

A case report and clinical implications of medication-related osteonecrosis of the jaw resulting in sepsis in a patient with rheumatoid arthritis

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Abstract

Medication-related osteonecrosis of the jaw (MRONJ) is reported a rare complication of biological therapy. This report demonstrates that MRONJ can result in sepsis in rheumatoid arthritis patients receiving abatacept and bisphosphonate therapy. Clinicians should be aware of the potential risk and consider it a focus of sepsis in such patients.

Keywords

jaw osteonecrosis, bisphosphonate, abatacept, sepsis

Abbreviations

CT (computerized tomography); MRONJ (medication-related osteonecrosis of the jaw).

Key Clinical Message

Long-term use of bisphosphonates in combination with immunosuppressive agents increases the risk of jaw osteonecrosis. Therefore, in the case of sepsis in patients with risk factors, it should be considered as one of the sources of infection.

1. Introduction

In recent years, the use of biological therapy for rheumatoid arthritis has increased, but medication-related osteonecrosis of the jaw (MRONJ) has been reported as a rare complication.¹ Risk factors for the development of MRONJ include bisphosphonate therapy, glucocorticoid use, invasive dental treatment, and poor oral hygiene.² We report a case of jaw osteonecrosis that developed in a patient with sepsis.

2. Case Presentation

A 75-year-old female patient with rheumatoid arthritis who had been receiving bisphosphonate therapy for 8 years and abatacept therapy for 6 years presented with hypothermia and shock and was transported to our hospital. A systemic examination revealed jaw swelling, and a computerized tomography (CT) scan focusing on the jaw revealed osteomyelitis of the mandible and surrounding abscess formation (Figures 1-2). *Parvimonas micra* was detected in the aspirated fluid. The patient was diagnosed with sepsis and responded well to treatment with antibiotics and surgical debridement, and she was discharged alive 18 days later. Subsequently, antibiotic therapy was continued, and the jawbone remained stable, allowing for the resumption of abatacept therapy.

3. Discussion and Conclusion

We experienced a case in which MRONJ resulted in the development of sepsis but was resolved by prompt and appropriate treatment. Abatacept is an anti-rheumatic drug that suppresses immune function by inhibiting T-cell activation through binding to CTLA4 and the IgG1 Fc domain and is known to increase susceptibility to infections.³ This case report suggests that there is a possibility that its use in combination with bisphosphonate therapy may contribute to MRONJ. As the use of biological therapy in rheumatoid arthritis continues to increase, clinicians need to recognize the potential risk of MRONJ in patients receiving bisphosphonate therapy and consider it a focus of sepsis.

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Figure legends

Figure 1. A-I:

Chest computed tomography (CT) of the right mandible. It shows a large area of bone destruction with irregular borders and heterogeneous densities involving the body and ramus of the mandible. The affected bone appears to be sclerotic and fragmented, with areas of sequestration and periosteal reaction. There is also evidence of soft tissue swelling and abscess formation.

Figure 2.

Intraoral and extraoral photograph. The intraoral image shows evidence of purulent discharge and foul odor, indicating active infection. The extraoral photograph shows a visible swelling in the lower right cheek, corresponding to the location of the intraoral lesion. There is no evidence of fistula formation or drainage to the skin surface. Symptoms included pain, difficulty chewing, and difficulty speaking.

Author contributions

KI wrote the initial draft of the manuscript and was responsible for drafting and image modification. KI and AO were directly involved in patient treatment, critically revised the manuscript, and approved the final version.

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