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LETTER TO THE EDITOR

Mandibular bone exposure and osteonecrosis as a complication of general anaesthesia

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Trauma to the oral structures sometimes occurs as a complication to general anaesthesia. We here report two cases of an unusual type, mandibular osteonecrosis. To our knowledge, there has been only one previous publication of this condition (1).

The first case was a 69-year-old man who underwent oral examination 3 months prior to planned cardiac surgery. His medical history included hypertension, diabetes mellitus, and mitral insufficiency, and he was on treatment only with enalapril. Three molars in his lower jaw were extracted due to periodontitis, and healing was uneventful at follow-up. At cardiac surgery, he was intubated with a standard endotracheal tube (number 8) and was placed on a cardio-pulmonary bypass (CPP) machine. Two weeks later, he complained of pain in the right side of his mandible, which had started directly after recovery from surgery and successively increased. Examination revealed a 4 × 8 mm area of exposed non-vital bone at the right mylohyoid ridge. There was no sign of infection, and radiography was unremarkable. He was treated with 2 mg/mL chlorhexidine mouth rinse twice daily and amoxicillin 500 mg three times daily. Three weeks later there was spontaneous exfoliation of a sequestrum, and there was complete healing 2 months after his cardiac surgery.

The other case was an 86-year-old man with progressive aorta stenosis and a history of myocardial infarction. Medication included enalapril, isosorbide mononitrate, simvastatin, acetylsalicylic acid, and glyceryl trinitrate. He was planned for cardiac surgery and underwent oral examination 2 months before. Two upper and three lower molars were extracted due to apical periodontitis, and healing was uneventful at follow-up. At cardiac surgery, the patient was intubated with a standard endotracheal tube (number 8) and placed on a CPP machine. Two weeks later, he complained about right-sided mandibular pain, which had started directly after recovery from surgery. Examination revealed an 8 × 5 mm area of non-vital exposed bone at the right mylohyoid ridge. There was no sign of infection, and radiography was unremarkable. He was treated with 2 mg/mL chlorhexidine mouth rinse twice daily and phenoxymethylpenicillin 1 g three times daily, and there was complete healing 2 months after surgery preceded by exfoliation of a small sequestrum.

The incidence of osteonecrosis as here described is unknown. It is probably low, but the location at the medial aspect of the mandible could make it easily mistaken for discomfort after intubation (2). The pathogenesis is unclear, but the prominence of

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Table 1. Summary of cases in the literature and the present report.

	Age/ gender	Location of osteonecrosis	Duration of intubation (hours)	Osteonecrosis visualized by radiography	Symptoms	Onset of symptoms after general anaesthesia	Treatment	Time until healing
Case 1[a]	49F	Posterior, right side of mandible	2.5	Yes (CT)	Oral pain	After 1 week	Non-surgical removal of the sequestrum. Chlorhexidine rinse.	Within 1 week
Case 2[a]	60M	Posterior, right side of mandible	3	Yes (plain X-ray)	Oral pain	Immediately after recovery	Non-surgical removal of the sequestrum. Chlorhexidine and saline rinse.	2 weeks
Case 3[a]	47F	Posterior, right side of mandible	1.5	NA	Oral pain	Immediately after recovery	Non-surgical removal of the sequestrum. Amoxicillin.	NA
Case 4[a]	67F	Posterior, right side of mandible	1.75	NA	Soreness and oral pain	After 1 day	Non-surgical removal of the sequestrum. Chlorhexidine rinse.	Within 1 week
Case 1[b]	69M	Posterior, right side of mandible	4.5	No (plain X-ray)	Oral pain	Immediately after recovery	Amoxicillin. Chlorhexidine rinse.	6 weeks
Case 2[b]	86M	Posterior, right side of mandible	NA	No (plain X-ray)	Oral pain	Immediately after recovery	Phenoxymethylpenicillin. Chlorhexidine rinse.	7 weeks

[a]Almazrooa SA et al, 2010 (1).
[b]Present report.
NA = not available.

the mandibular shelf, covered by only a thin layer of oral mucosa, is probably vulnerable to trauma, which may affect the blood supply to the periosteum leading to local ischemia and osteonecrosis. Another possibility could be soft tissue necrosis caused by several hours of pressure from the endotracheal tube or the transesophageal echocardiograph with its bite blocks. Although the anaesthesiologists reported no procedural complications, reduced blood pressure could have aggravated the condition through diminished blood flow in the soft tissue. In a previously published case series (Table I), it appears that the affected area was at the right side of the posterior part of the mandible in all cases, indicating that trauma from the laryngoscope blade was a possible cause (1).

Although the exact mechanism involved in this type of osteonecrosis remains unknown (2), we believe that an association with general anaesthesia in our cases is very likely. There was no history of bisphosphonate use or radiation treatment, and follow-up oral examination prior to surgery showed no sign of osteonecrosis. Also, the onset of mandibular pain was right after recovery from anaesthesia in both cases.

Factors that may predispose to this type of osteonecrosis include prominent mandibular shelves, limited mouth opening, and extensive oral manipulation while managing the airway during anaesthesia. Previous or ongoing treatment with bisphosphonates or radiation might also lead to more severe complications in affected patients. We hope that our reported cases will increase the awareness of this type of complication to general anaesthesia.

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References

1. Almazrooa SA, Chen K, Nascimben L, Woo SB, Treister N. Case report: osteonecrosis of the mandible after laryngoscopy and endotracheal tube placement. Anesth Analg. 2010;2: 437–41.
2. Fisher QA. True, true–but how related? Bony necrosis and sequestration in the mandible after endotracheal intubation. Anesth Analg. 2010;2:272–3.