READER'S FORUM

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Modification of surface pretreatment of white spot lesions to improve the safety and efficacy of resin infiltration.

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First of all, we want to thank and congratulate the authors for this very informative and well-presented article. Nonetheless, we do have several questions that confuse us a lot, which are listed below.

Q1. The abrasion difference of the bovine teeth in different ages is large, which would result in complicated structure difference, such as enamel thickness that would influence the experiment results. Therefore, we wonder the age range of the bovine teeth in this experiment and how to make sure the enamel thickness of them no difference. Besides, the physical, chemical properties and structures of the bovine teeth are not the same with human teeth. Though the bovine teeth are easy to get, human teeth from orthodontic patients who are extracted premolars are easier and this doesn't obey the ethics. Then why not choosing the human orthodontic extraction teeth?

Q2. The infiltrant could inhibit the progression of white spot lesions and resolve associated esthetic issues as its huge advantages. However, the intensity of the infiltrant as a low-viscosity resin is not very well. Thirty-seven percent phosphoric acid in the study could make higher pore volumes, which meant

more infiltrant was easier to enter, but the problem was higher pore volumes would make the intensity of the tooth-obturator layer smaller. And if the intensity is not large enough to support the normal masticatory function, clinical application will have much inconvenience. So, have the authors considered some researches about the intensity of the infiltrant?

Q3. Usually, we use the chemical method only to obtain the acid surface and wash it by water only for protecting it. The authors combined the chemical and mechanical methods to obtain better acid effect. However we are wondering whether the mechanical method will destroy the acid surface and lead to bad bonding effect.

Questioned by

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A1.

1) The exact age range of the bovine teeth is not known in this study; however, it was assured that only permanent teeth were used.

2) In addition, producing early caries lesions of similar depths was more crucial than obtaining specimens with similar enamel thicknesses. Therefore, in our study, the artificial caries lesions were fabricated under identical conditions, and hence, their relatively uniform structure, lesion depths could be obtained.

3) In this study, we focused on technically practicing and examining the suggested pre-treatment using bovine teeth before an experiment with natural lesions of human teeth was performed. However, a follow-up study with human teeth was performed, and the article has been

published.¹

A2. First of all, resin infiltration is applied to labial or buccal surfaces, which does not interfere with the masticatory function. Hence, we concentrated more on increasing resistance to cariogenic acid rather than to mastication. In the follow-up study with natural lesions of human teeth mentioned above, we attempted to increase the penetration of infiltrant while minimizing the removal of well-mineralized surface layers. As a result, the removed thicknesses of surface layer were decreased to more than a half using the suggested method, when compared to the conventional method of resin infiltration (positive control group).¹

A3. As already mentioned in the discussion of our study, in adhesive dentistry, etching patterns with rough surfaces are considered to be most suitable for retention in resin restoration.² However, the main purpose of our study was to obtain deep penetration of resin. Smooth etching

patterns produced by 37% H₃PO₄ using the brush would be more advantageous for resin infiltration because when the infiltrant penetrates the lesion body, there is nothing left on the top of the surface unlike restoration resins or fissure sealants, which end up covering the tooth surfaces.

Replied by

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