Journal of Dental Sciences 19 (2024) 1245–1247

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journal homepage: www.e-jds.com

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Endoscopically-assisted intraoral marginal mandibulectomy with a cutting guide for mandibular posterior gingival carcinoma

KEYWORDS
Endoscope;
Intraoral approach;
Mandibular posterior gingival cancer;
Marginal mandibulectomy

Marginal mandibulectomy of the posterior mandible is commonly performed in extraoral approaches including submandibular or cheek-splitting transbuccal approach.[1–5] An intraoral approach can avoid visible skin scars or facial nerve injury, while it has technical difficulties for poor visualization and limited surgical access.[1,2] The maneuver of a reciprocating saw is difficult in the intraoral approach, and unpredictable mandibular osteotomy may produce sharp line angles that can predispose to postoperative mandibular fractures.[1] As a minimally invasive approach, we reported an endoscopically-assisted intraoral marginal mandibulectomy with a cutting guide for mandibular posterior gingival carcinoma.

A 74-year-old female with right mandibular posterior gingival cancer underwent an endoscopically-assisted intraoral marginal mandibulectomy. A mucosal incision was made with a safety margin of 10 mm. The mucoperiosteal flap was elevated from the mandibular surface on the buccolingual side under direct vision. We used a 30°, 4-mm diameter, 18 cm-length endoscope with a tissue retractor (Karl Storz, Tuttlingen, Germany) for magnification of the surgical field. Under the endoscopic view, the mandibular neurovascular bundle was ligated and incised at the position of the mandibular foramen (Fig. 1A). A cutting guide which was manufactured based on preoperative surgical simulation was placed on the mandibular lateral surface (Fig. 1B). After the curved osteotomy was performed along the cutting guide with a piezoelectric surgical device (Piezosurgery, Mectron, Italy) under endoscopic view (Fig. 1C), the cutting guide was removed. The intraoral marginal mandibulectomy including the coronoid process was performed completely with an oscillating and reciprocating saw along the guide groove under endoscopic guidance (Fig. 1D). There were no complications such as mandibular fracture (Fig. 1E). Because occult cervical lymph node metastasis occurred 4 months after the marginal mandibulectomy, the modified radical neck dissection was performed. There were no recurrence and further metastasis 10 years after the neck dissection. There was no change of the lip numbness during the postoperative 10-year period.

Posterior marginal mandibulectomy requires an accurate osteotomy with an adequate surgical margin as well as a curved osteotomy with less stress concentration to avoid postoperative mandibular fracture. Therefore, posterior marginal mandibulectomy has been generally performed in extraoral approaches.[3,4] In contrast, only intraoral approach for posterior marginal mandibulectomy has no visible skin scar or facial nerve injury but is challenging for difficulties with an obstructed view of the surgical site, limited access, and instrumentation such as bone saws.[2,3] Hirsch and Dierks[1] reported the intraoral approach with a transbuccal technique for posterior marginal mandibulectomy including the

https://doi.org/10.1016/j.jds.2023.11.022

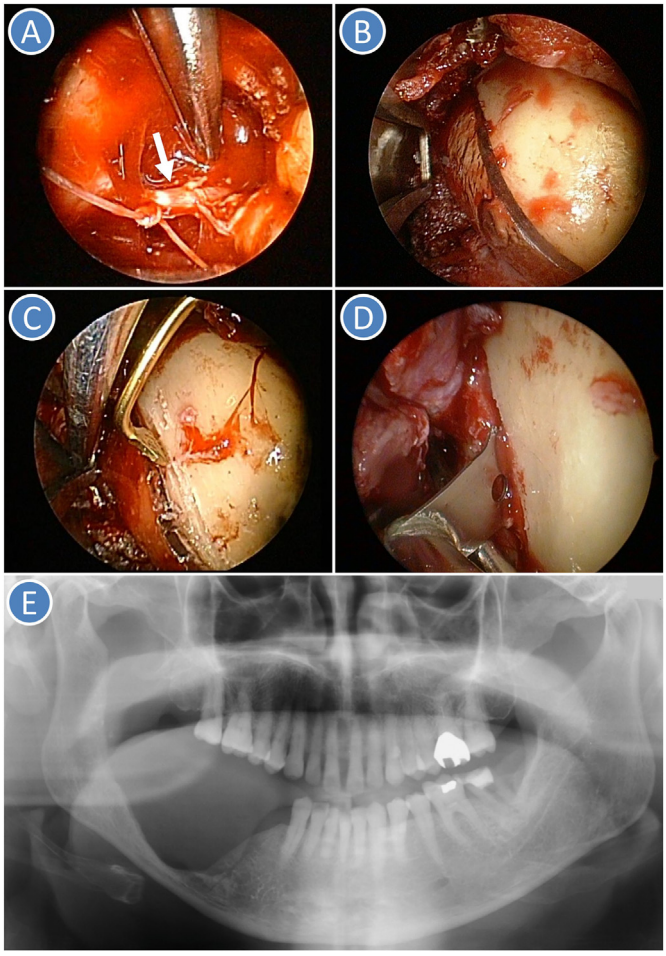

Figure 1 Endoscopic view and panoramic radiograph. (A) The mandibular neurovascular bundle (arrow) was ligated and incised at the position of the mandibular foramen under the endoscopic view. (B) A cutting guide which was manufactured based on preoperative surgical simulation was placed on the mandibular lateral surface. (C) The curved osteotomy was performed along the cutting guide with a piezoelectric surgical device under endoscopic view. (D) The curved osteotomy was performed completely with an oscillating saw along the guide groove under endoscopic guidance. (E) Postoperative panoramic radiograph.

coronoid process. The shank of a reciprocating saw blade is passed through a percutaneous stab incision from inside to outside, and the handpiece is then attached to the blade extraorally. The smooth-curved osteotomy is performed after the protection of lingual soft tissues, but the poor visualization of the surgical site may cause unpredictable osteotomy with the reciprocating saw. Therefore, the use of an endoscope can allow good illumination and better surgical view in the intraoral approach.[2] Because the endoscopically-assisted intraoral marginal mandibulectomy with a cutting guide can be performed safely and accurately without visible skin scar and facial nerve injury, this endoscopically-assisted intraoral approach may be an alternative to extraoral approach.

Declaration of competing interest

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

Acknowledgments

None.

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Received 27 November 2023
Final revision received 27 November 2023
Available online 8 December 2023