

EVALUATION OF INCISIVE CANAL CYSTS: 2-D VS 3-D IMAGING. HAVE WE LEARNT ANYTHING NEW?. A. AHMAD, A. TADINADA. UNIVERSITY OF CONNECTICUT, FARMINGTON, CT

Background: Incisive canal cysts, also known as *nasopalatine duct cysts* (NPDCs), are developmental, nonneoplastic cysts arising from degeneration of nasopalatine ducts. They are considered the most common nonodontogenic cysts. They are usually discovered incidentally; they can occur at any age but are most commonly reported to occur in 4th to 6th decades, have a male predominance, and affect approximately 1% of the population.

Objective(s): The aim of this study was to compare the radiographic features of nasopalatine duct cysts on 2-D periapical radiographs and cone beam computed tomography (CBCT) scans to understand the value of addition of 3-D imaging in the diagnosis and treatment planning of these cysts.

Study Design: 17 cases of histopathologically confirmed incisive canal cysts were evaluated in this study. Periapical radiographs and CBCT scans of these patients were evaluated by an oral radiology resident and a board certified oral radiologist.

Results: In all cases, incisive canal cysts were seen as a solitary, well-defined, oval or round, unilocular radiolucency located between the central incisors. The size varied but was larger than 0.5 cm in diameter. The 2-D images did not always confirm the diagnosis; at least 12 cases were reported as possible cysts but needed 3-dimensional (3-D) imaging for confirmation. Analyzing the same cases on CBCT scans confirmed the diagnosis. CBCT examination showed that mesiodistal extent and importantly buccolingual expansion could be evaluated. Precise measurements could be calculated to plan for surgery. In 6 cases, root resorption or tooth displacement could be seen as an additional feature on 3-D imaging. The effects of these cysts on adjacent structures, including thinning and perforation of the buccal cortical plates, could be evaluated.

Discussion/Conclusions: The value of adding 3-D imaging compared with 2-D imaging alone was in confirming the radiographic diagnosis, evaluation of the extent of the cysts, especially the buccolingual dimensions, and the effects on adjacent structures.

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EVALUATION OF MONITOR PERFORMANCE IN CARIES DETECTION. J. ORGILL, S. ANAMALI, S. VIJAYAN, J. CASTRO, D. ALHAZMI, V. ALLAREDDY. UNIVERSITY OF IOWA, IOWA CITY, IA

Background: Digital imaging has become a staple of dentistry for diagnosis and treatment planning. Off-the-shelf displays are most commonly used to view acquired images in bright light compared with medical radiology, which almost exclusively uses autocalibrating high-resolution medical grade displays.

Objective(s): This study aimed to assess whether medical-grade displays perform better in the detection of confirmed caries on extracted teeth compared with off-the-shelf monitors. The null hypothesis stated that there is no significant difference between medical-grade and off-the-shelf displays.

Study Design: Thirty noncarious premolars and 31 carious premolars that were extracted for therapeutic reasons were examined independently by 2 evaluators, who visually (with magnification) verified the presence/absence of caries. Teeth were placed in the second premolar area of a model with 2 noncarious molars and a noncarious premolar with standardized distance and positioning from the x-ray source. Teeth were imaged with a Dexis (DEXIS. LLC, Hatfield, PA) sensor using standardized exposure parameters (7 mA, 0.08 seconds, 65 kVp). Images were randomized. Two independent, calibrated, and masked evaluators scored the images on a 5-point Likert scale for the presence or absence of caries on 4 different monitors under standardized ambient light conditions: BARCO 3 MP medical grade, a prototype BARCO 2 MP, DELL Ultrasharp, and WIDE 5 MP monochrome.

Results: Barco 3 MP and Wide 5 MP monitors led to greater accuracy compared with Barco 2 MP and Dell Ultrasharp monitors with a difference of at least 10%. Barco 3 MP was most sensitive, followed by Barco 2 MP and Wide 5 MP. Specificity was highest for Barco 3 MP and Dell, followed by Barco 2 MP and Wide 5 MP. The interobserver agreement was highest for the Barco 2 MP and Dell displays. None of the findings was statistically significant.

Discussion/Conclusions: Although there seems to be more information available on higher-resolution monitors with better accuracy in identifying carious lesions, these differences are not statistically significant.

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