



STUDY OF THE EFFECT OF A FILLED FLUORIDE RELEASING ENAMEL SEALANT VERSUS FLUORIDE VARNISH ON INITIALLY DEMINERALIZED ENAMEL

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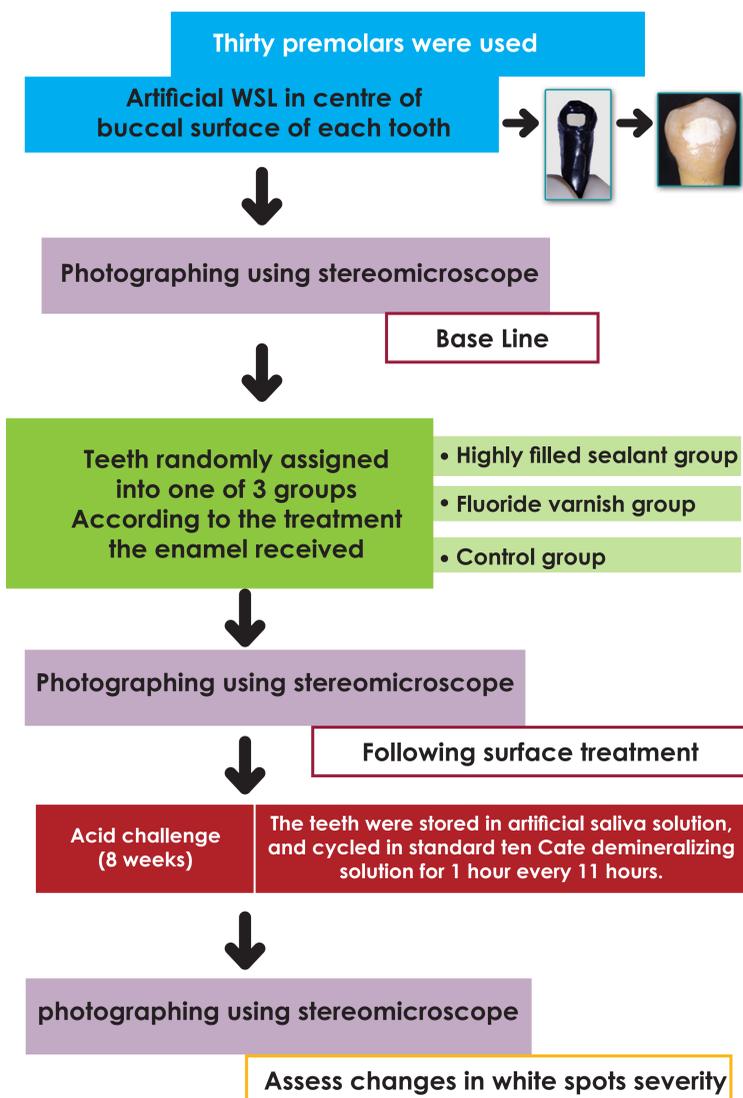
Introduction

- The occurrence of white spot lesions (WSL) during ongoing orthodontic treatment is not an uncommon finding.
- Such lesions can be clinically induced within a span of 4 weeks^{1, 2, 3}.
- If such lesions were left without intervention to prevent their progression, they may turn into true cavitations due to the continuous drop in plaque pH accompanying fixed orthodontic appliances⁴.

Null hypothesis of the study

No difference on artificially induced white spot lesions would be observed with the use of either fluoride varnish (Fluor protector)* or a highly filled, fluoride releasing enamel sealant (Pro Seal)**.

Material and methods



Statistical methodology:

- Descriptive statistics were calculated as frequency and percents for scores of white spots severity.
- Scores of Severity of white spot lesions were compared across groups using chi square since no cases were recorded to have scores "0" and "1" changing the scores into a nominal scale.

RESULTS (Fig. 1 and fig. 2)

- Neither fluoride varnish nor Pro Seal application changed the severity or the appearance of the artificially induced white spots.
- Changes in WSL after 8 weeks of cycling between artificial saliva and ten Cate solution (diagram 1).

Filled sealant group

The severity and appearance of WSL of all the specimens remained the same

No diffusion of the white spots nor cavitation

Varnish group

8 teeth kept the same appearance of the white spot lesions

2 teeth showed diffusion of the lesions

Control group

4 teeth showed diffusion of the white spot lesions

6 teeth showed cavitation

Diagram 1: Changes after 8 weeks of cycling between artificial saliva and ten Cate solution.

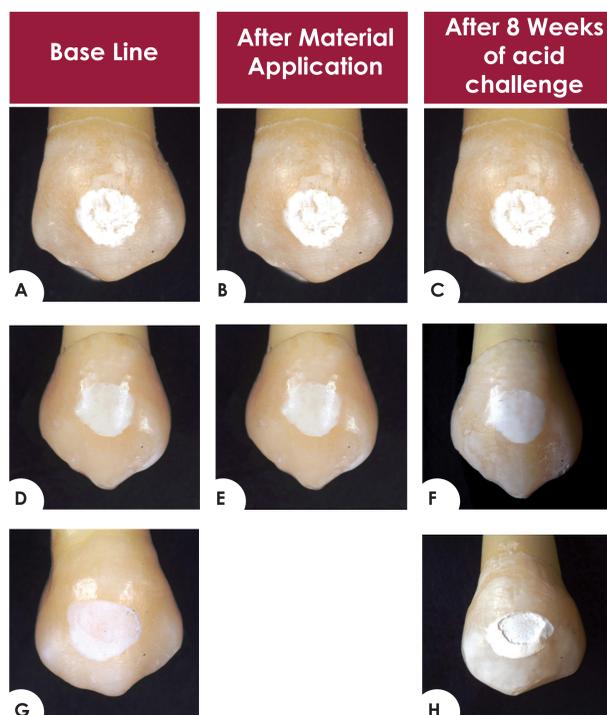


Fig. 1. A representative premolar from each group. Pro Seal group (A, B and C); fluoride group (D, E and F); control group (G and H).

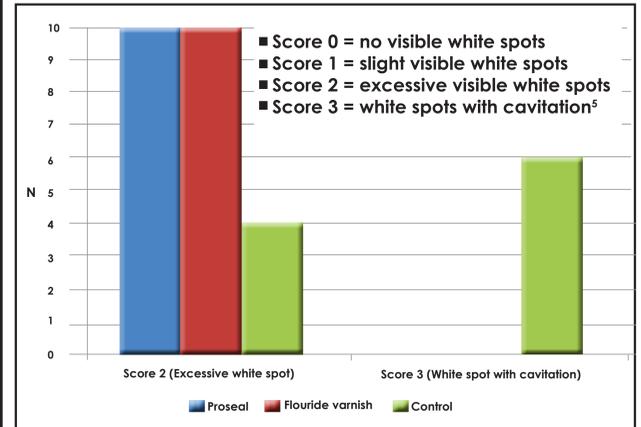


Fig. 2: Bar graph showing comparison of the severity of white spots between the study groups after 8 weeks of acid challenge.

Discussion

- In the current study, no specimens in the fluoride varnish group showed cavitation, and none of the specimens showed regression of the lesion. However, in vivo studies^{6, 7, 8} showed fluoride varnish ability to cause WSL regression.
- In the current study, all the lesions were static in the filled sealant group with no progression or regression of any of the lesions. however, In vivo studies using non-filled resins^{9, 10, 11} showed regression of some of the lesions after sealant application.

CONCLUSION

- Once white spot lesions develop, their progression is likely and may lead to cavitation.
- Application of fluoride varnish or Pro Seal to white spot lesions appeared to be effective to stop the progression of these lesions, though did not show potency for their reversal.

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*Fluor Protector, Ivoclar Vivadent, Amherst, Massachusetts
 **Pro-Seal, Reliance Orthodontic Products, Itasca, Illinois