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Osteonecrosis of Jaw: Common etiologies, uncommon treatments

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Introduction

First described in 2002, osteonecrosis of the jaw (ONJ, or avascular necrosis of the jaw) is an uncommon but potentially serious side effect of treatment with bisphosphonates. Although typically identified in patients with multiple myeloma and other malignancies, a few cases have been reported in patients taking bisphosphonates - a potent drug class used in the treatment of osteoclast-mediated bone resorption issues, including postmenopausal osteoporosis, Paget's disease, multiple myeloma, and malignant hypercalcemia. The clinical diagnosis of ONJ can be obscured by jaw pain, abscess, swelling, and fistulas, but exposed bone is a distinctive sign. This reports a case of ONJ secondary to bisphosphonate use in a 65-year-old woman and clinical management complications.

Case Presentation

A 65-year-old lady with history of age-related osteoporosis and compression fractures on alendronate for 4 years, squamous cell carcinoma of neck status post excision and radiotherapy 11-years prior, Sjogren's syndrome and discoid lupus on hydroxychloroquine, diabetes, hypertension, stroke and multiple dental abscesses presents with persistent neck pain. Initial CT neck with contrast showed diffuse fat stranding. Subsequently, alendronate was discontinued due to jaw necrosis suspicion. Eight months later, repeat CT scan showed new non-mass-like soft tissue thickening in the subcutaneous fat abutting the right anterior mandible with mandibular teeth cavities and periapical lucencies, likely to be periodontal cellulitis versus radiation osteonecrosis.

Case presentation continued

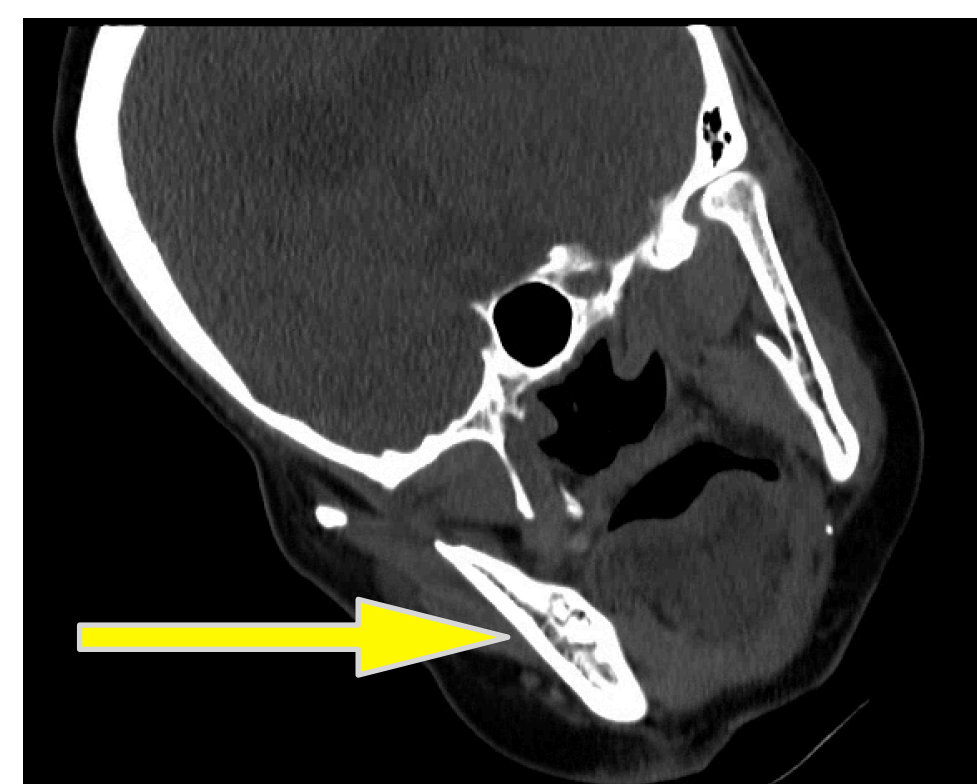
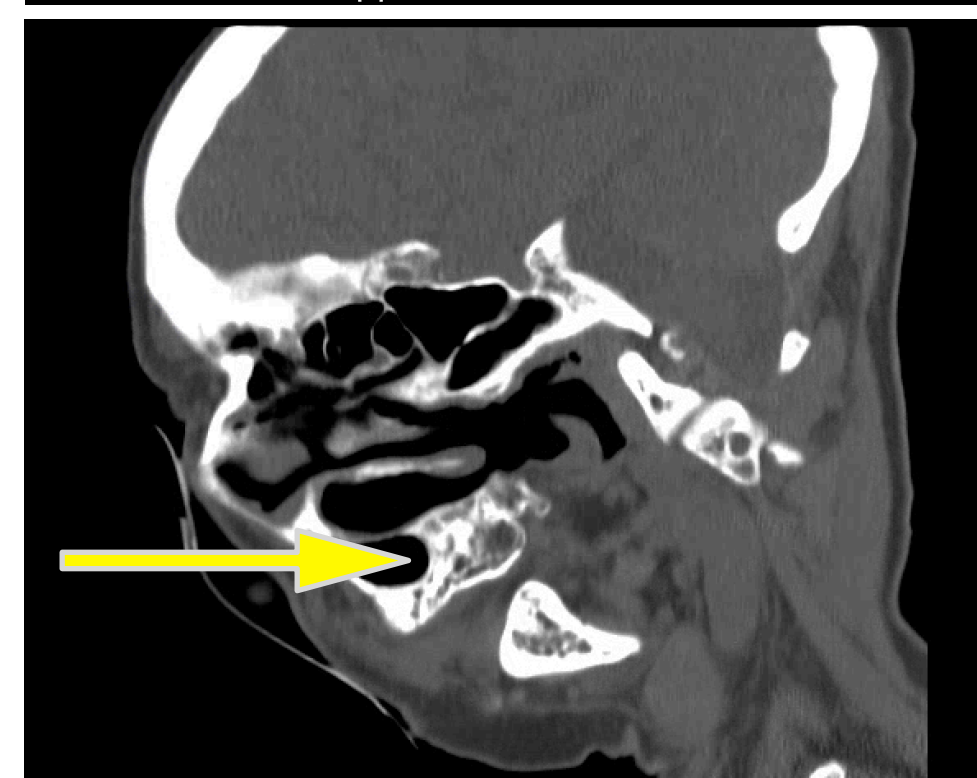
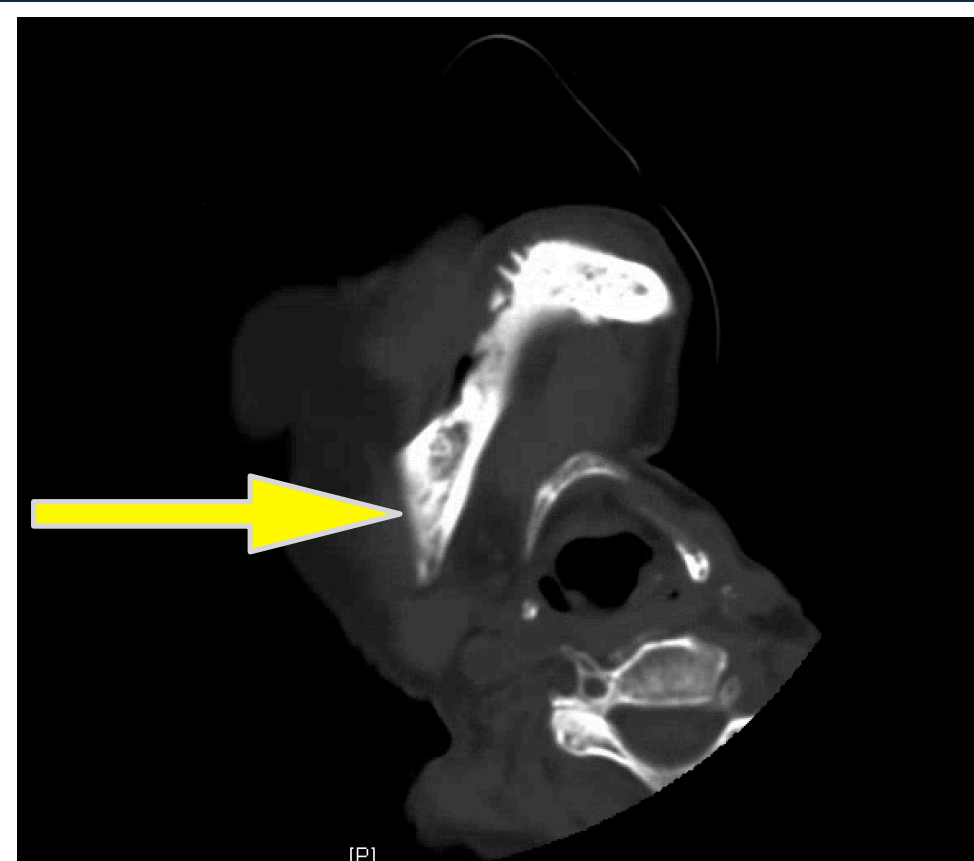
Later, patient complained of a piece of bone penetrating the skin of her chin and presented with continuous drainage from sinus tract in her mandible, which was diagnosed as osteonecrosis attributed to bisphosphonates, previous radiation therapy, and dental abscesses.

Patient was started on abaloparatide, an osteo-anabolic medication for osteoporosis and enrolled in hyperbaric oxygen therapy which immensely helped in controlling sinus drainage. Patient is currently awaiting mandibular reconstruction surgery.

Discussion

ONJ, often associated with pain, swelling, exposed bone, local infection, and pathologic fracture of the jaw, is a rare complication of bisphosphonate therapy. Currently, no prospective data exists to advise the benefits of therapy discontinuation however most clinical practices tend to discontinue at least temporarily. The incidence increases with longer treatment duration, particularly when therapy exceeds four years. Risk factors for developing ONJ while taking bisphosphonates include IV administration, anticancer therapy, dose and duration of exposure, dental extractions/implants, glucocorticoids, smoking, diabetes, and preexisting dental disease.

Images



Osteonecrosis of Right Mandible showing eroded bone and bone within bone formation secondary to bisphosphonate use and radiation treatment.

Discussion continued

Case reports and series suggest benefit from hyperbaric oxygen therapy in wound healing, pain, and quality of life at three months, however no significant differences exist with outcomes beyond three months. Patients being considered for therapy with a bisphosphonate should be thoroughly evaluated for dental issues, prior to initiating therapy. Conservative management with limited debridement, antibiotic therapy as needed, and topical mouth rinses rather than aggressive surgical resection are recommended. Conservative therapy may result in healing in a significant proportion of patients. Surgical resection of necrotic bone should be reserved for refractory or advanced cases.

Conclusion

Providers should remain cautious while prescribing high doses of bisphosphonates in patients with increased risk factors to prevent, timely diagnose and treat this condition.

References

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