

CASE IMAGE

Medication-related osteonecrosis of the jaw leading to sepsis in a patient with rheumatoid arthritis: A case report and clinical implications

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Key Clinical Message

Chronic use of bisphosphonates, in combination with immunosuppressive therapy, increases the risk of jaw osteonecrosis. When sepsis occurs in patients receiving bisphosphonate, osteonecrosis of the jaw should be considered a potential source of infection.

Abstract

Reports of medication-related osteonecrosis of the jaw (MRONJ) accompanied by sepsis are limited. A 75-year-old female patient with rheumatoid arthritis, receiving treatment with bisphosphonate and abatacept, developed sepsis secondary to MRONJ. When sepsis occurs in patients receiving bisphosphonate, osteonecrosis of the jaw should be considered a potential source of infection.

KEYWORDS

abatacept, bisphosphonate, jaw osteonecrosis, sepsis

1 | INTRODUCTION

While medication-related osteonecrosis of the jaw (MRONJ) has been documented as a rare yet potentially severe complication, reports on the co-occurrence of MRONJ and sepsis remain limited. Risk factors associated with MRONJ development encompass bisphosphonate therapy, immunosuppressive therapy, dental interventions, and suboptimal oral hygiene.¹ We present a case of MRONJ leading to sepsis in a patient with rheumatoid arthritis.

2 | CASE PRESENTATION

A 75-year-old female patient presented to our institution with hypothermia and shock. She had been diagnosed

with rheumatoid arthritis 10 years ago. She was initially managed with bucillamine, followed by prednisolone, and thereafter abatacept for the past 6 years. She has been taking 35 mg of alendronic acid weekly for 8 years.

Her vital signs were as follows: a core body temperature of 34.4°C, blood pressure of 98/67 mmHg, pulse rate of 119 bpm, and respiratory rate of 24 breaths per minute. Her Glasgow Coma Scale score was 14, and her Quick Sequential Organ Failure Assessment score was three. Physical examination revealed a swollen right jaw, accompanied by purulent discharge within the oral cavity. Blood examination showed elevated C-reactive protein levels (20.2 mg/dL), while computed tomography revealed osteomyelitis of the mandible, with surrounding abscess formation (Figures 1 and 2). Subsequent fluid culture analysis via aspiration puncture identified *Parvimonas micra*.

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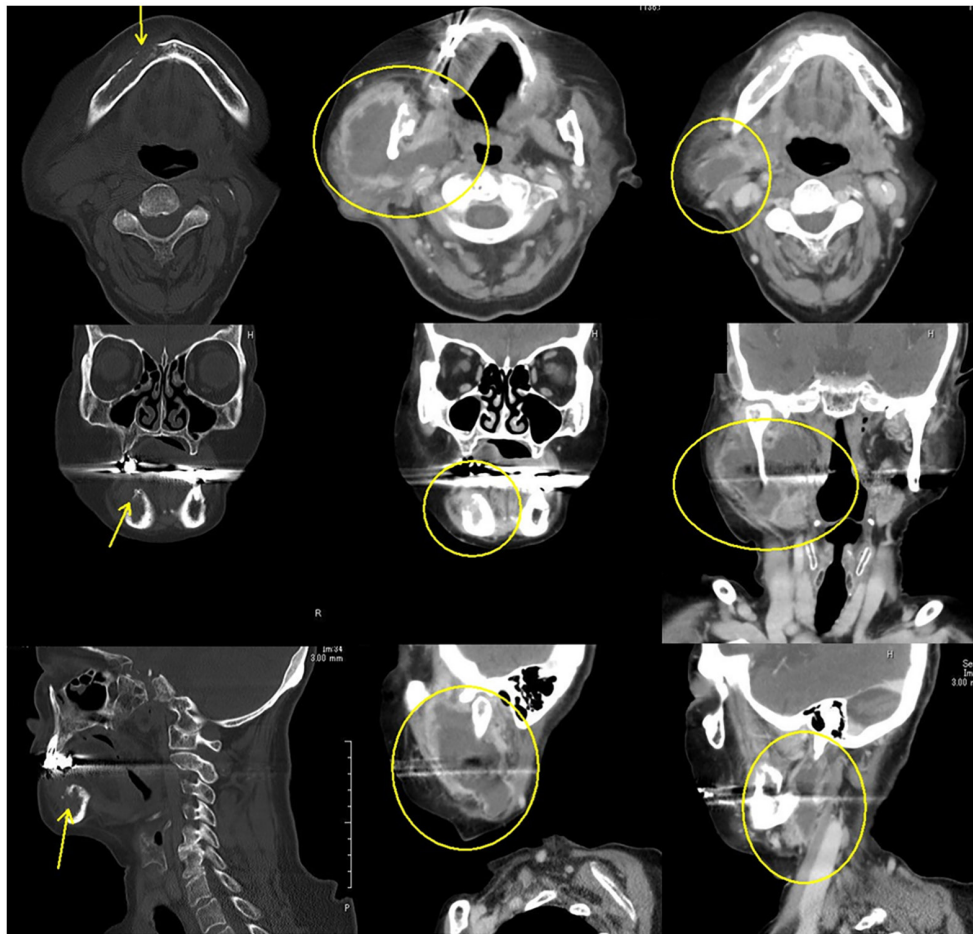


FIGURE 1 (A–I) Computed tomography of the right mandible. Imaging reveals a large area of bone destruction with irregular borders and heterogeneous densities involving the body and ramus of the mandible. The affected bone appears to be sclerotic and fragmented, with areas of sequestration and periosteal reaction. There is also evidence of soft tissue swelling and abscess formation.

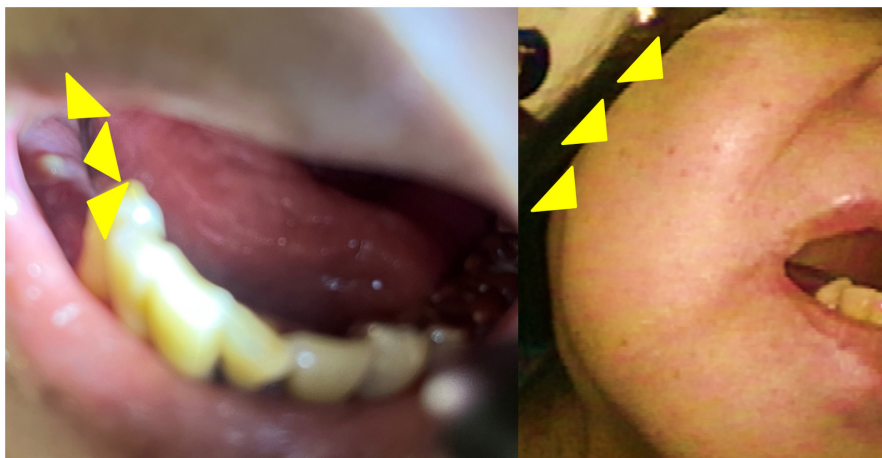


FIGURE 2 Intraoral and extraoral photographs. The intraoral image shows evidence of purulent discharge and foul odor, indicating active infection. The extraoral photograph shows a visible swelling in the lower right cheek, corresponding to the location of the intraoral lesion. There is no evidence of fistula formation or drainage to the skin surface. Symptoms included pain and difficulty in chewing and speaking.

The patient exhibited a favorable response to antimicrobial therapy comprising of sulbactam/ampicillin, along with surgical debridement, and was discharged after 18

hospitalization days. Following discharge, she continued her amoxicillin therapy, resulting in the stabilization of the jawbone and subsequent resumption of abatacept therapy.

3 | DISCUSSION AND CONCLUSION

We encountered a case of sepsis induced by MRONJ, which was successfully managed with prompt and appropriate interventions. Bisphosphonates impede osteoclast activation and provoke necrosis,² while additional factors such as angiogenesis inhibition and infection have also been reported.³ Abatacept, by suppressing immune function, may have contributed to a heightened susceptibility to infection. In patients undergoing bisphosphonate therapy, the occurrence of sepsis attributed to MRONJ, though infrequent, demands particular attention, particularly in compromised oral hygiene and concurrent administration of biologic agents.

AUTHOR CONTRIBUTIONS

K. Iwasaki: Writing – original draft; writing – review and editing. **A. Okazaki:** Writing – original draft; writing – review and editing.

ACKNOWLEDGMENTS

We would like to thank Editage (www.editage.com) for English language editing.

FUNDING INFORMATION

This research was not supported by any specific grant from any funding agency in the public, commercial, or non-profit sectors. Therefore, no funding body was involved in the study's design, the collection, analysis, and interpretation of the data, the writing of the manuscript, or the decision to submit the manuscript for publication.

CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

No datasets were generated or analyzed during this study.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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How to cite this article: Iwasaki K, Okazaki A. Medication-related osteonecrosis of the jaw leading to sepsis in a patient with rheumatoid arthritis: A case report and clinical implications. *Clin Case Rep.* 2023;11:e7588. doi:[10.1002/ccr3.7588](https://doi.org/10.1002/ccr3.7588)