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Soft tissue window of CT scans in the initial stage of ONJ: A case report

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Objectives: We report a case of suspected osteonecrosis of the jaw (ONJ) related to bisphosphonates, exhibiting signs of acute osteomyelitis from clinical and radiographic symptoms using computed tomography (CT). Specifically, we discuss the usefulness of a soft tissue window for analysis of bone marrow changes, and the relationship between Vincent's sign and ONJ.

Materials and Methods: A 80-year old female patient presented with a medical history of metastatic breast cancer under treatment with Zoledronic acid after chemotherapy. Intra- and extra-oral findings exhibited spontaneous pain and swelling on the right mandibular molar region with Vincent's sign in the relevant area. There was no visible bone exposure. Intraoral radiographs, a panoramic view, and a CT scan were performed for further diagnostics.

Results and Discussion: Clinical symptoms and plain X-ray findings are consistent with those from acute osteomyelitis. In soft tissue CT window, disappearance of fat tissue density on the right side in comparison to the left side in the posterior mandible was seen, which was considered to depict bone marrow edema. Further examination also revealed a missing upper border of the right mandibular canal. This finding was in line with Vincent's sign, and suggested the wide spread of inflammation in the bone marrow even before bone exposure.

Based on the findings from this case, the initial stage of ONJ shows striking similarities with acute mandibular osteomyelitis in CT. Some researchers also indicated that Vincent's sign, often observed in acute mandibular osteomyelitis, could be seen as an initial symptom of ONJ in cases without bone exposure.

Conclusion: Although MRI is the first and best choice to detect pathological changes in bone marrow, soft tissue window of CT scans could provide equivalent information. It is further suggested that Vincent's sign might be an initial presenting symptom of ONJ.

Key words: osteonecrosis of the jaw, acute osteomyelitis, Vincent's sign, soft tissue window, computed tomography