

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

1. Chen K-C, Huang J-S, Chen M-Y, Cheng K-H, Wong T-Y, Huang T-T. Unusual supernumerary teeth and treatment outcomes analyzed for developing improved diagnosis and management plans. *J Oral Maxillofac Surg.* 2019;77:920-931.
2. White SC, Pharoah MJ. *Oral Radiology: Principles and Interpretation.* St. Louis, MO: Elsevier Health Sciences; 2014.
3. Neville BW, Damm DD, Chi AC, Allen CM. *Oral and Maxillofacial Pathology.* St. Louis, MO: Elsevier Health Sciences; 2015.

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

G.B. BADABAAN, S.R. SINGER, A.G. CREANGA, and M. STRICKLAND, RUTGERS SCHOOL OF DENTAL MEDICINE, NEWARK, NJ

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

1. Rosella D, Papi P, Giardino R, Cicalini E, Piccoli L, Pompa G. Medication-related osteonecrosis of the jaw: clinical and practical guidelines. *J Int Soc Prev Community Dent.* 2016;6:97-104.
2. Barragan-Adjemian C, Lausten L, Ang DB, Johnson M, Katz J, Bonewald LF. Bisphosphonate-related osteonecrosis of the jaw: model and diagnosis with cone beam computerized tomography. *Cells Tissues Organs.* 2009;189:284-288.
3. Aghaloo T L, Tetradis S. Osteonecrosis of the jaw in the absence of antiresorptive or antiangiogenic exposure: a series of 6 cases. *J Oral Maxillofac Surg.* 2017;75:129-142.
4. Fleisher KE, Doty S, Kottal S, Phelan J, Norman RG, Glickman RS. Tetracycline-guided debridement and cone beam computed tomography for the treatment of bisphosphonate-related osteonecrosis of the jaw: a technical note. *J Oral Maxillofac Surg.* 2008;66:2646-2653.

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

S. BHULA, S. MALLYA, and S. TETRADIS, UNIVERSITY OF CALIFORNIA AT LOS ANGELES SCHOOL OF DENTISTRY, LOS ANGELES, CA.

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.