

Definitive Interpretation: The scan data were able to provide the indicated periapical assessment, particularly of the third molars. Postural compromises were also noted in the anterior alignment of the odontoid process—C1 articulation and their alignment to the clivus of the occipital bone. There was also cervical vertebral aplasia with complete fusion of C2-C7. These findings were contributory to his altered posture.

Discussion of Imaging: The availability of large volume CBCT scanners, with their larger footprint, scanning circumference, and larger scanning size area, provide an imaging option for patients with mental and physical disabilities. In the past, a single large field of view (FOV) CBCT scan has been purported by CBCT manufacturers to be a one-stop imaging solution for all extraoral imaging. Dosimetry data and FDA selection criteria have since contraindicated the use of large volume FOV scanning to replace standard periapical, panoramic, and cephalometric imaging. This case report supports the alternative use of CBCT to acquire standard extraoral images when standard imaging is not possible.

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DETECTION OF PERINEURAL SPREAD OF PALATAL ADENOID CYSTIC CARCINOMA BY CT. G. GUESS, R. DALLEY, A. SHUMACHER, P. LEE. UNIVERSITY OF WASHINGTON, SEATTLE, WA

Background: A large fraction of adenoid cystic carcinoma (ACC) tumors progresses to perineural spread (PNS), with correspondingly low long-term survival rates, and ACC is often not diagnosed in early stages because the primary tumor site is hard to detect.

Objective(s): This study aimed to improve detection of ACC by better understanding the imaging features of PNS. Specific aims included (1) determining whether ACC could be effectively diagnosed by CT alone using a CT bone window to examine osseous changes; (2) determining the accuracy of CT-based diagnosis; and (3) exploring the relationship between the presenting clinical features and perineural spread.

Study Design: A retrospective medical records search was performed from 2000 to 2017 to identify patients with a diagnosis of ACC, clinical history, and pretreatment imaging with CT and/or MRI. Descriptive statistics, as well as sensitivity and specificity data, were compared using likelihood ratio test.

Results: Forty-four patients (median age 51 years; range 20–87 years) met the inclusion and exclusion criteria. The most common symptoms, not mutually exclusive, included pain (41%), mass (41%), paresthesia or numbness (39%), and sinonasal congestion (21%). Most (46%) patients presented to their dentist for initial evaluation, and 55% were evaluated by a dentist at some point before diagnosis. The most common initial impressions were infection (50%) and/or dental disease (32%). Average time to histologic diagnosis from initial symptoms was 18 months. PNS was identified in 82% of all patients. Significantly, findings of erosion and/or enlargement of any foramina, fossae, or canals noted via bone-windowed CT were 97% sensitive and 100% specific for PNS. PNS was statistically associated with paresthesia ($P = .003$; specificity 100%; sensitivity 47%) but not with tumor size ($P = .096$).

Discussion/Conclusions: Palatal ACC PNS can be reliably diagnosed via bone-windowed CT. Dentists are often the first care providers and should be aware that patients presenting with numbness should be evaluated for PNS.

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DIAGNOSTIC PERFORMANCE OF INTRAORAL AND EXTRAORAL RADIOGRAPHS DISPLAYED ON TABLET COMPUTER AND LED MONITOR RETRIEVED USING VIRTUAL DESKTOP APPLICATION AND CLOUD-BASED PACS. S.G. SARAH, A. JADHAV, S. KIAT-AMNUAY, C. YEN. UNIVERSITY OF TEXAS SCHOOL OF DENTISTRY AT HOUSTON, HOUSTON, TX

Background: Information retrieval and sharing is key for today's multidisciplinary patient care. Radiographic interpretation of conventional 2-D images is the standard protocol for most dental schools across the United States, and it is imperative to assess image quality on various display devices as well as image retrieval systems.

Objective(s): The purpose of this study was to investigate whether common dental conditions seen on conventional 2-D intraoral and extraoral radiographs can be diagnosed with the similar accuracy on handheld tablet computer and LED display as on a dedicated radiology diagnostic display. In addition, to investigate

the diagnostic and image quality of the radiographs retrieved over a virtual desktop application and a network computer.

Study Design: A total of 15 intraoral and 5 panoramic deidentified radiographs selected for this study showed a variety of common dental conditions and anatomic landmarks. Assessments were performed on a desktop computer and a tablet computer 10.5-Inch iPad Pro. All radiographs were retrieved on MiPACS and a virtual desktop application, Citrix Receiver. Each radiograph was assigned a case number and only a specific tooth was marked for diagnostic assessment. A total of 240 radiographs were assessed for general dental conditions and anatomic landmarks on panoramic radiographs.

Results: Cohen's kappa was calculated and the kappa value ranged from 0.79 to 0.89, which indicated good to very good agreement between raters. A Kruskal-Wallis H test was performed, and distributions of identification of caries, caries surfaces, bone loss, and presence of periapical lesions were similar for all groups. Median scores were not statistically significantly different between groups as below ($P > .05$).

Discussion/Conclusions: iPad and LED monitor display performed equally on their ability to diagnose common dental conditions. In addition, there were no statistically significant differences between the diagnostic ability of dentists examining images retrieved over a virtual desktop application (Remote electronic health record [EHR]) and a network desktop computer.

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DIAGNOSTIC ULTRASOUND ASSESSMENT OF TEMPOROMANDIBULAR JOINTS: A SYSTEMATIC REVIEW. F. TOLENTINO DE ALMEIDA-MARQUES, C. PACHECO-PEREIRA, C. FLORES-MIR, L. LE, J. JAREMKO, P. MAJOR. UNIVERSITY OF ALBERTA, EDMONTON, AB, CANADA

Background: Diagnostic imaging is an essential part of the evaluation of temporomandibular disorder (TMD). Magnetic resonance imaging is accepted as the reference

standard for imaging diagnosis of TMD and cone beam computed tomography (CBCT) has been the method of choice to evaluate the contours of the cortical bone and TMD osseous alterations. Although not in general clinical use, several studies have assessed ultrasound to evaluate TMJ alterations. This nonionizing imaging method is less expensive and transportable and can be easily used in a dental setting.

Objective(s): The purpose of this systematic review was to determine the diagnostic capability of ultrasound to assess TMJ alterations as disk displacement, joint effusion, and condylar changes using 3-D imaging modalities as the reference standard.

Study Design: Studies of this systematic review were gathered by searching several electronic databases and partial gray literature up to January 8, 2018, without restrictions of language and time. The risk of bias was evaluated using the second version of Quality Assessment Tool for Diagnostic of Accuracy Studies-2 (QUADAS-2). The grading of Recommendation, Assessment, Development and Evaluation (GRADEpro system) instrument was applied to assess the level of evidence across the studies.

Results: After applying the eligibility criteria, 28 studies were identified and synthesized. All studies were methodologically acceptable, presenting low applicability concerns, although none of them fulfilled all QUADAS-2 criteria. The quantitative analysis included 22 studies reporting on 2829 joints in total. The quality of the evidence evaluated by GRADE system suggested moderate confidence in estimating the outcomes.

Discussion/Conclusions: This systematic review demonstrated that US has acceptable capability to screen for disk displacement and joint effusion in patients with TMD, but not to assess condylar changes. More advanced imaging, such as magnetic resonance imaging, can thereafter be used to confirm the diagnosis, if deemed necessary.

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