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**Title:** Evaluation of the accuracy of a novel method of proximal caries detection method.

**Authors:** Akbari M, Associated Prof, akbarim@mums.ac.ir
Hoseini zarch H, Assistant Prof hosseinizh@mums.ac.ir
Movagharipoor F, Dentist
Dental faculty of Mashhad university of medical sciences

**Abstract:**

Introduction: Accurate diagnosis of proximal caries before any intervention is important because they could be remineralized if the enamel surface is remained intact and it can prevent unnecessary cavity preparation.

Aim: The objectives of this study were to compare the sensitivity, positive predictive value and specificity of different diagnosis methods including DIAGNOdent pen laser and an innovative approach for proximal caries detection.

Material and methods: The sample consisted of 44 proximal surfaces from 38 patients that suspicious radiolucency seen in their bitewing radiographs. The proximal surfaces were examined by: 1. DIAGNOdent pen laser, 2. secondary bitewing radiography (BW) after pushing a radiopaque material into the proximal contact area (innovative approach) and 3. gentle touching of proximal surface by a dental explorer after placing an orthodontic separator in proximal contact for 24-48hr as the gold standard.

Results: The sensitivity and specificity of DIAGNOdent pen laser were 1 & 0.919 and those of secondary BW were 0.857 & 1, respectively. The positive predictive value for the DIAGNOdent was 0.7 and 1 for the secondary BW method.

Conclusion: Considering the ease of use, safety and high sensitivity of DIAGNOdent laser, this device can be used for differential diagnosis of cavitated proximal surfaces that really need restorations. The innovative method of proximal caries detection as used in the present study in order to high positive predictive value and sensitivity serve as a suitable adjunct in proximal caries detection.

- Proximal caries- DIAGNOdent laser- Bitewing radiography

**Presentation:** Oral