

## Conservative and Surgical Treatment of Antiresorptive Drug-Related Osteonecrosis of the Jaw with Ultrasonic Piezoelectric Bone Surgery under Polyvinylpyrrolidone Iodine Irrigation: A Case Series of 13 Treated Sites

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**Abstract :** Aims and objective: Antiresorptive agents including bisphosphonates and denosumab as strong suppressors of osteoclasts are the most commonly used antiresorptive medications for the treatment of osteoporosis which counteract the negative quantitative alteration of trabecular and cortical bone by inhibition of bone turnover. Oral bisphosphonate therapy for the treatment of osteopenia, osteoporosis or Paget's disease is associated with the low-grade risk of osteonecrosis of the jaw, while higher-grade risk is associated with receiving intravenous bisphosphonates therapy in the treatment of multiple myeloma and bone metastases. On the other hand, there has been a remarkable increase in incidences of antiresorptive related osteonecrosis of the jaw (ARONJ) in oral bisphosphonate users. This clinical presentation will evaluate the healing outcomes via piezoelectric bone surgery under the irrigation of PVP-I solution irrigation in patients received bisphosphonate therapy. Material-Method: The study involved 8 female and 5 male patients that have been treated for ARONJ. Among 13 necrotic sites, 9 were in the mandible and 4 were in the maxilla. All of these 13 patients treated with surgical debridement via piezoelectric bone surgery under irrigation by solution with 3% PVP-I concentration in combination with long-term antibiotic therapy and 5 also underwent removal of mobile segments of bony sequestrum. All removable prosthesis in 8 patients were relined with soft liners during the healing periods in order to eliminate chronic minor traumas. Results: All patients were on oral bisphosphonate therapy for at least 2 years and 5 of which had received intravenous bisphosphonates up to 1 year before therapy with oral bisphosphonates was started. According to the AAOMS staging system, four cases were stage II, eight cases were stage I, and one case was stage III. The majority of lesions were identified at sites of dental prostheses (38%) and dental extractions (62%). All patients diagnosed with ARONJ stage I had used unadjusted removable prostheses. No recurrence of the symptoms was observed during the present follow-up (9-37 months). Conclusion: Despite their confirmed effectiveness, the prevention and treatment of osteonecrosis of the jaw secondary to oral bisphosphonate therapy remain major medical challenges. Treatment with piezoelectric bone surgery with irrigation of povidone-iodine solution was effective for management of bisphosphonate-related osteonecrosis of the jaw. Taking precautions for patients treated with oral bisphosphonates, especially also denture users, may allow for a reduction in the rate of developing osteonecrosis of the maxillofacial region.

**Keywords :** antiresorptive drug related osteonecrosis, bisphosphonate therapy, piezoelectric bone surgery, povidone iodine

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