

## Case Blog

### Title: Zoledronic Acid Induced Osteonecrosis of the Jaw

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Figure 1: OPG showing large osteolytic lesion in lower jaw.

A 68 years male, case of IgG type multiple myeloma IIIA was on Bortezomib and Dexamethasone. Patient was simultaneously receiving Zoledronic acid 4 mg in 100 ml normal saline over 15 minutes infusion once every 28 days. After 16 injections of Zoledronic acid, he had pain in left lower jaw. On examination he had bone loss in the lingual aspect of left mandibular alveolus near 1st molar tooth area. There was no discharge or swelling. Orthopantomograph (OPG) showed a large osteolytic lesion at the site of clinical inflammation (Figure 1). Histopathology of scrapings ruled out plasmacytoma. Our final diagnosis was Zoledronic acid related osteonecrosis of the jaw. Zoledronate was stopped.

A medical rarity about a decade ago, osteonecrosis of the jaw has been observed since 2003 in patients receiving high doses of nitrogen containing bisphosphonates. The mandible is more commonly affected and 60% of cases are preceded by a dental surgical procedure. Bisphosphonate-related osteonecrosis of the jaws (BRONJ) is mainly reported in patients with bone metastasis from a variety of solid tumors and disseminated multiple myeloma receiving intravenous bisphosphonates therapy. The incidence is higher with the intravenous preparations like zoledronic acid and pamidronate and minimal with oral bisphosphonates. Incidence ranges from 0.8% to 12%. It probably results from the inability of hypodynamic and hypovascular bone to meet an increased demand for repair and remodeling owing to physiologic stress (mastication), iatrogenic trauma (tooth extraction or denture injury), or tooth infection in an environment that is trauma intense and bacteria-laden. Coexisting factors may include medications with antiangiogenic properties (glucocorticoids, thalidomide, and bortezomib), diabetes mellitus, irradiation of the jawbone, peripheral vascular disease, and hyperviscosity syndromes. It is hypothesized that benign sequestration of the lingual mandibular plate in healthy persons results from physiologic trauma to the mucosa, leading to hypovascularity and focal bone death. Interestingly, this site is frequently involved in osteonecrosis. Factors such as underlying disease status, prognosis, extent of the lesion, presence or absence of jaw pain, and presence or absence of infection should be considered when planning further treatment. Once bone resorption has been curtailed, there may be little benefit in giving lower doses of bisphosphonates, especially in patients receiving long-term bisphosphonate therapy. Patients should be informed of the risk.

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