COMMENTARY

Clinical Evaluation of Enamel Microabrasion for the Esthetic Management of Mild-to-Severe Dental Fluorosis

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In 1984, 5 years before "Nightguard Vital Bleaching" was introduced by Haywood and Heymann,¹ Dr. Robert McCloskey, in his *Journal of the American Dental Association* article, gave widespread attention to the work of Colorado's Dr. Walter Kane.² In the early 1900s, treating many patients who had brown and white discoloration associated with endemic fluorosis, Dr. Kane used muriatic (hydrochloric) acid, in a controlled manner, to literally dissolve away the superficial stain, leaving an improved appearance of the enamel surface. Over the decades, the method did not attract a wide following, in Dr. McCloskey's opinion, because most dentists were very concerned about the danger of using such powerful acid in a patient's mouth.

Intrigued by the photographs in Dr. McCloskey's article, this writer thought that mechanical abrasion combined with acid erosion, in a controlled manner, would be an ideal way to eliminate superficial enamel coloration defects. After much research with various acids and abrasive substances, and years of research and clinical experience, enamel microabrasion has become a routine clinical procedure in dentistry (D9970).³⁻¹¹

This work by Celik, Yildiz, and Yaskan represents a thoughtful, wise, and useful study of how the severity of tooth discoloration related to dental fluorosis will influence success of enamel microabrasion.¹² This idea is no simple matter. One must consider the accuracy of the diagnosis, to start with. Is the stain being observed actually fluorosis or some type of idiopathic brown or white enamel "dysmineralization?" (This is exceptionally important for the investigators to emphasize because too often dentists attribute any tooth discoloration to excess fluoride consumption, with no verification). Would dental bleaching alone improve the tooth appearance in the case of brown discoloration? Would enamel microabrasion alone do the trick? Or, perhaps would combining the two methods be the best course of action? In the most severe cases, maybe the stains are so penetrating that masking with bonded resin-based composite or porcelain veneers may be required.

Any reader of this report can be grateful to the investigators who took all of the above into consideration when structuring this study, implementing treatment of the patients, and gathering and reporting the results. It is entirely logical that their null hypothesis will be disproven. In scientific research, logic is so much more powerful when proven with actual results, scientifically obtained, and analyzed in a scholarly manner. This is exactly what Celik, Yildiz, and Yaskan have done.

REFERENCES

- I. Haywood VB, Heymann HO. Nightguard vital bleaching. Quintessence Int 1989;20:173-6.
- 2. McCloskey RJ. A technique for removal of fluorosis stains. J Am Dent Assoc 1984;109:63-4.
- 3. Croll TP, Cavanaugh RR. Enamel color modification by controlled hydrochloric acid-pumice abrasion. I. Technique and examples. Quintessence Int 1986;17:81–7.
- 4. Croll TP, Cavanaugh RR. Hydrochloric acid-pumice enamel surface abrasion for color modification: results after six months. Quintessence Int 1986;17:335–41.

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- 5. Croll TP. Enamel microabrasion for removal of superficial dysmineralization and decalcification defects. JADA 1990;120:411–5.
- 6. Cvitko E, Swift EJ, Denehy GE. Improved esthetics with a combined bleaching technique: a case report. Quintessence Int 1992;23:91–3.
- 7. Killian CM. Conservative color improvement for teeth with fluorosis-type stain. J Am Dental Assoc 1993;124:72-4.
- 8. Croll TP. Aesthetic correction for teeth with fluorosis and fluorosis-like enamel dysmineralization. J Esthetic Dent 1998;10:21-9.
- 9. Donly KJ, ONeill M, Croll TP. Enamel microabrasion: a microscopic evaluation of the "Abrosion Effect". Quintessence Int 1992;23:175–9.
- 10. Croll TP. Enamel microabrasion. Chicago: Quintessence; 1991.
- 11. Croll TP, Donly KJ. Enamel microabrasion for removal of decalcification, dysmineralization, and surface texture defects. Am J of Esthet Dent 2013;3:92–9.
- 12. Celik EU, Yildiz G, Yaskan B. Clinical evaluation of enamel microabrasion for the esthetic management of mild to severe dental fluorosis. J Esthet Rest Dent 2013 (in press).

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