Int. J. Oral Maxillofac. Surg. 2017; xxx: xxx–xxx
http://dx.doi.org/10.1016/j.ijom.2017.06.027, available online at http://www.sciencedirect.com

International Journal of Oral & Maxillofacial Surgery

Clinical Paper
Oral Surgery

The bone lid technique in oral surgery: a case series study

S. Sivolella[1], G. Brunello[1,2], F. Fistarol[1], E. Stellini[1], C. Bacci[1]
[1]Department of Neurosciences, School of Dentistry, University of Padova, Padova, Italy; [2]Department of Management and Engineering, University of Padova, Vicenza, Italy

S. Sivolella, G. Brunello, F. Fistarol, E. Stellini, C. Bacci: The bone lid technique in oral surgery: a case series study. Int. J. Oral Maxillofac. Surg. 2017; xxx: xxx–xxx.

Abstract. The aim of this case series study was to illustrate the bone lid technique implemented using piezoelectric surgery to access mandibular alveolar bone diseases and to assess the clinical and radiographic outcomes. The technique was used to treat 21 consecutive patients with various conditions: cysts in six cases, impacted teeth with associated cysts in nine, keratocystic odontogenic tumours in three, impacted teeth in two, and an endodontic lesion in one. The bone lid was fashioned using piezoelectric surgery and a thin osteotomy insert. After the surgical procedure, the bone lid was replaced and fixed with miniplates. On clinical and radiological follow-up at 12 months, the outcome measures were bone lid integration and alveolar bone volume recovery. Any complications were also documented. The lesion and bone lid healed completely in 19 cases; one patient experienced permanent mild paresthesia and one experienced trauma-induced bone lid necrosis. Computed tomography volumetric analyses conducted on 11 cases indicated a mean recovery of 93.8% of the volume of bone lost. Based on healthy biological reasoning, the bone lid technique with piezoelectric surgery and rigid fixation may be considered a valid alternative to ostectomy for the purposes of bone tissue healing.

Key words: bone lid; bony lid; bone window; piezoelectric surgery; osteotomy.

Accepted for publication

The removal of alveolar bone disease can give rise to volumetric bone defects as a result of both the disease itself and the need to perform ostectomies sufficient to make the disease accessible and visible during surgery[1]. Alternatives to ostectomy have been proposed, including the use of endoscopes to enucleate cystic lesions[2,3], and the so-called 'bone lid' technique[4]. The aim of the latter is to provide better intraoperative visibility, while avoiding the formation of bone defects by adopting an immediate reconstruction approach. The method involves fashioning a bone window (or lid) with the aid of thin osteotomy instruments. The lid is removed to access the surgical site and then restored to its original position at the end of the surgical procedure. To facilitate osteosynthesis, the lid is usually fixed rigidly in place with miniplates[5–8], transfixation screws[1], absorbable or non-absorbable ligatures[9–13], or adhesive acrylic tissue[14]. Fixings may be unnecessary if the repositioned bone lid is highly stable[1,15].

Khoury reported a prospective series of 200 consecutive patients treated with the bone lid approach using a micro-saw[1]. Good results were achieved in terms of bone healing and alveolar bone volume

0901-5027/000001+07

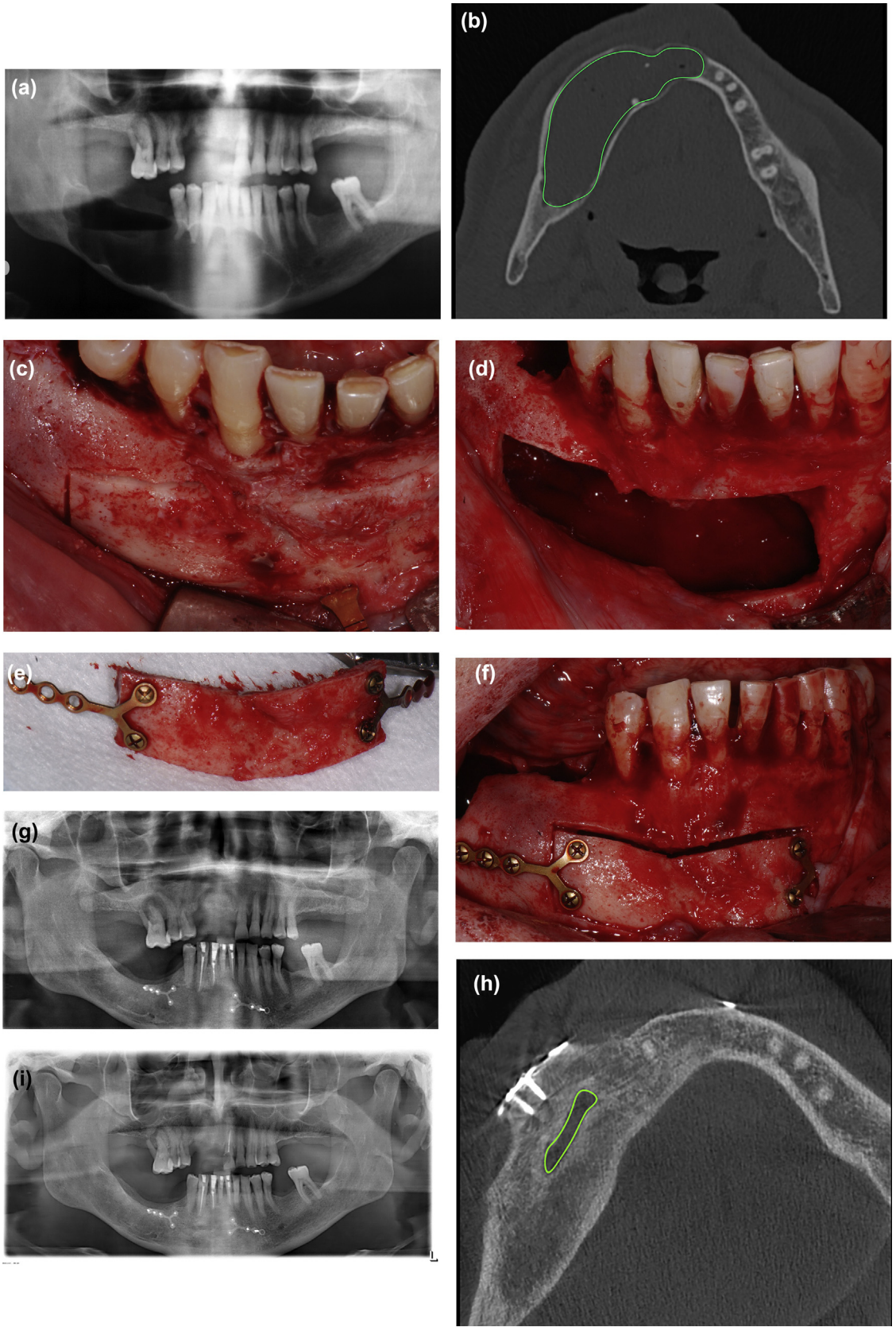

Fig. 1. Images for case patient 4. (a) Preoperative panoramic radiograph showing a large radiolucent lesion involving the right mandibular body and symphysis. Among the teeth affected by the lesion, teeth 41 and 44 responded to both electric and cold pulp vitality tests. (b) Preoperative CT scan, axial view. (c) Mandibular buccal bone lid fashioned using piezoelectric surgery (Piezosurgery insert OT7, bottom right), prior to its detachment. (d) Removal of the bone lid, providing access to the cystic lesion. Tooth 45 was extracted during the surgical procedure. (e) Bone lid

Please cite this article in press as: Sivolella S, et al. The bone lid technique in oral surgery: a case series study, *Int J Oral Maxillofac Surg* (2017), http://dx.doi.org/10.1016/j.ijom.2017.06.027