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BACKGROUND: The hybrid central giant cell granuloma/central odontogenic fibroma-like (hCGCG/COF) lesion was first described in 1992 and has been reported fewer than 50 times thereafter. Separately, central giant cell granulomas (CGCG) and central odontogenic fibromas (COF) account for approximately 5% and 10% of all benign jaw tumors, respectively. Published literature reveals that the clinical, radiologic, and histologic features of hCGCG/COF lesions share similar characteristics with both entities in varying degrees; however, the precise nature of the lesions remains unclear.

CASE REPORT: A 20-year-old female patient was referred to our clinic by the Head and Neck Oncology Department for comprehensive dental care. Her clinical history began when she presented with complaints of a slowly growing mass in the left posterior mandible with increased bleeding upon toothbrushing over a 3-month period. Clinical exam revealed an expansile mass spanning from the second premolar to the retromolar pad with obliteration of the gingivobuccal sulcus, lingual cortical expansion, and tooth mobility. Neurologic deficits were difficult to ascertain. Panoramic radiography and cone beam computed tomography revealed a unilateral, well-defined, multilocular, partially corticated radiolucent entity with multiple mixed internal radiopacities spanning from the retromolar pad to the second premolar and from the alveolar crest to the inferior border; expansion and thinning of lingual cortical plate; fractured inferior border of mandible; and displacement of the second molar. She was recommended for surgical intervention and subsequently underwent a left segmental mandibulectomy with fibular free flap reconstruction and modified neck dissection. Final pathology showed hybrid CGCG/COF-like lesion; the giant cell granuloma component predominated. The patient is currently functioning well with no mandibular resection prosthesis and is receiving comprehensive care in the Dental Oncology Department.

DISCUSSION/CONCLUSIONS: This case report highlights a rare benign hybrid odontogenic entity and the successful management of the pathology. The case report provides further evidence of successful surgical treatment of hCGCG/COF without recurrence.

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DETECTION OF PRIMARY OCCLUSAL CARIES USING STATIONARY INTRAORAL TOMOSYNTHESIS: A PILOT STUDY M.H. HAMDAN, E. PLATIN, A. BROOME, and A. MOL, UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL, NC

BACKGROUND: The implementation of preventive strategies has aided in the noticeable decline of caries prevalence in developed countries. With the reduction of caries prevalence, there is a higher demand for more sensitive and accurate caries detection modalities. In this study we explore the utility of stationary intraoral tomosynthesis (s-IOT) in occlusal caries detection.

OBJECTIVE(S): In this ex vivo diagnostic accuracy study we aim to evaluate the accuracy and assess the sensitivity, specificity, and area under the ROC curve of s-IOT in detecting primary occlusal carious lesions and to compare the results with digital intraoral bitewings, cone beam computed tomography (CBCT), and the histologic standard reference.

STUDY DESIGN: Sixty de-identified extracted human teeth were selected. The teeth selected included unrestored premolar or molar teeth with fully formed roots. The occlusal surfaces exhibited a status that ranged from sound to carious lesions extending into the inner third of the dentin. Teeth with developmental defects such as hypoplasia or fluorosis were excluded from the study. The teeth were coded and randomly mounted using polyvinyl siloxane (PVS) in dental denotive forms and imaged with the 3 imaging modalities (s-IOT, IO bitewings, and CBCT). A reader study was conducted in which 3 calibrated observers were presented with the 3 imaging modalities. A wash-out period of at least 2 weeks was allowed between sessions, with 1 modality displayed per session. The readers were asked to assess their confidence in caries presence using a 5-point Likert scale and to assess caries depth. After imaging, the teeth were sectioned and histologic examination was completed to establish the ground truth reference.

RESULTS: Accuracy, sensitivity, specificity, and area under the ROC curve of the 3 radiographic modalities will be compared with the histologic standard reference. Results are pending final statistical analysis.

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OBJECTIVE(S): The objective of this study was to evaluate the diagnostic accuracy of intraoral bitewings, extraoral bitewings generated by a panoramic machine, and cone beam computed tomography (CBCT)—generated bitewings with 180° and 360° rotations in the detection of dental caries and bone loss.

STUDY DESIGN: The study examined various defects, alveolar bone levels, and interdental vertical defects in the posterior mandible in 100 interproximal surfaces in a dry human skull. Simulated cavities were created at specific locations and interdental defects were created on both buccal and lingual surfaces where measured amounts of bone were removed to simulate bone loss. Physical measurements of bone removed served as the gold standard. Intraoral bitewings were acquired using photo-stimulable phosphor sensors with a Kavo LM/CM109 x-ray tube at 70 kVp, 7 mA, and 0.125 seconds. Extraoral bitewings were acquired with a J. Morita panoramic unit at 90 kVp, 7 mA, and 5.5 seconds. CBCT scans were acquired with the J. Morita 3D Accuitomo at 90 kVp, 7 mA setting with a 40 x 40 mm FOV in the Hi-Res-Mode. Four examiners scored the presence and extent of caries and performed alveolar bone measurements.

RESULTS: No statistically significant results were noted with all imaging modalities for the diagnostic efficacy and linear measurement of the defects. kappa analysis for interobserver reliability was very high.

DISCUSSION/CONCLUSIONS: The diagnostic accuracies of extraoral bitewings generated from panoramic and CBCT machines for detecting dental caries and periodontal bone loss is comparable for all imaging modalities tested.

FUTURE DIRECTIONS: In this study there was no metallic scatter like in clinical situations, so future studies that will incorporate varying degrees of metallic scatter must be done to evaluate the diagnostic efficacy.

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ACCURACY OF LINEAR MEASUREMENTS OF THIN CORTICAL BONE ON EXPERIMENTAL SURGICAL DEFECTS IN CBCT IMAGES WITH DIFFERENT EXPOSURE PROTOCOLS: AN IN VITRO STUDY.

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BACKGROUND: Diagnostic imaging is mandatory for the assessment of osseous defects in the jaws. Traditional imaging has offered much over the decades in the evaluation of these defects but is limited because of its 2D nature. The introduction of cone beam computed tomography (CBCT), a 3D radiographic technique with interactivity, high resolution, and high accuracy, has provided solutions in the evaluation of such lesions.

OBJECTIVE(S): The purpose of this in vitro investigation was to evaluate the accuracy of representation of experimental surgical defects with CBCT using different exposure parameters. Moreover, the study aims to assess the effect of different exposure protocols on the accuracy of representation of experimental surgical defects.

STUDY DESIGN: Surgical defects were prepared in 8 pig jaw mandibular segments. The thickness of the cortical bone around the defects was measured in predetermined areas using the measurement tools of the CBCT software. In total, 48 locations were measured for bone thickness. The pig jaw specimens were imaged with 6 different exposure protocols created by altering voxel size, kilovoltage peak, and milliamperage. The measurements were made by 2 experienced examiners using the original scanner software. The evaluation of the surgical defects was completed in 4 rating sessions; a fifth rating session was included for intraobserver reliability assessment.

RESULTS: There were statistically significant differences in the estimation of cortical bone thickness around experimental surgical defects in certain sites among the variable exposure protocols; however, the differences were too small to be clinically important. The intra- and interobserver reliability values were very high, confirming the diagnostic value of CBCT in different exposure settings.

DISCUSSION/CONCLUSIONS: The accuracy of linear cortical bone measurements with CBCT was high, even in lower dose protocols, a finding that is in line with the ALADA (as low as diagnostically acceptable) concept.

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ATYPICAL AND PROMINENT PNEUMATO-CYST IN THE CERVICAL VERTEBRAE AS AN INCIDENTAL FINDING ON CBCT: A CASE REPORT.

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BACKGROUND: A pneumatocty is an intrasosseous gas collection. Although the etiology remains unclear, it has...