

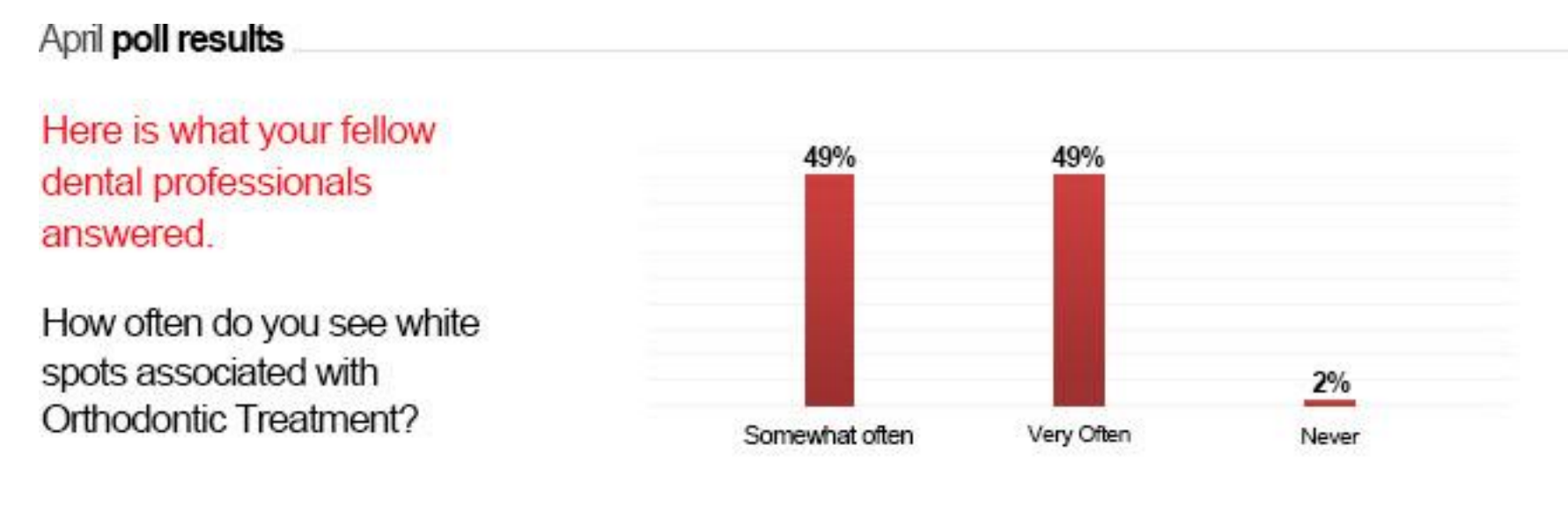
Patient Satisfaction of Esthetics with Resin Infiltration

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Introduction

White spot lesions (WSLs) are a concern for many dentists, orthodontists, and their patients. White spot lesions are a result of demineralization of tooth enamel that occurs from an acid challenge, weakening the enamel structure and distorting its appearance. A white spot lesion is evidence of the beginning of enamel decay. A recent survey by Colgate shows that 98% of dental professionals see white spots associated with orthodontic treatment.



Much research has been done demonstrating the formation, prevention, and treatment of white spot lesions. Until recently, methods for treating WSLs were limited to remineralization by fluoride, enamel whitening, microabrasion, or invasive restorations such as composite or porcelain veneers. Studies have also demonstrated that nearly half of orthodontic patients develop at least one WSL within the first year of treatment, creating an esthetic problem for many patients. Resin infiltration has already been shown to be an effective technique at masking WSLs as well as maintaining color stability over 6 months. Having clinically demonstrated that resin infiltration is an effective method of masking white spot lesions, this study evaluated patient satisfaction with the esthetic improvement of the treatment. While spectrophotometers can scientifically measure change in color, the patient's own feedback about improvement is the gold standard in determining satisfaction.

Methods

Patients who were identified with WSLs and consented to treatment were given a survey which was completed during the treatment visit. All questions were assigned answers which corresponded to values from 1-5 on a Likert Scale. Prior to treatment, patients were asked how important the appearance of their smile is to them, and how much the white spots on their teeth are bothersome. Pre-op pictures were obtained.

Supplies were provided by DMG America, the manufacturer of ICON. Treatment was rendered according to manufacturer instructions, and included the following: The teeth to be treated were isolated with a dental rubber dam and cleaned of natural biofilm. An acid etch (15% HCl gel) was applied to the teeth for 3 cycles of 2 minutes each, and then the teeth were desiccated with a solution of 99% ethanol. Following desiccation, the resin infiltrant was applied over a 3 minute period and cured with a dental curing light.

After treatment of the affected teeth, post-op pictures were obtained and the patient was asked to evaluate their satisfaction with the result by viewing their teeth in a mirror and by comparing the before and after pictures. Patients were asked to evaluate each individual tooth on a scale of 1-5, as well as their overall satisfaction with this treatment to mask the white spots.



Figure A: Icon Resin Infiltration materials.

Results

To date, only 2 patients, with a total of 10 teeth, have been treated with this method.

When asked about the importance of the appearance of their smiles, both patients answered "extremely important (5/5)", however when asked how much the white spots are bothersome, one patient answered "somewhat (3/5)" while the other answered "extremely (5/5)."



Figure B: Photograph showing maxillary anterior teeth before resin infiltration.

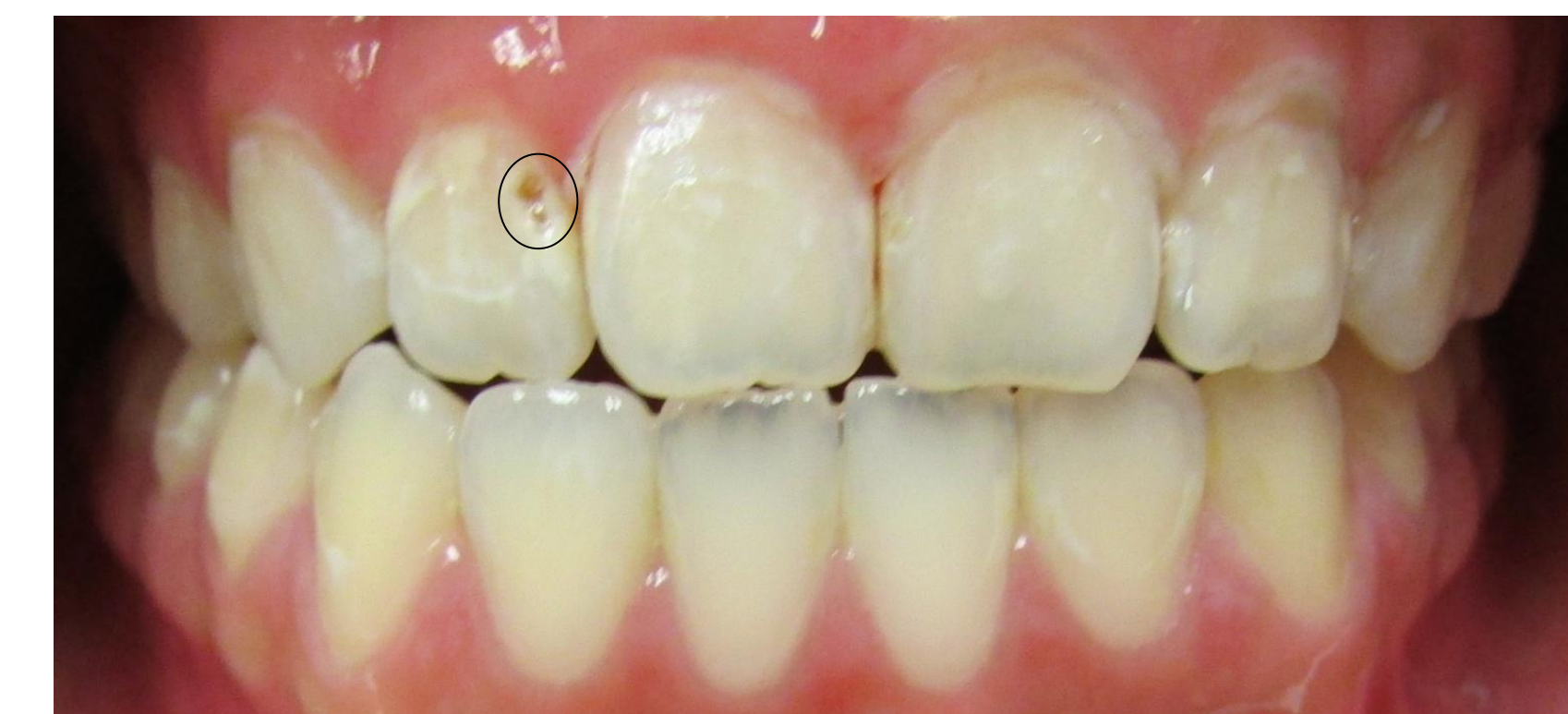


Figure C: Photograph showing maxillary anterior teeth after resin infiltration.

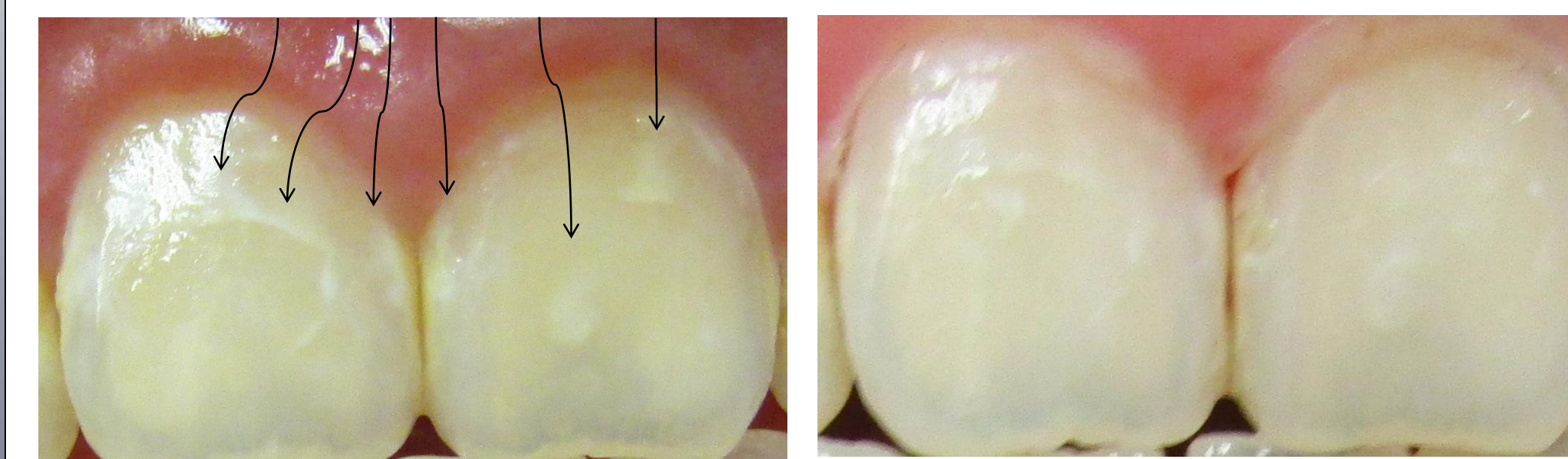


Figure D: Close up of white spot lesions (arrows) on teeth #8 and 9 prior to treatment.

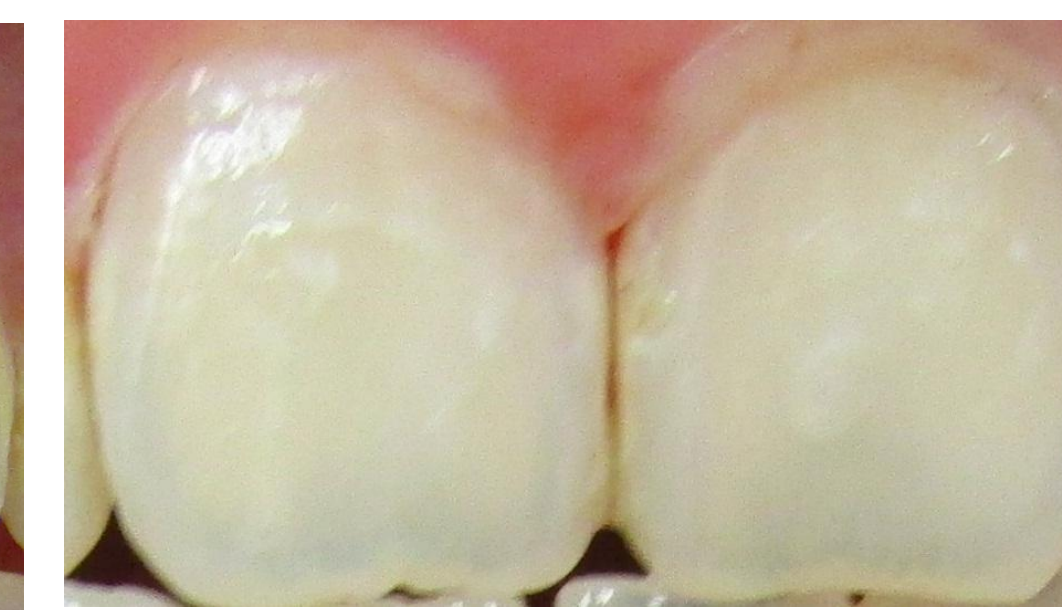
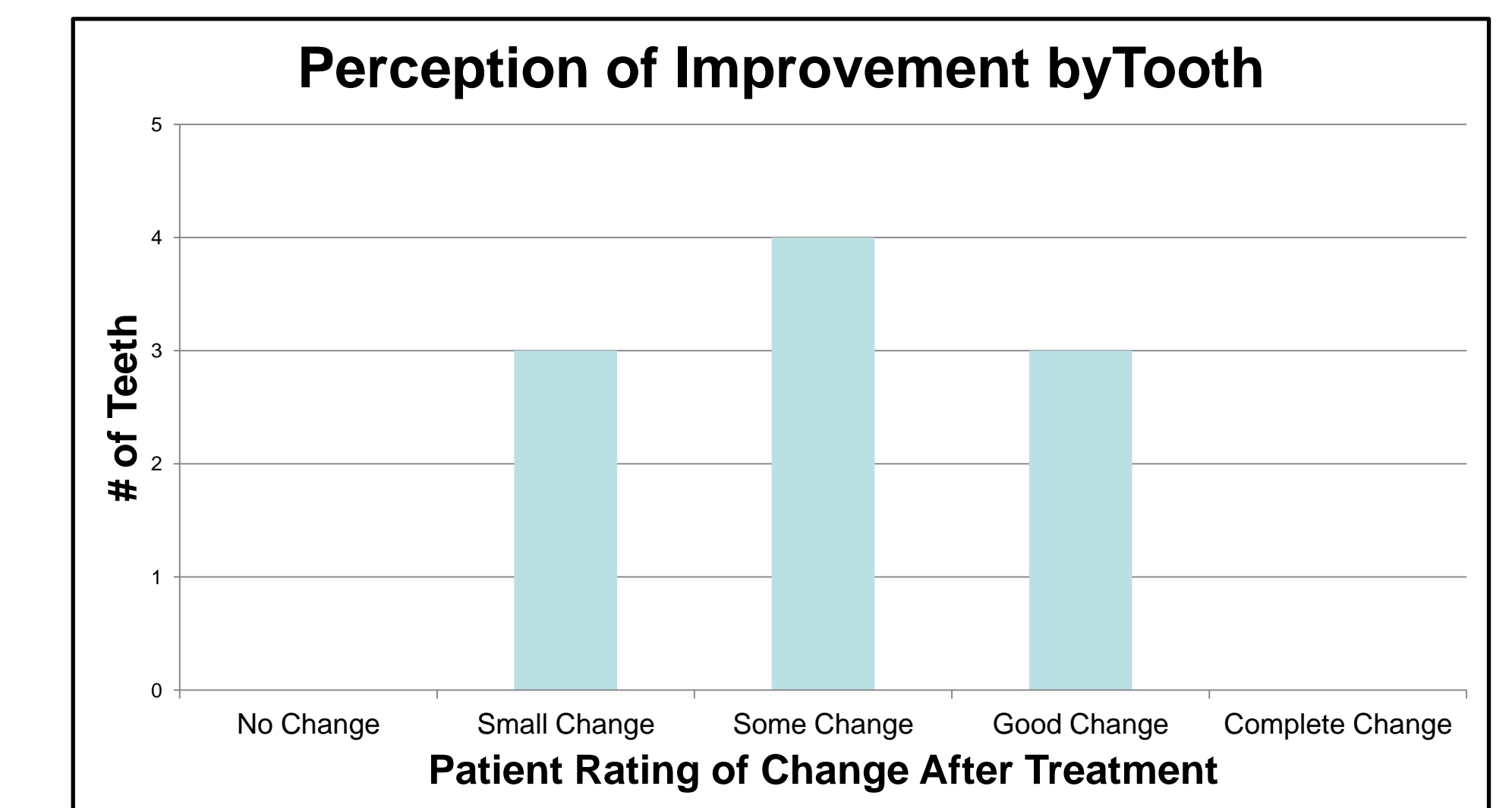


Figure E: Close up of teeth #8 and 9 after resin infiltration.

The graph below demonstrates patient perception of improvement immediately following resin infiltration of WSLs, where each individual tooth treated was evaluated.



When asked about overall satisfaction with this treatment to hide the white spot lesions, one patient was "satisfied (3/5)" while the other was "very satisfied (4/5)."

Discussion

Further research and a larger sample size are necessary to draw any definitive conclusions about patient satisfaction using this method, however the initial results seem promising. It is important to detect WSLs early during orthodontic treatment and encourage patients to improve their oral hygiene, both to avoid future esthetic problems and more importantly to prevent decay, which can result when a WSL continues to undergo a process of demineralization and becomes cavitated, as is shown the pictures to the left. It is also important to educate patients who do have WSLs that there are a variety of methods that dentists and orthodontists can use to treat them and lessen their appearance.

Bibliography

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