

94.5% and specificity of 96.8%, Interim dosimetry analysis showed that the doses for IOBs and EOBs were comparable but were slightly different for intraoral membranes.

Discussion/Conclusions: EOBs showed comparable results to IOBs in the detection of approximal caries and had similar effective doses.

Acknowledgments

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IMPACT OF FIELD OF VIEW AND SCATTER INDUCED NOISE IN DETECTION OF MB2

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Background: Cone beam computed tomography (CBCT) units provide different fields of view (FOVs) for different clinical applications. Small FOV scans are often used in endodontic treatment planning. However, endodontic pathology is also detected as an incidental finding in large FOV scans. Some machines have introduced a new feature known as *zoom reconstruction*. This essentially allows for a specific area of interest to be carved out of the original data set and made into an independent scan that will allow for evaluation of the area in better detail.

Objective(s): The objective of this study was to evaluate the number of missed canals on small FOV scans and zoom reconstruction gleaned from large field of scans.

Study Design: A total of 30 extracted maxillary first molars were used in this study. The teeth were scanned with small FOV to locate MB2 canals. The results were used as the gold standard. The teeth were endodontically treated and restored. The MB2 canal was not instrumented when it was present or detected clinically. The prepared teeth were mounted on a dry human skull and secured with sticky wax. The skull was scanned with large and small FOV scans. The areas of interest were zoom reconstructed from large FOV scans. Interobserver variations were calculated using kappa statistics. Nonparametric tests were used to compare the reading of the observers with gold standard.

Results: Kappa statistics from 0.605 to 0.650 for small FOV, from 0.350 to 0.650 for large FOV, and from -0.305 to 0.590 for zoom reconstruction. In general, the smaller FOV scans had better agreement with gold standard.

Discussion/Conclusions: Small FOV scans were found to have better detection accuracy compared with small scans gleaned out of a larger FOV scan through zoom reconstruction in its ability to detect missing root canals and pathology.

Acknowledgments

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RELATIONSHIP BETWEEN GRAY LEVELS IN CONE BEAM COMPUTED TOMOGRAPHY AND HOUNSFIELD UNITS IN COMPUTED TOMOGRAPHY.

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Background: A deficiency of studies on clinical or close clinical materials of biologic nature exists in the conversion of gray values in cone beam computed tomography (CBCT) to more logically useful Hounsfield units (HU) in multidetector CT.

Objective(s): The aim of this study was to assess the HU of various tissue materials in CT with their corresponding gray levels in 3 different CBCT units and compare their correlation individually, to compare the actual HU (aHU) values for each material with derived HU (dHU) values from gray levels using the interpolation method, and to evaluate its reliability.

Study Design: An in vitro study was conducted using a human skull model, which was coated with a soft tissue equivalent and embedded with 6 premeasured titanium implants. It was imaged with 3 different CBCT scanners and 1 CT scanner. The exported DICOM (Digital Imaging and Communications in Medicine) data were viewed in Carestream 3-D imaging software.

The data were analyzed using Pearson's correlation test to evaluate the correlation between observed aHU values from CT and the corresponding gray levels from each CBCT unit. The method of Mah et al. was used to calculate dHU from gray levels and compare them with aHU.

Results: Among the CBCT machines used, the highest correlation for implants and bone was with Kodak 9500; for teeth, Sirona Galileos; and for soft tissue and air space, Planmeca Promax. The dHU values had significant percentage differences from aHU values.

Discussion/Conclusions: 1. Although there are differences in gray values between same materials in different machines, every CBCT scanner showed good correlation between gray levels and the aHU from CT machine for at least 1 material. 2. For clinical or close clinical materials of a biologic nature, dHU using the current algorithm does not reliably correlate with the aHU of the materials.

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References

- 1 Although there are differences in gray values between same materials in different machines, every CBCT scanner showed good correlation between gray levels and the aHU from CT machine for at least 1 material.
- 2 For clinical or close clinical materials of a biologic nature, dHU using the current algorithm does not reliably correlate with the aHU of the materials.

A LATE DIAGNOSIS OF A PRIMARY INTER-OSSEOUS SQUAMOUS CELL CARCINOMA:

A CASE REPORT. A. ABDELKARIM^{A,B,C}, A.Z. SAYED^{A,B,C}, A.M. ELZAYAT^{A,B,C}, S. LOZANOFF^{A,B,C}, N. KOCHANOWSKI^{A,B,C}. ^A UNIVERSITY OF HAWAII AT MANOA, MANOA, HI, ^B CASE WESTERN RESERVE UNIVERSITY, CLEVELAND, OH, ^C SUEZ CANAL UNIVERSITY, ISMAILIA, EGYPT

Background: Primary intraosseous squamous cell carcinoma is a rare malignant central jaw tumor derived from odontogenic epithelial remnants. It predominantly affects the mandible, although both jawbones may be involved.

Objective(s): The purpose of this article was to represent the clinical, radiologic, and microscopic characteristics of a late diagnosed primary interosseous squamous cell carcinoma (PIOSCC). This case adds to the very few cases of PIOSCC in the literature.

Study Design: This case report describes a 60-year-old man who was initially misdiagnosed with a periapical infection related to the right lower wisdom tooth, that is, an infected odontogenic cyst of the mandible. After 4 months, the patient presented to a private dental clinic with a large swelling at the right side of the mandible.

Results: Extraoral examination revealed a swelling with paresthesia in the right mandibular angle. A panoramic radiograph was requested and revealed a complete erosion of the right ramus with an extension of the lesion to the body of the mandible. Advanced imaging revealed a large, ill-defined, right facial soft tissue mass lesion measuring $8.8 \times 4.5 \times 5$ cm. The microscopic examination revealed fibrofatty tissue infiltrated by a tumor mass formed of solid groups of large pleomorphic atypical squamous cells with high nuclear-to-cytoplasmic ratio and focal intracytoplasmic keratin formation. The diagnosis was PIOSCC.

Discussion/Conclusions: Radiologic and clinical characteristics of PIOSCCs are similar to those of benign odontogenic cysts and tumors. In certain cases, early-stage PIOSCC may mimic routine dental disorders, such as periapical and periodontal disease, which may lead to misdiagnosis or delayed diagnosis. Clinicians

must be aware that PIOSCC may initially present as a routine dental disorder, and that unsuccessful treatment may be a sign of underlying malignancy.

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ADEQUATE COMPLETION OF RADIOLOGY REQUEST FORMS AT NEWCASTLE DENTAL HOSPITAL: A TWO-CYCLE AUDIT. C. LOWE, N. HEATH. NEWCASTLE DENTAL HOSPITAL, NEWCASTLE-UPON-TYNE, UK

Background: The usefulness of a radiologic examination and its report can be reduced significantly if the clinical background and specific problem to be answered are not given in the request. Inadequate information can lead to mistakes in patient identification and delay in returning reports to the correct destination.

Objective(s): The aim of this audit was to assess current request forms to determine if sufficient information was provided. The audit aims to ensure the quality of care provided to patients and to identify ways to assist clinicians to provide adequate information when requesting a report.

Study Design: Data were randomly collected from 53 patient records, where a radiologic request was made from the Oral Surgery department using the current request forms. Forms were analyzed against 8 criteria and recorded as either "criteria met" or "criteria not met." Data were recorded on a collection table and analyzed to determine what percentage of radiology request forms could be deemed adequate and, when not, what the failing criteria were. A new form was then constructed considering the failings of the first cycle of data collection. The new radiology request form was then used for a period of 3 months and a second cycle of data collected.

Results: The first cycle of the audit revealed that 0% of request forms met the standard, with 100% of forms omitting at least 1 of the criteria measured. Following the implementation of the redesigned form, the second cycle revealed that 70% of all forms met all criteria and could be deemed as adequate.

Discussion/Conclusions: The new request form has dramatically improved the way the forms are completed. Marked improvement was noted in the information provided by clinicians on the new forms, showing that the new design helps to prompt clinicians to provide adequate information for reports to be generated.

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