

A RETROSPECTIVE ANALYSIS OF RADIOLOGICAL FINDINGS OF MRONJ IN PATIENTS WITH COMPROMISED TEETH

Schiavo G¹, Coppini M¹, La Mantia¹, Bizzoca ME², Staffinati PM³, Butera V⁴, Campisi G^{5,6}, Mauceri R¹

¹Department of Precision Medicine in Medical, Surgical and Critical Care (Me.Pre.C.C.), University of Palermo, Palermo, Italy

²Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy

³Department of Clinical Specialistic and Dental Sciences, Marche Polytechnic University, Ancona, Italy

⁴University of Palermo, Palermo, Italy

⁵Unit of Oral Medicine and Dentistry for Fragile Patients, Department of Rehabilitation, Fragility and Continuity of Care, University Hospital P. Giaccone of Palermo, Palermo, Italy

⁶Department of Biomedicine, Neuroscience and Advanced Diagnostics (BiND), University of Palermo, Palermo, Italy

Aim: to evaluate the radiological findings of MRONJ in patients receiving bone-modifying agents (BMAs) who underwent dental extractions.

Materials and methods: patients were enrolled at the Oral Medicine Unit (University Hospital P. Giaccone of Palermo) and underwent clinical-radiological evaluation (E. C. #1/2022).

In the presence of teeth with poor prognosis, a standardized medical-surgical protocol was applied, associated with alveolar bone biopsies. In patients with a histological diagnosis of MRONJ, the radiological preoperative images were retrospectively analyzed.

Results: ten patients were included, of whom 5 were assuming high-dose BMAs (HD-BMAs) and 5 low-dose BMAs (LD-BMAs). The mean duration of therapy with HD-BMAs was 14.4 ± 4.8 months, and with LD-BMAs was 124.8 ± 170 months.

Ten teeth were extracted, 8 for periodontal disease and 2 for decay. Periodontal space widening was observed in all orthopantomography; on CBCT, the most common radiological finding was periodontal space widening (100%), followed by cortical erosion (80%), focal bone marrow sclerosis (50%), and diffuse bone marrow sclerosis (30%). No bone exposure was observed. Based on clinical-radiological features, MRONJ cases were classified into stage 1 and stage 2 in 7 and 3 cases, respectively.

Conclusions: the present study shows that MRONJ was already present at the time of dental extraction and suggests that the surgical act does not turn out to be responsible for the pathology. Additionally, in the presence of compromised teeth, radiological findings should be evaluated to diagnose early stages of MRONJ.

RADIOLOGICAL FEATURES OF STAGE II MRONJ: A COMPARATIVE STUDY OF HIGH-DOSE BISPHOSPHONATE- AND DENOSUMAB-RELATED CASES

Seminara G¹, Schiavo G², Coppini M², Lo Muzio L³, Mascitti M⁴, Tozzo P⁵, Campisi G⁶, Di Fede O²

¹Unit of Oral Medicine and Dentistry for Frail Patients, Department of Rehabilitation, Fragility, and Continuity of Care, A.O.U.P. P. Giaccone, Palermo, Italy

²Department of Precision Medicine in Medical, Surgical and Critical Care (Me.Pre.C.C.) University of Palermo, Palermo, Italy

³Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy

⁴Department of Clinical Specialistic and Dental Sciences, Marche Polytechnic University, Ancona, Italy

⁵Unit of Stomatology, Azienda Ospedaliera Ospedali Riuniti Villa Sofia-Cervello of Palermo, Palermo, Italy

⁶Department of Biomedicine, Neuroscience and Advanced Diagnostics, University of Palermo, Palermo, Italy

Aim: Medication-related osteonecrosis of the jaw (MRONJ) is a drug-related adverse reaction that requires radiological imaging for diagnosis and staging. Recent studies suggest agent-specific radiographic patterns in MRONJ. This study aimed to compare radiological findings in patients treated with high-dose bisphosphonate (HD-BP) *versus* high-dose denosumab (HD-DMB) to identify potential drug-related jawbone differences and improve MRONJ management.

Methods: patients with stage II of MRONJ were enrolled at the Unit of Oral Medicine and Dentistry for Frail Patients (A.O.U.P. P. Giaccone, Palermo), over the last three years. MRONJ staging followed SIPMO-SICMF clinical-radiological recommendations. Maxillofacial CT and CBCT scans were independently and blindly evaluated by two radiologists, each with > 5 years of experience, with excellent interobserver agreement ($\kappa > 0.90$).

Results: twenty patients were evaluated, 10 in the HD-BP group (5 females, 5 males; mean age 76.2 ± 5.2 years) and 10 in the HD-DMB group (8 females, 2 males; mean age 69.5 ± 12.1 years). Median therapy duration before MRONJ onset was 23 months in the HD-BP group and 21 months in the HD-DMB group. Among the SIPMO-SICMF radiological signs assessed, cortical erosion (80% in HD-BP vs 20% in HD-DMB; $\chi^2 p = 0.011$) and sequestrum formation (70% vs 10%; $\chi^2 p = 0.009$) were significantly more frequent in HD-BP patients.

Conclusions: these preliminary findings suggest possible distinctive radiological differences between HD-BP and HD-DMB-related MRONJ. Future research on larger cohorts, potentially supported by artificial intelligence, could aim to confirm drug-specific radiological patterns, identify additional differences in radiological signs and improve early diagnosis.