

Maxillary Posterior Segmentation Using an Oscillating Saw in Le Fort I Posterior or Superior Movement Without Pterygomaxillary Separation

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Purpose: Any remaining tuberosity or pterygoid plate frequently interferes with posterior or superior movement of the maxilla, if no pterygomaxillary separation is performed in low-level Le Fort I osteotomy. The objective of this report is to describe a technique for maxillary posterior segmentation using an oscillating saw in Le Fort I posterior or superior movement without pterygomaxillary separation and to present the authors' preliminary multicenter experience with this technique.

Materials and Methods: The authors retrospectively evaluated patients who underwent double-jaw surgery at 3 orthognathic surgery centers from May 2010 to December 2012. In all cases, the segmentation procedure was performed using an oscillating saw on a posterior or tuberosity area of the maxilla before downfracture obtained by leverage alone without pterygomaxillary separation, below or near the lower part of the pterygoid plate.

Results: In total, 1,231 patients (411 male and 820 female; mean age, 24.9 yr) were enrolled. Mean surgical time for the maxillary procedure was 55.9 minutes. None of the patients received a blood transfusion, and no significant soft or hard tissue complications clinically compromised the healing of the repositioned maxilla. Mean maxillary posterior and superior movements were 3.4 mm (range, 2.1 to 5.6 mm) and 4.0 mm (range, 1.3 to 5.6 mm), respectively.

Conclusions: The preliminary results indicate that this maxillary posterior segmentation procedure using an oscillating saw in low-level stepped Le Fort I osteotomy can be completed safely and effectively for posterior or superior repositioning of the maxilla, with no need to disturb the integrity of the pterygoid plate.

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J Oral Maxillofac Surg 72:2289-2294, 2014

The Le Fort I osteotomy is a safe, reliable, and predictable procedure to correct dentofacial deformities.¹ Although some techniques and instruments are available to achieve safe pterygomaxillary separation during a conventional Le Fort I osteotomy, concerns about the risk of complications resulting from pterygomaxillary separation have led to the develop-

ment of the leverage-alone technique, which avoids the use of osteotomes for pterygomaxillary dysjunction, and low-level osteotomy techniques anterior to the pterygomaxillary junction.² However, these techniques have not been widely adopted, although they can facilitate successful repositioning of the maxilla.³

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This work was supported by the research fund of Hanyang University (HY-2012-MC).

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Received May 23 2013

Accepted April 10 2014

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0278-2391/14/00420-0\$36.00/0

<http://dx.doi.org/10.1016/j.joms.2014.04.007>

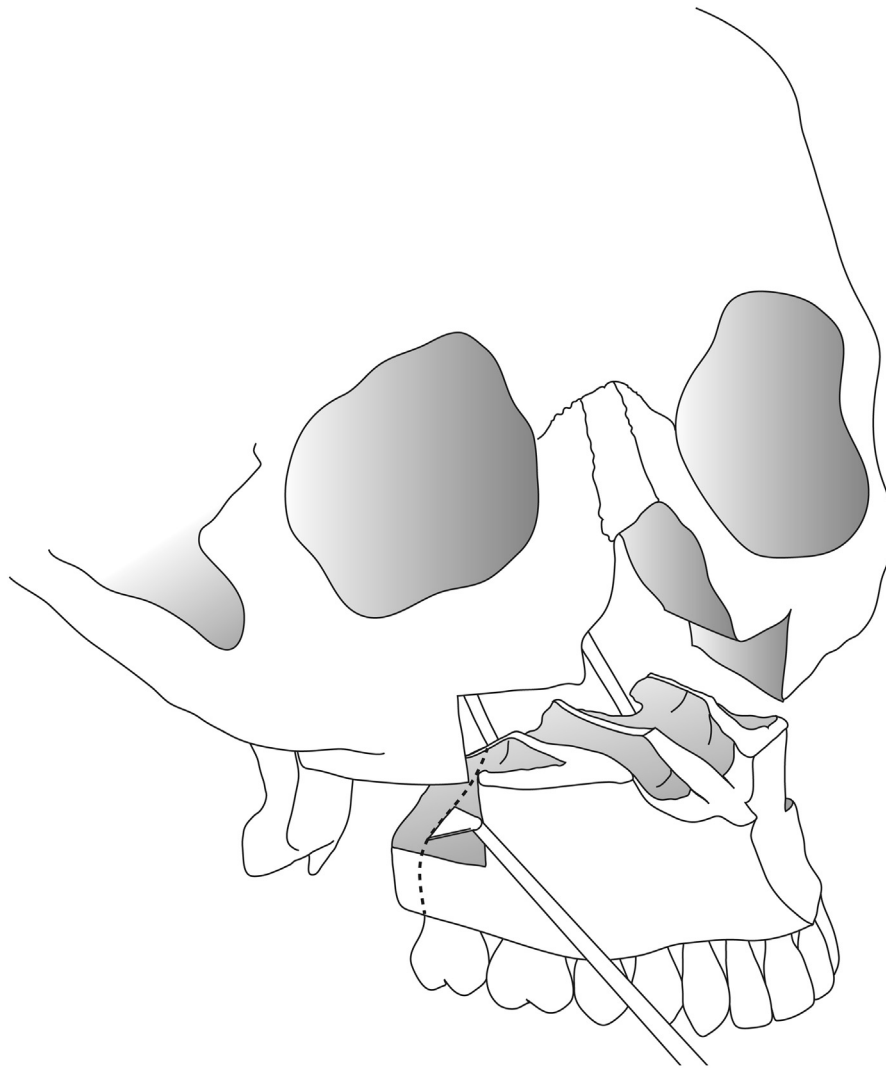


FIGURE 1. Schematic drawing of maxillary posterior segmentation using an oscillating saw in low-level stepped Le Fort I osteotomy without pterygomaxillary separation.

Kang, Hwang, and Park. Maxillary Posterior Segmentation in Le Fort I. J Oral Maxillofac Surg 2014.

The Le Fort I osteotomy with total maxillary setback or posterior impaction is frequently indicated in patients with bimaxillary protrusion, which is a common dentofacial pattern in Asians.⁴ In addition, since the introduction of the concept of minimal orthodontic preparation before orthognathic surgery, or “surgery first,”^{4,5} the demand for maxillary surgery has been increasing. For posterior or superior movement of the maxilla, in particular, reduction of the maxillary posterior area (tuberosity) or the pterygoid plate, which can limit the precise repositioning of the downfractured maxilla, is essential.

This report describes a simple technique for maxillary posterior segmentation using an oscillating saw after accomplishing maxillary downfracture using leverage alone without pterygomaxillary separation in low-level stepped Le Fort I osteotomy. This tech-

nique decreases interference with the pterygoid plate in posterior or superior movements of the maxilla. In addition, this report describes the preliminary retrospective results using this technique in a multicenter setting.

Materials and Methods

From May 2010 to December 2012, the authors retrospectively evaluated patients who underwent surgery at 3 orthognathic surgery centers (2 were private clinics and 1 was a university hospital). At all 3 centers, the attending surgeon used this technique for the maxillary osteotomy. Patients were required to be 1) nonsyndromic, 2) diagnosed with maxillary excess or protrusion, 3) treated by this technique in combination with mandibular surgery

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