

## **Reliability of Different Radiological Methods of Detection of Cavitated Lesions**

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Dental caries is the most important disease encountered by the dental practitioners. Multiple modalities are available to detect dental caries and radiological methods constitute the most important modality. As there are different types lesions involving different types of teeth and there are different types of radiological methods available to detect them, identifying the correct modality for the correct lesion and tooth is important. Aim of the present study was compare the reliability of different radiological modalities in detection of different types of cavities in different teeth and to identify the best possible radiographic technique. Extracted human non carious teeth were used in the study. Class I – Class V cavities were prepared accordingly. Teeth were then embedded in sequence using acrylic resin to reproduce the arch relationship. All the sets of teeth were exposed with different types of radiographic modalities under the standard techniques and settings. Statistical analysis was performed using Minitab. According to the results, different techniques gives different results with different types of cavities and teeth. Best radiographic view for class II mesial lesions in inner half of dentine for 14, 17, 26, 44 are CBCT whereas for 27 and 47 is direct digital periapical radiograph. Similar lesions in 16 and 45 are best shown in panoramic tomography while such lesions in 46 is are best identified in digital indirect periapical radiograph using phosphor plates. Considering the results of the present study, RVG digital intraoral systems and CBCT can be recommended over conventional film radiography due of their higher accuracy in detecting carious lesions. RVG direct digital system is preferred in routine practice due to lower levels of radiation exposure. The best diagnostic outcomes are likely to be achieved through the combined use of different caries detection modalities. The research grant from the University of Peradeniya (RG/2016/24/D) is acknowledged.

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