

Effect of Power Bleaching on the Fluorosis Stained Anterior Teeth Case Series

PARINITHA M S¹, ANNAPOORNA B M², SUNIL TEJASWI³, SUNEETH SHETTY⁴, SOWMYA H K⁵

ABSTRACT

Bleaching is a conservative method for restoring the colour of intrinsic discoloration of teeth. The combination of McInnes solution and power bleaching is effective procedure for bleaching of fluorosis stained teeth. Definitely bleaching with McInnes bleaching agent gives instant results, not dependent on patient's compliance as other office based procedures, no dehydration of the tooth occurs with no damage to the pulp. Bleaching with this solution is esthetically pleasing and minimally invasive option for young patients rather than a complete coronal covering. The dentist is in complete control of the process throughout the treatment. It is a fast process the results are evident even after a single visit.

CASE REPORT

Patients reported to the Department of Conservative Dentistry and Endodontics with:

1. Discolored anterior teeth demanding appreciable aesthetic outcome.
2. Prime importance was given to the conservation of tooth structure.

Ten patients were selected with the chief complaint of discolored upper anterior teeth. They gave history of discoloration since child hood and were drinking borewell water in their native place which is a fluoride belt area. Family members of some of the patients had similar complaint. No other relevant medical and dental history was elicited from them.

On examination they had generalised hypoplasia of type II and type IV fluorosis according to TSIF index in their upper central and lateral incisors with bands of yellowish brown stain (A3.5&C₄-vita shade guide respectively) and no presence of pitting or chipping of enamel seen. Anterior teeth were intact without cracks, fracture or restorations [Table/Fig-1-22].

PROCEDURE

- Case history, radiographs and informed consent for each patient was taken.
- Tooth colour was evaluated with Vita shade guide and clinical photographs were taken before and after the procedure.
- Maxillary anterior teeth were polished with pumice and rubber cup. Soft tissue and adjacent teeth were protected with lubricant and rubber dam respectively.
- Patients made to wear protective sunglasses (eyewear)

1st Case



[Table/Fig-1]: Preoperative photograph of case 1

[Table/Fig-2]: Post operative photograph of case 1

2nd Case



[Table/Fig-3]: Preoperative photograph of case 2

[Table/Fig-4]: Postoperative photograph of case 2

Keywords: McInnes solution, Power bleaching

- Vital bleaching was done with McInnes solution (5parts 30% H₂O₂, 5parts 36% HCl and 1 part anaesthetic ether/alcohol) and activated with power bleaching system -LED module (Bluedent 12bl bleaching system, 430-490 nm, 1.5 amp, 50-60 hz, 24v) placed perpendicular to the tooth surface, at a period of 3min for 3 to 4 times.
- Timer and light was used with pause for reducing patient's hypersensitivity.
- Teeth were washed with water and abraded with fine grit sand paper disc each time after bleaching. Polishing was done with pumice and rubber cup.
- Patients were instructed to use dentifrice containing potassium nitrate for two weeks [Table/Fig-23].

DISCUSSION

Bleaching is a conservative method for restoring the colour of intrinsic discoloration of teeth [1]. In-office bleaching and dentist prescribed, home applied bleaching are the two most commonly utilized whitening procedures.

In-office bleaching uses different concentrations of a hydrogen peroxide (15-38%) formulation directly on the tooth surface [2]. Torres et al., indicate the use of LED devices due to their greater security in promoting selective heating over longer periods without the risk of pulpal damage [3].

Light activated power bleaching is used to enhance the bleaching action [4]. Smith and McInnes reported a formula that combined 36% hydrochloric acid, 30% hydrogen peroxide and anaesthetic ether in a 5:5:1 ratio to bleach fluorosis stain [5].

Definitely bleaching with McInnes bleaching agent gives instant results, not dependent on patient's compliance as other office

3rd case – 1st Sitting



[Table/Fig-5]: Pre-operative photograph of case 3 – 1st Sitting

[Table/Fig-6]: Post-operative photograph of case 3 – 1st Sitting

3rd case – 2nd Sitting



[Table/Fig-7]: Preoperative photograph of case 3 – 2nd Sitting

[Table/Fig-8]: Post operative photograph of case 3 – 2nd Sitting

4th case



[Table/Fig-9]: Preoperative photograph of case 4

[Table/Fig-10]: Post operative photograph of case 4

5th case



[Table/Fig-11]: Preoperative photograph of case 5.

[Table/Fig-12]: Post operative photograph of case 5

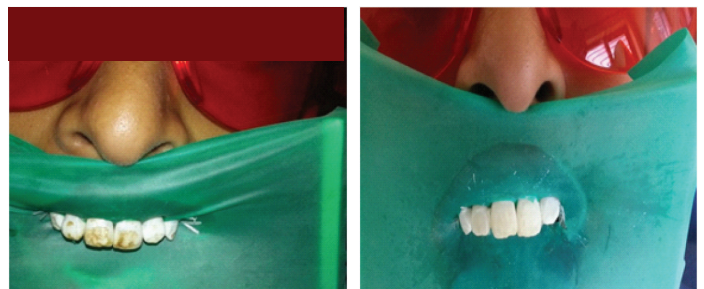
6th case



[Table/Fig-13]: Preoperative photograph of case 6

[Table/Fig-14]: Post operative photograph of case 6

7th case



[Table/Fig-15]: Preoperative photograph of case 7

[Table/Fig-16]: Post operative photograph of case 7

8th case



[Table/Fig-17]: Preoperative photograph of case 8

[Table/Fig-18]: Post operative photograph of case 8

9th case



[Table/Fig-19]: Preoperative photograph of case 9

[Table/Fig-20]: Post operative photograph of case 9

based procedures, no dehydration of the tooth occurs without any damage to the pulp. The dentist is in complete control of the process throughout the treatment. It is a fast process that the results are evident even after a single visit. Bleaching with this solution is aesthetically pleasing and minimally invasive option for young patients rather than a complete coronal covering or avoidance of material ingestion and discomfort from wearing trays by home bleaching [6].

RH Sundfeld et al., indicate the use of enamel macro reduction, enamel micro abrasion (Opalustre, ultradent product) followed by home bleaching with carbamide peroxide (Opalescence, ultradent

product) to remove the texture of the intrinsic white enamel stain of hypoplastic areas and mild erosion due to dental fluorosis [7].

In the present study power bleaching using McInnes bleaching agent was selected, as it was effective technique in treating severe type of dental fluorosis than other bleaching techniques. Two sittings were performed for type IV fluorosis case and one sitting was performed for type II fluorosis cases. The record revealed that tooth color shows a much greater change after bleaching, and that the post bleaching change in tooth color was caused both by elevation of lightness and reduction of yellowness.

10th case

[Table/Fig-21]: Preoperative photograph of case 10

[Table/Fig-22]: Post operative photograph of case 10



[Table/Fig-23]: Photograph of procedure during Power bleaching with McInnes solution

CONCLUSION

Effect of power bleaching with high intensity LED devices provide more intense bleaching for longer period without risk of pulpal damage, selective heating during bleaching, low sensitivity and effective bleaching action for type IV fluorosed teeth in short time.

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PARTICULARS OF CONTRIBUTORS:

1. Reader, Department of Conservative Dentistry and Endodontics, JSS Dental College and Hospital, JSS University, Mysore, India.
2. Professor, Department of Conservative Dentistry and Endodontics, JSS Dental College and Hospital, JSS University, Mysore, India.
3. Reader, Department of Conservative Dentistry and Endodontics, JSS Dental College and Hospital, JSS University, Mysore, India.
4. Lecturer, Department of Conservative Dentistry and Endodontics, JSS Dental College and Hospital, JSS University, Mysore, India.
5. Lecturer, Department of Conservative Dentistry and Endodontics, JSS Dental College and Hospital, JSS University, Mysore, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Parinitha M S,
#54,7th main, First Stage, Brindavan Extension, Mysore-570020,Karnataka , India.
Phone : 9449609385, E-mail : parinithams@yahoo.co.in

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