

**COMPARISON BETWEEN DIAGNOSTIC
ACCURACY OF PANORAMIC AND BITE -WING
RADIOGRAPHY FOR THE DETECTION OF
PROXIMAL CARIES IN POSTERIOR TEETH OF
IRAQI SAMPLE**

**A thesis submitted to the council of the College of Dentistry at the
University of Baghdad, in partial fulfillment of the requirements
for the degree of Master of Science in Oral Radiology**

**BY
FATIN KHUDHEIR ABBAS
B. D. S**

**Supervised By
Prof. Dr. WIDAD F. AL- SAHHAR**

Nov.\2005

Shawal\1426

Abstract.

This study was designed to compare between diagnostic accuracy of bite-wing and panoramic radiographs in the detection of proximal caries on posterior teeth of Iraqi sample.

The diagnostic accuracy of bite-wing and panoramic radiographs were compared by four experienced examiners, two oral radiologists, and two specialists from conservative department, in which they assessed the proximal carious lesions of (900) surfaces of posterior teeth, of (45) patients, who attended AL-Alwiya specialized center for dentistry, along Feb. of 2005 until May of the same year.

Inter-examiner and intra-examiner calibration proved the accuracy of the examiners in the detection of proximal carious lesions of the radiographs.

The diagnostic findings were tabulated and statistical analysis of the results by using student t-test and ANOVA-test were performed, and arranged in tables.

In experiment 1, comparison between bite-wing and Panoramic radiographs for detection of the radiographic presence of proximal caries regardless of the depth of the lesion.

According to the presence of proximal caries (definitely present and definitely not present).

The results showed that the mean number of proximal surfaces involved with caries on bite-wing radiographs were (269.75) in comparison to (144) on panoramic radiographs.

Student t-test showed that there are high significant differences between bite-wing and panoramic radiographs in the detection of proximal caries, ($P < 0.0001$).

The accuracy rate of bite-wing radiographs in the detection of proximal caries was (100%) while the accuracy rate of panoramic radiographs was (53.4 %).

In experiment 2 , comparison between bite-wing and panoramic radiographs to allow detection of Proximal carious lesions of different radiographic depths , incipient enamel caries (C_1) , enamel caries (C_2) , enamel-dentin caries (C_3) , and extensive dentinal caries (C_4).

The results showed that highly significant difference between bite-wing and panoramic radiographs and those bite-wing radiographs more accurate than panoramic radiographs in the detection of C_1 proximal carious lesions, ($P < 0.0001$).

The results show that significant difference between bite-wing and panoramic radiographs and those bite-wing radiographs more accurate than

panoramic radiographs in the detection of C₂, C₃ proximal carious lesions, (P < 0.05).

The results showed that no significant differences could be demonstrated among the two modalities in the detection of C₄ proximal carious lesions, (P > 0.05).

The results showed that the mean number of proximal surfaces involved with caries on the bite-wing radiographs rated by all examiners for different depths of caries were (68.12) in comparison to (37.25) on panoramic radiographs.

Student t-test showed that there are significant differences between bite-wing and panoramic radiographs in the detection of proximal caries (P < 0.05).

The accuracy rate of bite-wing radiographs in the detection of proximal caries was (100%), while the accuracy rate of panoramic radiographs is (54.68%).

Two senior oral radiologists examined the radiographs and decided on diagnosis of caries and their findings were used as the control.

Finally the results of this study showed that there was non-significant differences between the control and the mean of the four examiners for the detection of proximal caries (according to the radiographic depths of proximal caries), (P > 0.05).

As conclusion, there was significant difference between bite-wing and panoramic radiographs and those bite-wing radiographs more accurate than the panoramic radiographs, in the detection of proximal carious lesions.

There was significant difference between bite-wing and panoramic radiographs and those bite-wing radiographs more accurate than panoramic radiographs in the detection of C₁ (incipient enamel caries), C₂ (enamel caries), and C₃ (enamel – dentin caries), but there was no significant difference could be demonstrated among the two modalities in the detection of C₄ (extensive dentinal caries).