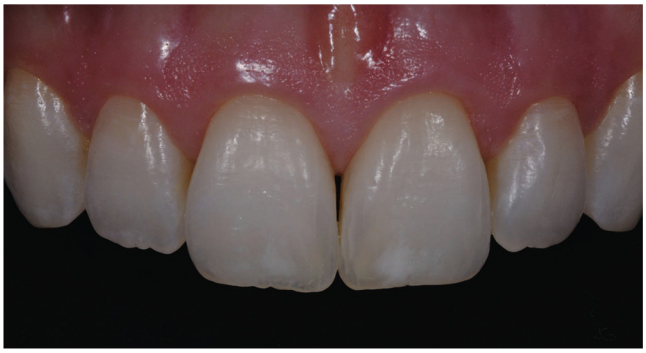

Figure 7. After 1 week of tooth whitening. (Courtesy of Romero MF, Babb CS, Delash J, et al: Minimally invasive esthetic improvement in a patient with dental fluorosis by using microabrasion and bleaching: A clinical report. *J Prosthet Dent* 120:323-326, 2018.)

Clinical Significance

Dental fluorosis can produce an unesthetic coloration of the dental enamel and results from exposures to excessive fluoride during enamel formation. Because patients who want to improve the appearance of their teeth affected by fluorosis tend to be young, minimal intervention approaches are especially appropriate. Microabrasion and bleaching offer these patients an effective way to achieve better-appearing teeth and a more attractive smile while maintaining tooth structure and costing much less than restorative dental procedures.

DISCUSSION

Microabrasion is an appropriate option for improving the appearance of teeth that are marred by dental fluorosis. Enamel loss with this technique is 25 to 200 μm, which is acceptable for clinical use. The result of the microabrasion is a prism-free enamel surface that reflects and refracts light to obtain a smooth, regular, and lustrous appearance that actually improves with time. The bleaching enhances the results of the microabrasion and can reduce the contrast between any remnants of white spot lesions or yellow appearance of the teeth.

Romero MF, Babb CS, Delash J, et al: Minimally invasive esthetic improvement in a patient with dental fluorosis by using microabrasion and bleaching: A clinical report. *J Prosthet Dent* 120:323-326, 2018

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Ceramic veneers for severe dental fluorosis

BACKGROUND

Dental fluorosis is caused by the chronic ingestion of fluoride during tooth development. It manifests as outer hypermineralization and subsurface hypomineralization. Although water fluoridation is both safe and effective as a public health measure to reduce dental caries, excessive fluoride in drinking water, that exceeding a concentration of 0.5 to 1.5 mg/L, can alter the metabolism of ameloblasts, which causes a defective matrix and improper calcification. When it affects the anterior teeth, dental fluorosis becomes a cosmetic concern. Selection of the proper method of addressing dental fluorosis is based on the severity of the problem and ranges from bleaching and microabrasion for mild cases to ceramic veneers for severe ones. A case report detailing the esthetic rehabilitation of a patient with severe fluorosis using ceramic veneers was offered.

CASE REPORT

Man, 26, of Yemen, was referred for treatment of his unattractive smile caused by generalized tooth discoloration. Clinical examination revealed generalized fluorosis and loss of the outermost layer of enamel in irregular areas that involved less than half of the entire tooth surfaces. Changes in morphology cause by pits and marked attrition were also noted (Figure 1, **B**). The dental fluorosis was classified according to the Thylstrup and Fejerskov index (TFI) as TFI 7.

Figure 1. Preoperative clinical photograph. **B,** Frontal view. (Courtesy of El Mourad AM: Aesthetic rehabilitation of a severe dental fluorosis case with ceramic veneers: A step-by-step guide. *Case Reports Dent,* Vol 2018 Article ID 4063165.)

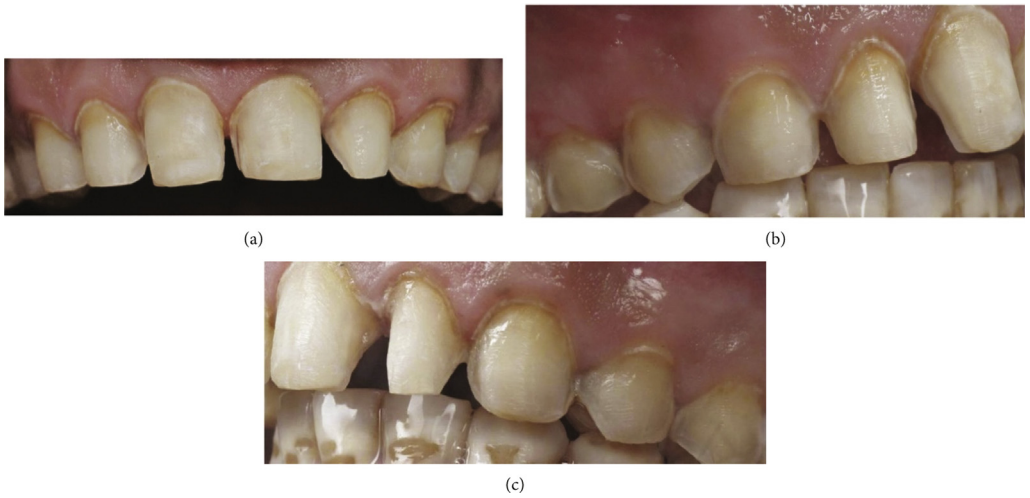

Figure 2. Maxillary tooth preparation. **A,** Frontal view. **B,** Lateral view, right side. **C,** Lateral view, left side. (Courtesy of El Mourad AM: Aesthetic rehabilitation of a severe dental fluorosis case with ceramic veneers: A step-by-step guide. *Case Reports Dent,* Vol 2018 Article ID 4063165.)

Radiographs, preoperative photographs, and upper and lower alginate impressions were obtained for the diagnostic models. The treatment options, which included ceramic or composite veneers, were presented to the patient, who selected smile enhancement with ceramic veneers for the upper teeth from his upper right second premolar to the upper left second premolar. Veneering of his lower teeth was postponed for financial reasons. The occlusion was evaluated and a diagnostic wax-up was prepared so the patient could preview the desired appearance of his teeth, as well as so the dentist could have a clear matrix for temporary restorations prepared.

The desired shade was selected, then the enamel of the 8 maxillary teeth was prepared to a depth of 0.5 to 0.75 mm facial reduction and 1.5-mm incisal reduction (Figure 2). A chamfer finish line was maintained at the gingival margin level, with the proximal margin extended into the facial and gingival embrasures.

Gingival retraction was accomplished using retraction cords soaked in a hemostatic agent. Impressions were obtained, followed by spot etching on the facial surface of each prepared tooth with 37% phosphoric acid for temporization. Bonding agent was applied to the etched spots and light cured for 20 seconds under high-intensity light-emitting diode (LED) curing light. The clear matrix was loaded with temporization material and placed over the prepared teeth. The matrix was gently removed, followed by removal of the partially cured temporization material. Facial and lingual embrasures were refined, the occlusion adjusted, and the temporary restorations polished.

A lithium disilicate–reinforced glass ceramic material was used to fabricate the ceramic veneers. The temporaries were removed and the teeth cleaned before ceramic veneer try-in was done to assess the marginal adaptation and shade. The veneers were then prepared for bonding. The fitting surfaces were etched with hydrofluoric acid for 60 seconds, washed under running water for 60 seconds, and dried with an air syringe. Silane coupling agent was applied to the veneers' fitting surfaces and air-dried, then the prepared teeth were etched for 30 seconds, rinsed, and dried. A clear mylar strip was placed interproximally to prevent inadvertent bonding to adjacent teeth and to facilitate the removal of excess resin cement in embrasure spaces. A bonding agent was applied to the prepared tooth surfaces, then a bonding agent was applied to the tooth surfaces. The inner surface was covered with light-cured resin cement and the veneers were carefully positioned on the teeth under gentle pressure. Light curing was done after the excess resin cement was removed. The veneers were sequentially placed, with the central incisors done first, then the 2 lateral veneers, then the 2 canine veneers, and finally the veneers on the first and second premolars.

Gingival flash of the resin luting cement was removed, the ceramic margins were finished, and the embrasure surfaces were contoured. Occlusion was evaluated, then flossing was done to ensure interproximal contacts were patent. The ceramic veneers were polished, with a final surface luster achieved using diamond polishing paste with a rubber prophylaxis cup (Figure 4, **A**). The final result was well received by the patient.

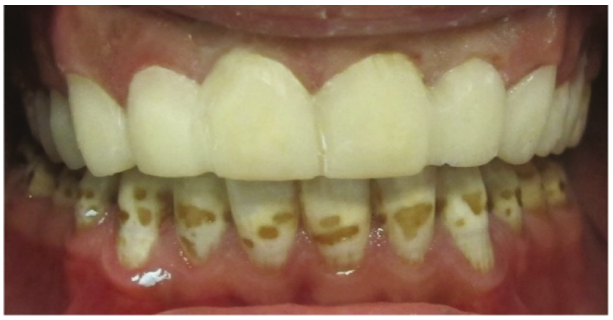

Figure 4. Postoperative clinical photograph. **A,** Frontal view. (Courtesy of El Mourad AM: Aesthetic rehabilitation of a severe dental fluorosis case with ceramic veneers: A step-by-step guide. *Case Reports Dent,* Vol 2018 Article ID 4063165.)

Clinical Significance

Ceramic veneers provide excellent esthetic results when used to address severe dental fluorosis. Improving the smile in this way often offers the effect of improving the patient's self-esteem and sense of confidence, as well as his or her smile.

DISCUSSION

The goal of treatment for these teeth discolored by dental fluorosis was to improve the patient's smile and rehabilitate the teeth esthetically. The ceramic veneers are the treatment of choice to mask severe tooth discoloration. They allow complete coverage of the discolored tooth and require minimal reduction in sound tooth substance. Advances in ceramic materials now provide both predictable and long-lasting esthetic restorations.

El Mourad AM: Aesthetic rehabilitation of a severe dental fluorosis case with ceramic veneers: A step-by-step guide. *Case Reports Dent,* Vol 2018 Article ID 4063165

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FLUORIDE

Refusal of fluoride use

BACKGROUND

The use of fluoride to prevent or reduce caries is supported by professional medical and dental associations. Evidence shows that water fluoridation represents a safe, costs-effective way to expose populations to the benefits of fluoride. In addition, fluoride in toothpastes and rinses, as well as professionally applied varnishes, gels, and foams, provides benefits in terms of fewer carious lesions. Despite these clear health benefits, some concerns of caregivers result in their refusal to provide topical fluoride for their children or themselves. The extent to which this is a problem, trends in the refusal of fluoride, and perceived reasons for refusal were evaluated through a survey of dental professionals in 2015 and 2016.

METHODS

The 8-item survey was completed by a convenience sample of 582 dentists and other dental health professionals. In addition to gathering information about the extent of fluoride refusal, trends in refusals, reasons for refusal, and practitioners' comfort level in addressing fluoride refusal behaviors, various views based on geographic location were also explored.

RESULTS

Most participants came from the western United States, and about half were pediatric dentists. About 80% of the practitioners were in private practice.

Fluoride Refusal

Fluoride refusal was seen as a problem by 79.5% of the 582 participants, with 19.9% judging it to be a medium-sized or big problem and 59.6% a small problem. Forty-two percent saw it as a problem that was increasing, about 37% saw it as static, and about 7% saw it as getting better. Of the dentists who saw it as a problem, a significantly larger proportion believed it was a growing problem compared to those who believed refusal was not a problem. When asked about talking to those who refused fluoride with the goal of changing their minds, 37% were extremely or somewhat uncomfortable with this task, 38%

Clinical Significance

Among dental practitioners in the United States, fluoride refusal presents a significant problem. Three possible reasons for this are (1) the reliance of caregivers on information gathered from the internet rather than from reputable sources, (2) changes in parenting styles that have parents taking a more active role in making health care decisions, and (3) possibly a growing mistrust of dental professionals, likely based on concerns that are not addressed by open communication between caregivers and dental professionals. Dentists and other health care professionals must be the ones who implement any interventions to change the course of fluoride refusal patterns. Therefore they need to be given adequate training on how to implement chairside behavior change strategies and sufficient information to be able to understand the reasons for fluoride refusal and discuss those reasons using evidence-based information and stressing the positive aspects of this intervention.