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# Simultaneous defect reconstruction in stage 3 medication-related osteonecrosis of the maxilla and mandible using the buccal fat flap and submental island flap: Case report



## KEYWORDS

Buccal fat flap;  
Submental island flap;  
Medication-related  
osteonecrosis of the  
jaw;  
Surgery

Patients with medication-related osteonecrosis of the jaw (MRONJ) may develop multiple osteonecrotic lesions.<sup>1</sup> To improve the surgical approach and ensure a resolution in cases of advanced MRONJ, various techniques using local flaps have been investigated.<sup>2–5</sup> Here, we reported the case of a patient with stage 3 MRONJ who was successfully treated by simultaneous reconstruction of large defects in the maxilla and mandible using a buccal fat flap (BFF)<sup>2,3</sup> superiorly and submental island flap (SIF)<sup>5</sup> inferiorly.

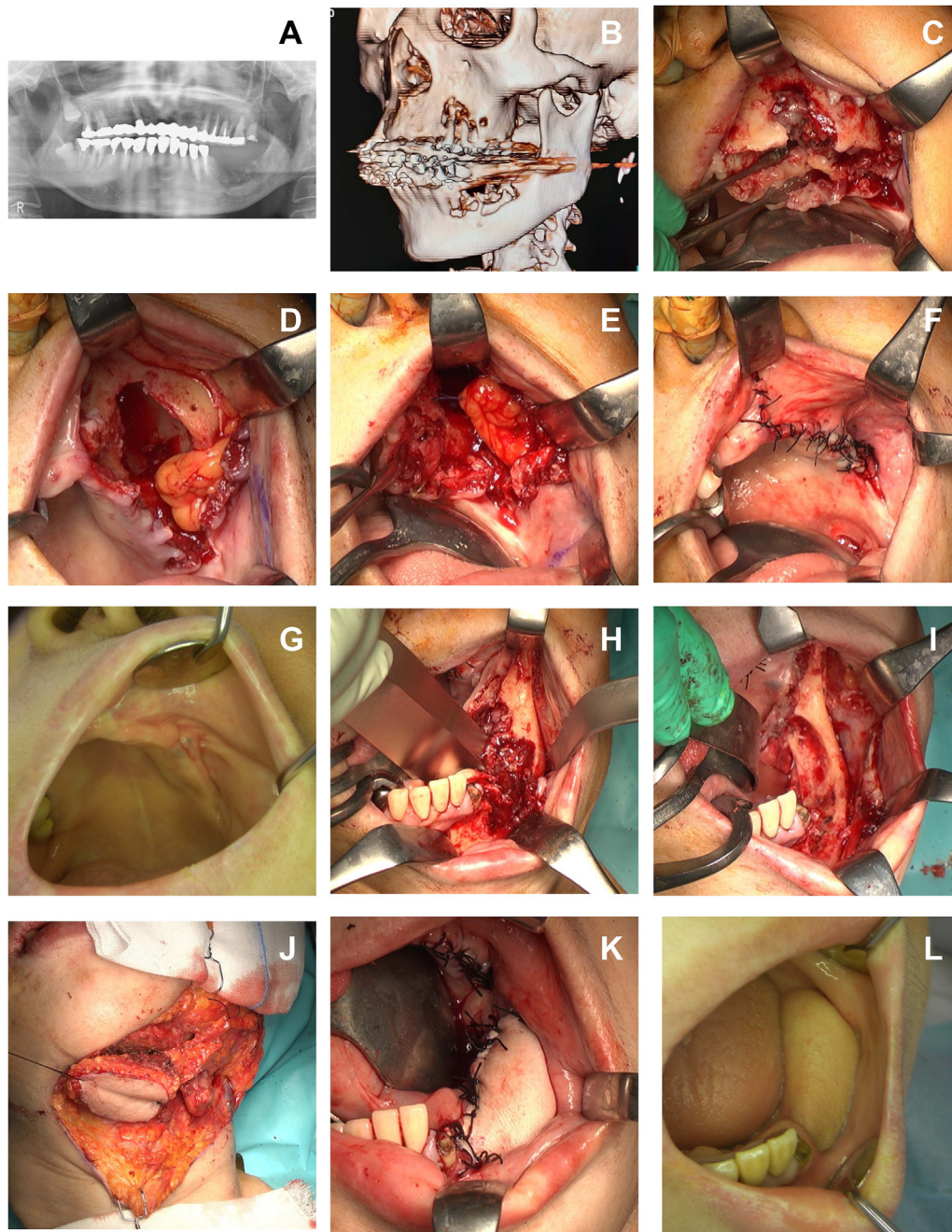
A 65-year-old female with stage 3 maxillo-mandibular MRONJ was referred to our department from her local hospital. She had been taking alendronate 35 mg/week for osteoporosis for 9 years. Intraoral examination revealed mucosal swelling and fistulae with exposed bone and purulent discharge in the left posterior areas of the upper and lower jaws, corresponding to osteolytic lesions in pantomography and three-dimensional computed tomography (Fig. 1A and B). In the surgical treatment, full-thickness mucosal flaps were made to expose the necrotic bone (Fig. 1C and H). The teeth, infected soft tissue, and necrotic bone were completely removed, causing large defects in the posterior areas of the jaws (Fig. 1D and I).

First, in the maxilla, the BFF was bluntly dissected, placed over the sinus floor defect, and fixed to the sinus wall using resorbable sutures (Fig. 1E). The mucosal flap was sutured over the BFF without tension (Fig. 1F). Second, in the mandible, a 3 × 5 cm elliptic submental paddle was designed and fully mobilized with a vascular pedicle to reach the defect (Fig. 1J). The SIF was rotated into the oral cavity so that it overlapped all sides of the defect and was sutured with the mucosal flap (Fig. 1K). The total operation duration was 185 min. At 10 months postoperatively, complete healing was observed in the treated areas of the maxilla and mandible (Fig. 1G and L).

For surgery of advanced MRONJ, the inclusion of well-vascularized local flaps above the decorticated bone with the complete removal of necrotic bone can dramatically improve the healing rates.<sup>2–5</sup> In stage 3 MRONJ of the posterior maxilla, Lemound et al. reported the usefulness of the nasolabial flap to reconstruct defects with excellent healing rates, but extraoral donor sites might leave a visible scar and hypoesthesia in the face.<sup>4</sup> Unlike the nasolabial flap, BFF is located in the same surgical field as the defect to be covered,

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**Figure 1** Clinical and radiographic findings of the patient. (A) Osteolytic lesion in a pantomography. (B) Confirmed osteolytic lesion in three-dimensional computed tomography. (C) Necrotic bone exposure in the maxilla. (D) Removal of teeth and necrotic bone in the maxilla and exposure of BFF. (E) Positioning and fixing of BFF into the defect. (F) Covering of the BFF with a mucosal flap. (G) Follow-up of BFF reconstruction at 10 months. (H) Necrotic bone exposure in the mandible. (I) Removal of teeth and necrotic bone in the mandible. (J) The fully mobilized SIF. (K) Final SIF inset into the defect. (L) Follow-up of SIF reconstruction at 10 months.

providing a straightforward and quick surgical technique without esthetic problems and complications, and its outcomes are highly predictable.<sup>2,3</sup> In stage 3 MRONJ of the posterior mandible, Ristow et al. described a double-layer closure technique using the mylohyoid muscle flap, but its success rate was not high (55%).<sup>3</sup> We previously reported the usefulness of SIF reconstruction

for large posterior defects in stage 3 mandibular MRONJ, which achieved high success rates (100%) as a single-stage procedure.<sup>5</sup> Based on our experience, a simultaneous reconstructive operation with BFF for posterior maxilla and SIF for posterior mandible in a stage 3 MRONJ patient could be a reliable and feasible surgery with promising results.

## Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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