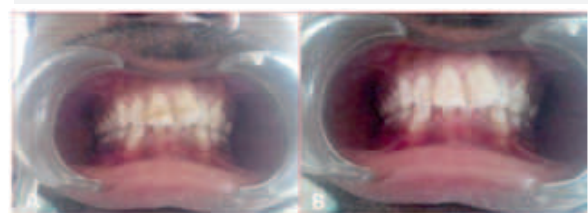
**Fig 1a:** Preoperative (Fluorosis stains with pits)  
**Fig 1b:** Post operative (Bleaching with Mc Innes solution followed by micro and macro abrasion).



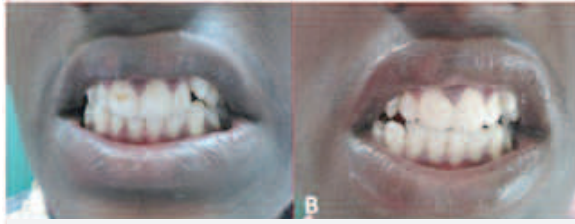
**Fig 2a:** Preoperative (Fluorosis stains)  
**Fig 2b:** Immediate post bleaching appearance



**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 solution<sup>6</sup>.

- 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 abrasion<sup>7</sup>.

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 patients<sup>8</sup> 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<sup>2,3</sup>. 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 cases<sup>8</sup>. 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.

## References

- 1) Watts A, Addy M. Tooth discolouration and staining: A review of literature *BDJ* 2001; 190(6): 309-16.
- 2) Tam L. Vital tooth bleaching: Review and current status. *JCDA* 1992; 58(8):654-63.
- 3) Goldstein CE, Garber DA. Bleaching of vital teeth: State of art. Quintessence Publications 1989; 20(10): 729-37.
- 4) Dean TH. Dean's index. *J Am Med Assoc.* 107:1269,1932
- 5) Soben Peter. Deans index, Indices in dental epidemiology, Essentials of public health dentistry, 5th ed. Arya Medi Publishing House Pvt Ltd, New Delhi, 2013; pp453-457.
- 6) Suresh Chandra B, Gopi Krishna V. Bleaching of discoloured teeth, In Grossmans Endodontic Practice, 12th ed. Wolters Kluwer (India) Pvt Ltd, New Delhi, 2011: pp 358-59.
- 7) Croll TP. Enamel microabrasion concept & development. Chicago; Quintessence publishing 1991:37-41.
- 8) Patil N. Chowdari S. Comparative evaluation of remineralizing potential of three agents on artificially demineralized human enamel. An Vitro study. *JCD* 2013; 16(2): 116-120.