

## Abstracts from the 22nd International Congress of Dento-Maxillo-Facial Radiology in Conjunction with the 70th Annual Session of the American Academy of Oral and Maxillofacial Radiology

### CHRONIC RECURRENT MULTIFOCAL OSTEO-MYELITIS INVOLVING THE MANDIBLE A.

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**Clinical Presentation:** A 13-year-old male presented with the chief complaint of pain and facial swelling on the left side. His medical history was significant for chronic recurrent multifocal osteomyelitis (CRMO) and hospitalization for recurrent right facial swelling, tenderness, and chronic ankle pain.

**Differential Diagnosis:** CRMO can mimic infective osteomyelitis, thus unnecessarily subjecting the patient to a prolonged course of antibiotics, radiation exposure, and multiple biopsies.

**Diagnosis and Management:** Extraoral radiographs: Normal bone pattern, no evidence of periosteal reaction and mild left-sided soft tissue swelling. Magnetic resonance imaging (MRI): Postcontrast T1-weighted fat-suppressed 2017: High signal from the marrow of the right mandibular body and ramus and surrounding muscles representative of edema. Noncontrast T2-weighted fat-suppressed 2018: Persistent high signal in the marrow of the right mandibular body and ramus, with a resolution of muscular edema; the new hyperintense signal in the marrow of the left mandibular body. Bone scan: Phases 2 and 3: Increased tracer uptake along the right mandible and the right calcaneus and epiphyses of the long bone.

**Discussion:** Familiarity with the clinical and radiographic findings of CRMO greatly increases the likelihood of early diagnosis, appropriate treatment, and avoidance of multiple unnecessary procedures.

#### References

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### INCIDENTAL RADIOLUCENT LESION IN THE CERVICAL VERTEBRAE L. ALBITAR, and P. WONG, INDIANA UNIVERSITY SCHOOL OF DENTISTRY, INDIANAPOLIS, IN

**Clinical Presentation:** A 23-year-old healthy, female with no known medical issues presents to the dental clinic at Indiana University School of Dentistry. Cone beam computed tomography (CBCT) volume was acquired as part of a dental implant evaluation for the sites of teeth #9 and #10. Upon review, an incidental finding of a well-defined, irregular, nonexpansile, radiolucent lesion along the anteroinferior border in the body of the C2 vertebrae was noted.

**Differential Diagnosis:** The working differential of the area included (1) unicameral bone cyst, (2) giant cell tumor, (3)

brown tumor, and (4) fibrous dysplasia. These all appear radiolucent, and most do not manifest symptoms and are found incidentally. An evaluation with a physician to assess for neurologic deficits or other related symptoms would be needed. Possible further imaging with contrasted multidetector computed tomography (MDCT), magnetic resonance imaging (MRI), and/or blood tests may also be considered. Because of the invasive nature, the possibility of surgical intervention including biopsy, curettage, or bone grafting should be evaluated by an orthopedic surgeon.

**Diagnosis and Management:** The patient was notified by the provider to evaluate the lesion, and further dental treatment has been deferred until a diagnosis can be reached.

**Discussion:** Incidentally, the provider did not fully read the report. It was through inquiry by the radiologist that the patient's status was brought to the provider's attention. This emphasizes how comprehensive evaluation of CBCT can bring to light potentially urgent conditions.

#### References

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### A MOUTH FULL OF TEETH: A CASE REPORT

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**Background:** An increase in the number of teeth is termed *supernumerary teeth*.<sup>1,2</sup> These teeth can be present both unilaterally or bilaterally, in one jaw, or in both jaws.<sup>2</sup> In the maxilla, the anterior region is the most common location, and a solitary tooth in the midline is referred to as *mesiodens*. However, supernumerary teeth are more often seen in the mandible, especially in the premolar region, and are referred to as *peridens*.<sup>1,2</sup> Supernumerary teeth distal to the molars are referred to as *distodens*.<sup>2</sup> This type of dental anomaly is commonly associated with developmental disorders, such as Gardner syndrome and cleidocranial dysplasia.<sup>2,3</sup> The excess number of teeth affects both the primary and permanent dentitions. It more commonly affects the permanent dentition and usually interferes with the eruption pattern, leading to malposition, crowding, ectopic eruption, and malocclusion.<sup>1,2</sup>

**Clinical and Radiographic Presentation:** A 9-year-old female with multiple impacted supernumerary teeth was referred by an orthodontist requesting a cone beam computed tomography (CBCT) scan for evaluation of impacted teeth. According to the clinic notes from the orthodontist, the patient was not complaining of any pain and had not been previously diagnosed with any medical disorder. There was no concerning medical history reported for the patient. The family history revealed that the patient's mother was deaf. The CBCT scan revealed multiple impacted permanent and supernumerary teeth in the jaws. On the basis of the radiologist's recommendation, the patient was referred to the University of Iowa Hospital and Clinic for genetic tests to rule out a possible underlying disorder.

**Differential Diagnosis:** Cleidocranial dysplasia, Gardner syndrome, Apert syndrome, and Crouzon syndrome were considered.

**Diagnosis and Management:** The CBCT scan revealed 19 impacted supernumerary teeth, apart from the impacted permanent teeth. The scan also showed a dentigerous cyst around the unerupted permanent mandibular right first molar. The image revealed multiple open sutures. A chest radiograph revealed marked variations in the clavicles bilaterally. On genetic testing, in addition to the findings from the scan, led to the diagnosis of cleidocranial dysplasia. The patient is currently scheduled for systematic removal of the supernumerary teeth as part of the comprehensive treatment plan.

**Discussion:** This case demonstrates the crucial role and importance of interpretation of CBCT volumes by a radiologist and the immense benefit of interdisciplinary care provided to a patient. CBCT is an excellent imaging tool to evaluate the location of teeth and aids in the treatment plan by revealing incidental findings that could be life changing for a patient and by enabling better patient care and outcomes.

## References

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## SYSTEMATIC REVIEW OF CONE BEAM COMPUTED TOMOGRAPHY USE IN DIAGNOSIS OF MEDICATION-RELATED OSTEO-NECROSIS OF THE JAW

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**Background:** Medication-related osteonecrosis of the jaw (MRONJ) is an adverse drug reaction, marked by bone destruction. Most studies have focused on its diagnosis and management.

**Objective:** The aim of this review was to explore the role of CBCT in MRONJ diagnosis.

**Materials and Methods:** The following databases were searched: PubMed, Scopus, Web of Science, Trip, and Cochrane Library. Search terms were "osteonecrosis," "medication-

related," "radiography," "bone resorption," and "CBCT." The search for publications from 2003 onward yielded 395 articles (case reports, case series, studies, and systematic reviews). However, only 11 articles met our inclusion criteria.

**Results:** The 11 articles with 168 cases were included in a full-text qualitative analysis. Females comprised 66.6% of cases. Mean patient age was 58.5 years. CBCT findings included osteolytic lesions, osteosclerosis, sequestra, and sinus mucosal thickening. The most frequent location was the posterior mandible (62.6%). Stage 1 was most often reported (36.4%). The most frequent precipitating event was extraction (75%). Of the included cases, 52.4% were oncologic cases, and 23.8% were osteoporosis cases. Of the patients, 72.7% had taken antiresorptive medications and 4.5% antiangiogenics. Administration was mostly oral (45%). Several studies included management; 90% of articles reported antibiotic and chlorhexidine use, and 10% reported surgical intervention.

**Discussion:** CBCT is a reliable tool in the detection and staging of MRONJ. It is reported to offer advantages over multi-detector computed tomography (MDCT) with regard to radiation exposure and is superior to 2-dimensional imaging in the detection of MRONJ features.

## References

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## THE ROLE OF IMAGING IN MRONJ: AN EVIDENCE BASED, INSTITUTIONAL EXPERIENCE

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**Background:** Medication-related osteonecrosis of the jaw (MRONJ) refers to devitalization of bone caused by external insults. Radiographic features of sclerosis, osteolysis, periosteal reaction, and sequestration are seen in varying degrees of stages of MRONJ and may serve as a predictor for future morbidity. However, currently there are no protocols to guide the clinician for appropriate imaging in patients with MRONJ.

**Objectives:** The aim of this study was to provide an overview of the pathophysiology of MRONJ; to discuss the role of radiographic imaging during the assessment of patients with MRONJ; to review the recent literature on radiographic imaging of MRONJ; and to propose a guideline to aid in clinical decision making to perform imaging of MRONJ.

**Study Design:** The review included studies examining the contribution of imaging to MRONJ, a study by our own group.