

Does CaviTAU[®] bring patient benefit into medical practices?

Two publications on the scientific case presentation of CaviTAU[®].

1. Lechner J, von Baehr V, Zimmermann B.

Osteonecrosis of the Jaw Beyond Bisphosphonates: Are There Any Unknown Local Risk Factors? *Clin Cosmet Investig Dent*. Januar 2021; 13: 21-37.

<https://doi.org/10.2147/CCIDE.S288603>

Link on journal https://www.dovepress.com/articles.php?article_id=61333.

Over 2,737 views as of July 2021.

Link to paper on PubMed: <https://pubmed.ncbi.nlm.nih.gov/33505172/>

Background: Bisphosphonate-related osteonecrosis of the jaw (BONJ) is a new and growing problem and is recognized as a serious complication of bisphosphonate (BP) therapy primarily with intravenous use. Local and systemic risk factors become effective. The local ones are in the dento-alveolar area, the systemic ones in the parenteral and intravenous (i.v.) use of BP. Despite numerous publications, overall BONJ pathogenesis does not seem to be fully understood. The reason why only a subset of patients with i.v. BP administration develop BONJ remains unclear.

Purpose: Can pre-damaged bone remodeling such as aseptic ischemic osteonecrosis (AIOJ), bone marrow defects (BMD) or fatty degenerative osteonecrosis of the jawbone (FDOJ) be involved in the development of BONJ as additional local risk factors?

Material and methods: extensive literature search in PubMed central clarifies the associations of AIOJ/BMD/FDOJ and BONJ. Specific and common hallmarks in signaling cascades, pathohistology, and diagnosis are elaborated and compared. A case presentation explains the non-exposed form of BONJ.

Discussion: The presented hypothesis considers the non-exposed BONJ variant as a developmental stage of a pre-existing but unrecognized "bone marrow defect" caused by BP administration.

Conclusion: Impaired areas of wound healing in former extraction sites-particularly former wisdom tooth sites-may contribute directly to the pathogenesis of BONJ. With intravenous BP therapy, existing AIOJ/BMD/FDOJ areas may be considered a prerequisite for the development of BONJ. Therapeutic recommendation is to precede i.v. BP administration with a diagnosis of AIOJ/BMD/FDOJ with transalveolar ultrasound measurement of bone

density followed by surgical excision of ischemic marrow areas. BP should not be considered the sole cause of osteonecrosis.

2. Lechner J, Schick F. Chronic Fatigue Syndrome and Bone Marrow Defects of the Jaw – A Case Report on Additional Dental X-Ray Diagnostics with Ultrasound. *Int Med Case Rep J*. April 2021; 14: 241-249; <https://doi.org/10.2147/IMCRJ.S306641>.

Link on journal: https://www.dovepress.com/articles.php?article_id=64029

Over 2,086 views as of July 2021.

Link to paper on PubMed: <https://pubmed.ncbi.nlm.nih.gov/33907473/>

Background: The aim of this paper is to demonstrate the limited value of radiographic diagnosis in chronic osteolysis and osteonecrosis of the jaw using a clinical case study.

Patients and Methods: Described here is a case of chronic fatigue syndrome (CFS) in a young man with typical, vague symptoms that were accompanied by headache and tinnitus. Radiographic techniques, namely panoramic radiographs (OPG) and cone-beam computed tomography (DVT/CBCT), revealed no abnormal findings of inflammation in the jawbone. However, bone densitometry by transalveolar ultrasound (TAU) indicated a possible bone marrow defect in the left mandibular bone/white tooth area.

Results: Surgery at the abnormal site revealed black, macerated bone marrow, which was subsequently identified as aspergillosis by histopathologic analysis. Furthermore, the excessive local RANTES/CCL5 expression found in the affected area confirmed the need for surgical excision of the jawbone and that of the additional TAU finding.

Conclusion: In contrast to the radiographic diagnosis, the supplemental TAU imaging revealed medullary osteolysis in the patient's jaw with chronic inflammatory overexpressed RANTES/CCL5 pathway and highly toxic fungal colonization. This case study supports the need for additional diagnostic techniques beyond the radiographic techniques that can help elucidate oral pathogenesis in the context of systemic disease.