

New perspectives in the treatment of severe mandibular atrophy: “double sandwich” osteotomy

Albino Triaca^{a,1}, Daniel Brusco^{a,1}, Paolo Asperio^{b,2}, Raquel Guijarro-Martínez^{c,*}

^a Zentrum für Kiefer- und Gesichtschirurgie, Klinik Pyramide am See, Bellerivestrasse 34, CH-8034 Zürich

^b Resident, Department of Oral and Maxillofacial Surgery, Cardinal Massaia Hospital, Corso Dante, 202, ITA-14100 Asti

^c Fellow, Zentrum für Kiefer- und Gesichtschirurgie, Klinik Pyramide am See, Bellerivestrasse 34, CH-8034 Zürich

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The gold standard for treatment of advanced mandibular atrophy continues to be autologous bone grafting.^{1,2} Since its description in the 1970s, the sandwich technique has been found to be reliable for the reconstruction of atrophic mandibles (Cawood and Howell types IV–V).^{1,3–5} Its main advantages are the potential for three-dimensional reconstruction, minimal morbidity, and stable long-term outcomes.^{1,3–5} However, beyond certain cranialisation of the cut fragment of bone, the vertical vector becomes mixed and the reconstructed alveolar ridge may be morphologically inadequate for the placement of implants.

Operative technique

A full-thickness incision is made buccally 1 mm below the mucogingival line. Soft tissues are tunnelled cranially in a subperiosteal plane. Moderate lateral extension of the subperiosteal dissection facilitates eventual mobilisation of the cut bone. However, the crestal periosteum must be preserved to ensure adequate vascularisation of the future cranial segment.

A horizontal osteotomy of the edentulous mandibular bone is then made with a thin bur or piezoelectric saw. The osteotomy is finished by 2 (mesial and distal) slightly divergent vertical osteotomies (Fig. 1). The bone fragment, which remains anchored to the lingual and crestal periosteums, is raised cranially with a Gillies hook so that it “faces” the operator (Fig. 2). At this point, a second horizontal osteotomy is made to divide the freshly cut surface into 2 fragments: the first (the former buccal aspect), which remains attached to the crestal periosteum, becomes the roof of the defect, and the second (lingual aspect), which remains attached to the

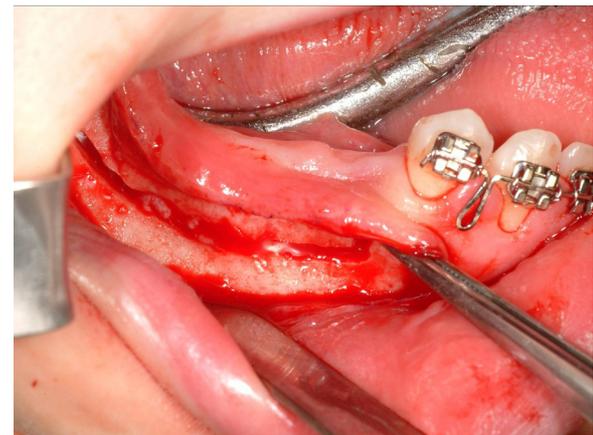


Fig. 1. Horizontal osteotomy finished by 2 vertical osteotomies. Note that the crestal periosteum remains attached to the cranial segment.

* Corresponding author. Tel.: +41-44-388 14 88; fax: +41-44-388 14 99.

E-mail addresses: a.triaca@pyramide.ch (A. Triaca), d.brusco@pyramide.ch (D. Brusco), asperio@asl.at.it (P. Asperio), guijarro.raq@gmail.com (R. Guijarro-Martínez).

¹ Tel.: +41-44-388 14 88, fax: +41-44-388 14 99.

² Tel.: +39-0141-489352, fax: +39-0141-485438.