

39<sup>th</sup> Asia-Pacific

## DENTAL AND ORAL CARE CONGRESS

October 26-28, 2017 Osaka, Japan

**Performance of laser fluorescence for residual caries detection in primary teeth****Abdulmajeed Sultan Al Enazi**

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**Objectives:** The aim of this study was to evaluate the performance of a visual-tactile examination and a laser fluorescence device for detecting residual dentinal caries after carious dentin removal with bur excavation, hand excavation and chemo-mechanical excavation (Carisolv™).

**Methods:** 30 extracted coronal caries primary second molars were used. The caries infected dentin has been removed. A blinded examiner checked all cavities for residual caries using a visual-tactile examination and laser fluorescence. Then the teeth were sectioned through the prepared cavities and the two halves of each tooth were processed for light microscopy and scanning electron microscopy (SEM). The presence or absence of residual caries was verified using polarized light microscopy as the gold standard. The cavity floor dentin after removing carious dentin was examined using SEM.

**Results:** In among all groups a significant difference is determined between visual-tactile examination and laser fluorescence ( $P < 0.05$ ). There was an agreement between laser fluorescence or visual-tactile examination and histological gold standard ( $P > 0.05$ ). In addition, SEM images of the surfaces with the caries removed have shown that a vast majority of the tubule openings is observed to be open in the samples of the carisolv group in opposition to the other groups.

**Conclusion:** The laser fluorescence system could be effective in checking the removal by other methods, such as bur or carisolv and avoid excessive removal of the sound dentin.

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