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

Sherief H. Abdel-Haffiez\(^a\), Abbas R. Zaheb\(^b\), Nadia M. Elharouny\(^b\)

\(^a\)Assistant Lecturer of Orthodontics, Faculty of Dentistry, Alexandria University, Alexandria, Egypt

\(^b\)Professor of Orthodontics, Faculty of Dentistry, Alexandria University, Alexandria, Egypt

---

**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\(^1\),\(^2\).
- 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 appliances\(^3\).

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**

- Thirty premolars were used
- Artificial WSL in centre of buccal surface of each tooth
- Photographing using stereomicroscope
- Teeth randomly assigned into one of 3 groups According to the treatment the enamel received
  - Control group
  - Fluoride varnish group
  - Highly filled sealant group
- Photographing using stereomicroscope
- Following surface treatment
  - Acid challenge (8 weeks)
  - The teeth were stored in artificial saliva solution, and cycled in standard ten Cate demineralizing solution for 1 hour every 11 hours.
  - photographing using stereomicroscope
- Assess changes in white spots severity

Statistical methodology:

- Descriptive statistics were calculated as frequency and percent 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).

![Diagram 1: Changes after 8 weeks of cycling between artificial saliva and ten Cate solution.](image)

**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\(^4\),\(^5\),\(^6\) 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\(^6\),\(^10\) showed regression of some of the lesions after sealant application.

**CONCLUSION**

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

**References**