

# Osteotomies in Rhinoplasty: An Updated Technique

The authors have found external percutaneous perforated lateral osteotomies to be predictable, versatile, and reproducible. Here, they provide their updated technique and recent refinements. (*Aesthetic Surg J* 2003;23:56-58.)

Traditionally, lateral osteotomies have been used to narrow the lateral walls of the nose, close an open-roof deformity after dorsal hump reduction, and create symmetry by allowing for straightening of the nasal bony framework.<sup>1</sup> Although the indications are fairly uniform, there is controversy about whether the internal or external technique is best.

In 1997 we conducted an anatomic study using direct nasal endoscopy to compare lateral nasal osteotomies performed by use of the external perforated technique with those performed by use of the internal continuous technique.<sup>2</sup> Using 2-mm osteotomes, we found a statistically significant reduction in intranasal mucosal injury. Eleven percent of external perforated osteotomies resulted in mucosal tearing compared with 73% of internal continuous technique osteotomies. On the basis of this study, we favor the external approach because it minimizes hemorrhage, edema, and ecchymosis, while allowing reproducible, controlled fractures.

The lateral osteotomies can be performed at any time during the operative sequence, although they are usually performed during the final stages, after the dorsal nasal height, septum, and tip projection have been addressed. We prefer the following technique<sup>3,4</sup>:

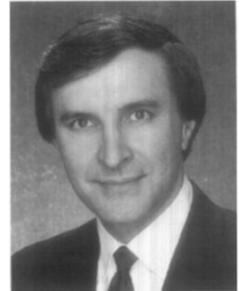
1. Infiltrate externally and intranasally along the lateral nasal sidewalls with 2 mL of 1% lidocaine with 1:100,000 epinephrine. Allow 5 to 7 minutes to elapse before incising.
2. At the level of the inferior orbital rim and nasofacial junction, parallel to the horizontal surface of the maxilla, percutaneously introduce a sharp 2-mm osteotome on the midportion of the bony nasal pyramid (Figure 1).
3. To avoid injury to the angular artery, sweep the

osteotome down the lateral nasal sidewall and laterally along the frontal process of the maxilla in a subperiosteal plane, to the site of the first osteotomy (Figure 2).

4. Position the osteotome at an angle so that one edge contacts the bone to maximize the force per centimeter squared and minimize trauma, and strike with the mallet (Figure 3). A change in feel and sound at that location signals the desired end point.
5. Perform multiple osteotomies spaced 2 mm apart along a line extending from the pyriform aperture superiorly to the nasofrontal junction and then obliquely to the dorsum. Perform the same procedure on the contralateral nasal wall (Figure 4).
6. After completing the bilateral osteotomies, use gentle pressure between the thumb and forefinger to perform a greenstick infracture of the nasal bones to reposition them in the desired location.
7. Do not suture the osteotomy sites. Instead, cover the sites with flesh-colored Steri-strips (Seaway Surgical, Toledo, OH) and apply a metal contoured dorsal compression splint for 7 days.

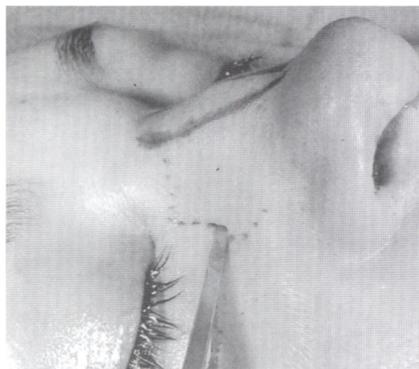
We have further refined our technique in the following ways:

- A sharp 2-mm osteotome is imperative. Therefore we sharpen our osteotomes after every 10 uses.
- It is important to remain within the percutaneous puncture site while performing the osteotomies to prevent increased risk of vascular trauma and ecchymosis and to maintain soft tissue retraction. All internal osteotome movement should be accomplished by "feel." If you need to withdraw the osteotome it is necessary to, once again, sweep downward to avoid injuring the angular vessels.

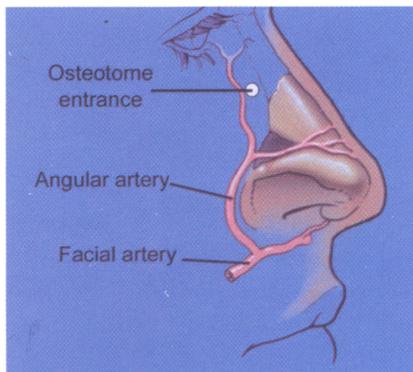


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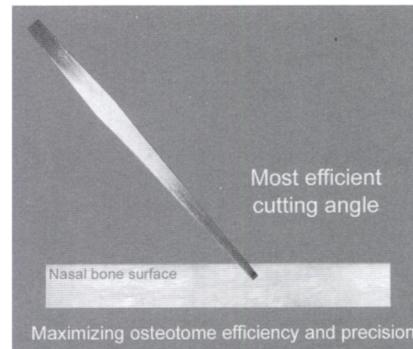
Co-author, **Jeffrey E. Janis, MD, Dallas, TX,** is a plastic surgeon.



**Figure 1.** A sharp 2-mm osteotome is percutaneously introduced at the level of the inferior orbital rim and nasofacial junction parallel to the horizontal surface of the maxilla. (Reprinted from Gunter et al<sup>4</sup> with permission.)



**Figure 2.** Local vascular anatomy of the nose. Take care to avoid the angular artery when introducing the osteotome. (Reprinted from Gunter et al<sup>4</sup> with permission.)



**Figure 3.** The osteotome is angled to achieve maximal efficiency and precision. (Reprinted from Gunter et al<sup>4</sup> with permission.)



**Figure 4.** Multiple osteotomies are made 2 mm apart along a line extending from the pyriform aperture superiorly to the nasofrontal junction, and then obliquely to the dorsum. (Reprinted from Gunter et al<sup>4</sup> with permission.)

- Hold pressure from side to side to decrease bleeding and prevent postoperative ecchymosis.
- Use only gentle digital pressure to perform the infrafracture of the nasal bones. If more pressure is needed, reinsert the osteotome and feel along the prior osteotomy line for potential large gaps between perforations.

In our hands, these refinements have been demonstrated over time to be well-controlled, predictable, and reproducible.<sup>3,4</sup> The main advantage of this technique, in general, is preservation of the periosteal attachments, which decreases the amount of dead space, reduces sub-

luxation and subsequent airway compromise, and offers greater overall stability after positioning.<sup>5</sup>

Although postoperative care is individualized, we generally recommend head-of-bed elevation, prophylactic antibiotics (cephalexin), steroids (dexamethasone), and activity restriction. We strongly encourage patients to maintain nasal hygiene by irrigating frequently with nasal saline solution. We also ask patients to avoid straining, nose blowing, or participating in heavy or strenuous activity for 3 weeks.

We have found external percutaneous perforated lateral osteotomies to be predictable, versatile, and reproducible. Preservation of the periosteal attachments

decreases morbidity by decreasing dead space, reducing airway compromise, and affording greater stability when repositioning the nasal bones. Our further refinements have led to an even lower incidence of postoperative hemorrhage, edema, and ecchymosis. Furthermore, we have found the access incisions to be virtually imperceptible at 4 to 6 weeks. ■

**References**

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