Mandibular Reconstruction with Fibula Flap Using a Simple and Cost-Effective Template

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Received: 17 February 2012 / Accepted: 7 March 2012 / Published online: 6 April 2012
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To the Editors,

We read with great interest the article by Yadav et al. [1] regarding their technique for central segment reconstruction of the mandible with a free fibula flap. The authors present a great study of the surgical technique and include a comprehensive discussion. We too have performed mandibular reconstruction with free fibula wedge osteotomy and a template, as described in this letter.

A 50-year-old man was diagnosed with an oropharyngeal carcinoma (T4N0M0) on his left side and was treated with chemoradiotherapy. The treatment resulted in a complete response at the primary tumor site. However, 1 year after completion of treatment, the patient was diagnosed with recurrence at the same site (rT4N0M0). The patient underwent extended pharyngectomy and segmental resection of the mandible with modified radical neck dissection followed by reconstruction of the mandible with a pedicled transverse rectus abdominis musculocutaneous flap and a reconstruction plate.

Three years after reconstruction, the reconstruction plate was exposed (Fig. 1). Computed tomography showed no

recurrence. The decision was made to remove the plate and reconstruct the mandible using fibula flaps.

The operation was performed as follows. First, we removed the reconstruction plate and the left mandibular condyle and débrided the surrounding tissue. Then we bent the template into the shape of the desired mandible contour at the recipient site (Fig. 2). Next, we performed fibula wedge osteotomy to harvest 3 segments of fibula between the midline and the condyle, 30, 30, and 45 mm long, respectively, using the bent template as a guide. Free fibula bone wedges were fixed between the segments and the

Fig. 1 Three years after reconstruction of the mandible with a pedicled transverse rectus abdominis musculocutaneous flap and a reconstruction plate, the reconstruction plate was exposed

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Fig. 2 Intraoperative photograph. The template was bent into the shape of the desired mandible contour at the recipient site (*arrow*)

segments were temporarily fixed to one another using miniplates with the template used as a guide (Fig. 3). Then the fibular artery and vein were clamped and cut, and the fibula flaps were transferred to the recipient site. In this case, it was not necessary to modify the contour 3-dimensionally after the flaps were transferred to the recipient site. After transfer of the flaps, all the joints were

fixed by attachment of additional miniplates, and vascular anastomoses were made between the fibular artery and the right facial artery and between the fibular vein and the external jugular vein. One month later, the reconstructed section of the mandible had the desired form (Fig. 4).

We agree with the techniques described by Yadav et al. for mandibular reconstruction, specifically, use of free

Fig. 3 Intraoperative photograph. The free fibula bone wedges were harvested and joined together using miniplates with the bent template used as a guide before the fibular artery and vein were clamped and cut

Fig. 4 Panoramic radiograph after mandibular reconstruction

fibula flaps harvested by wedge osteotomy and use of a template to achieve the desired shape. The fibula is a bone with a regular shape and constant thickness along its length, and its characteristic segmental blood supply allows great freedom with respect to the number of osteotomies that can be performed and their position [2]. If the osteotomies are performed before ligation of the vascular pedicle, the ischemia time is shorter, and the odds of transfer of viable bone increase. Our technique shortens the flap ischemia time and the total operation time. Also, our technique results in a satisfactory mandibular contour at significantly lower cost than use of a computer-generated template.

Conflict of interest None.

References

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