คณะทันตแพทยศาสตร์
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P5-4 The SEM-EDX analysis of artificial proximal enamel caries adjacent to an alkasite restorative material.

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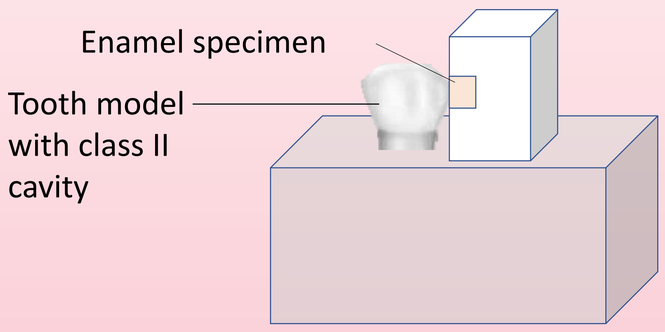
Introduction:

Caries management on an early lesion of the proximal tooth surface provides the opportunity to arrest the progression lesion. Fluoride ions play a pivotal role in the remineralization of enamel lesions and inhibit demineralization. Moreover, fluoride-releasing restorative materials can prevent the development of secondary caries. An alkasite restorative material is a resin-based ion releasing material. Several studies reported it released calcium, phosphate, and fluoride. Therefore, this alkasite restorative material should prevent enamel caries progression on adjacent tooth.

Objective: To evaluate the topography of artificial proximal enamel caries adjacent to an alkasite restorative material.

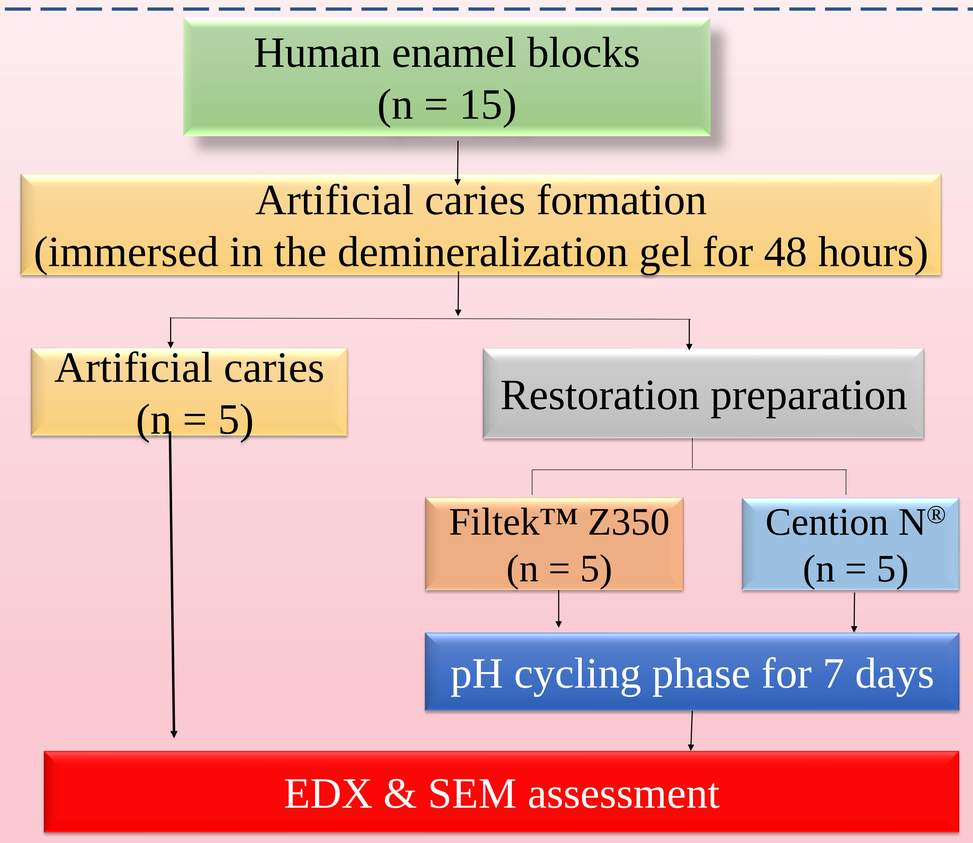
Materials & Methods:

Preparation of restorations



Resin composite (Filtek™ Z350)

Alkasite restorative material (Cention N®)



Results:

The SEM images of alkasite group indicated greater mineral deposition than the control group (Fig. 1). The mean fluoride content of the alkasite group increased significantly compared to the control ($p<0.05$) (Fig. 2).

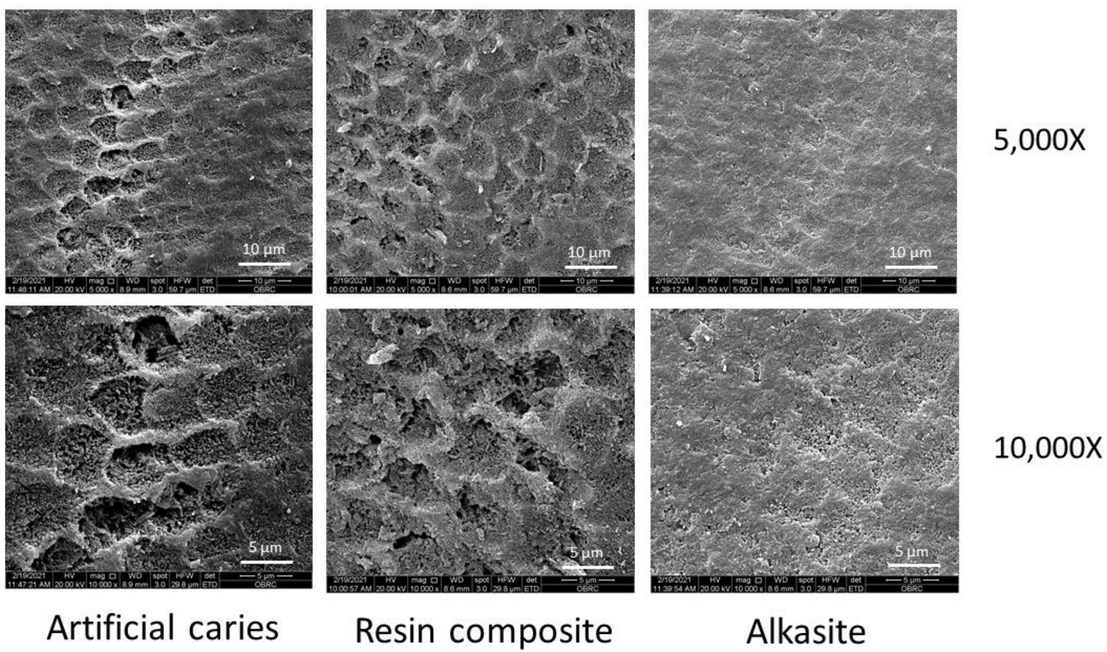


Fig.1 The SEM images of enamel specimens before (artificial caries) & after contact with restorative materials. The images illustrated at 5,000x and 10,000x.

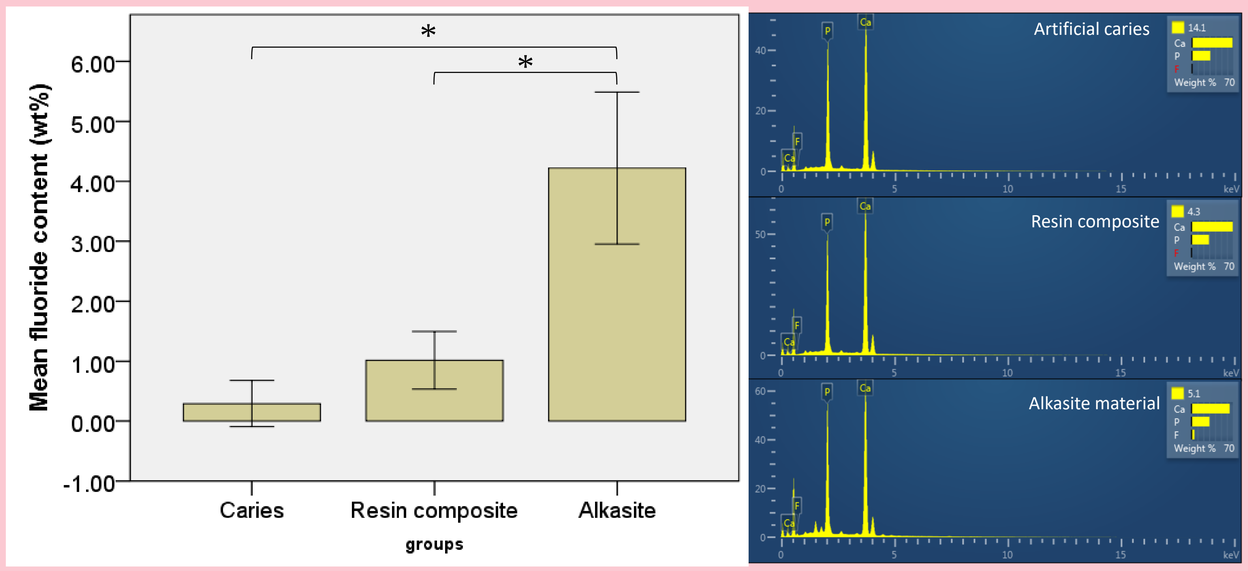


Fig.2 Mean fluoride content on surface specimen determined by EDX analysis.
* indicated statistical significance between groups by using Tukey's Post Hoc Test ($p<0.05$).

Conclusion:

An alkasite restorative material significantly increased mineral deposition on adjacent artificial enamel interproximal caries compared with a resin composite. Therefore, An alkasite restorative material could be an alternative restorative material to arrest enamel lesions in approximal adjacent surfaces.

References:

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