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Short communication

Case report of atypical osteonecrosis of the jaws: a clinical dilemma

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Abstract

Osteonecrosis of the jaws is defined as exposed jawbone that persists for more than eight weeks. Treatment may be challenging and can adversely affect the patient's quality of life. We present a male patient who was referred to our department with areas of extensive osteonecrosis in the maxilla and mandible. He had no history of antiresorptive, antiangiogenic treatments, or radiotherapy to the head and neck. He had a history of renal transplantation, diabetes, glucocorticoids, and periodontal disease. This case highlights multiple aetiological factors that can contribute to osteonecrosis and the diagnostic dilemma that they may cause.

Keywords: Medication related osteonecrosis of the jaws; steroids; renal transplant

Case report

A 53-year-old man was referred for assessment of exposed bone in the maxilla and mandible (Fig. 1). He had a two-year history of recurrent intraoral infections, but no history of recent dental extractions, and his lower right second premolar had recently exfoliated.

His medical history included a renal transplant in 2004, which was failing. He was having dialysis three times/week, and had been taking prednisolone and tacrolimus since the transplant. He also had Type I diabetes and hypertension, and was taking insulin, omeprazole, ramipril, doxazosin, nifedipine, and simvastatin. His general practitioner confirmed that he had no history of malignancy or radiotherapy to the head and neck, and had never used bisphosphonates or been diagnosed with osteoporosis.

On examination there was no cervical lymphadenopathy, and intraorally the maxillary dentoalveolar segments were mobile with generalised gingival recession. There was swelling in the palate adjacent to the upper left posterior teeth, multiple areas of exposed bone in the maxilla and mandible, and oral hygiene was poor.

Computed tomography showed extensive osteolytic changes that involved nearly all of the maxillary and mandibular alveolus (Figs. 2 and 3).

The clinical and radiographic signs were consistent with widespread osteonecrosis of the jaws, and therefore a biopsy examination was not indicated. Features were consistent with Stage 3 osteonecrosis as classified by the American Association of Oral and Maxillofacial Surgeons.[1]

Discussion

In this patient, there were multiple confounding aetiological factors for osteonecrosis, such as immunosuppression, dia-

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Fig. 1. Intraoral photograph of the upper left maxilla showing an extensive area of exposed bone.

Fig. 2. Axial view of computed tomogram showing multiple osteolytic changes that involve almost the entire maxilla. There is extensive patchy cortical and medullary loss of bone loss that involves the entire alveolus, floor of the maxillary sinuses, and hard palate. The presence of gas within the medulla of the bone indicates that the bone was not vital.

betes, poor oral hygiene, and the use of steroids. To the best of our knowledge, however, there are very few reports of osteonecrosis in the head and neck that have been caused by these factors.[2]

Steroid-induced osteonecrosis is a rare complication in patients with renal disease, but it has been shown to affect the femoral head in between 3% and 41% of patients.[3] The overall risk of osteonecrosis is estimated at about 4% in recipients of renal transplants treated with cyclosporine or tacrolimus.[4] This may be supported by animal studies that show an association between glucocorticoids and a reduction in blood flow, which results in vasoconstriction of the femoral head and leads to ischaemia and bony necrosis.[5]

Glucocorticoids also suppress the production and function of osteoblasts, inhibit absorption of calcium ions in the intestines, and increase the loss of calcium ions in the kidneys.

Fig. 3. Axial view of computed tomogram showing osteolytic changes that have affected the mandible. The osteonecrosis involved the body of the mandible extending between the second molars on either side. The medullary bone was involved with loss of periodontal bone. There were areas of a breach in the buccal cortex from lower right 3 to 6 and lower left 6 to 7.

This leads to reduced serum concentrations of calcium and the increased secretion of parathyroid hormone, which causes secondary hyperparathyroidism. This can result in continuous osteoclastic activation and reduced density of minerals in the bones, predisposing them to osteonecrosis.

Diabetes mellitus is an important risk factor in osteonecrosis of the jaws.[6] Pre-existing oral inflammatory diseases such as periodontal disease, which is increased in prevalence in diabetes, is another risk factor.[7] In this case the patient's previous doctor had misdiagnosed osteonecrosis as periodontal disease. It is therefore important for clinicians to be aware of seemingly severe periodontal disease and to review medical histories in depth to identify potential contributory factors.

Conclusion

Initial management included optimisation of oral hygiene and treatment with chlorhexidine or Peroxyl® (Colgate Professional) mouthwashes and doxycycline, 100 mg, once daily, which resulted in a reduction in the inflammation of soft tissue. Close monitoring continued because of the risk of secondary infection as a result of immunosuppression and diabetes.

The extent of osteonecrosis poses several challenges in terms of long-term management. As the incidence of osteonecrosis continues to rise, there is no doubt that an increasing number of clinicians will be faced with the difficulty of managing severe cases such as this.

Conflict of interest

We have no conflicts of interest.

Ethics statement/confirmation of patient's permission

Ethics approval not applicable. The patient's permission was obtained.

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