

External vs Internal lateral osteotomy: why I choose the external percutaneous approach

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Abstract

The authors present their surgical experience in the management of the patients with dorsum deformities by using a precise technique: the external percutaneous approach. The indications for this technique are still not very clearly exposed in the rhinologic textbooks or manuals so the novice might have difficulties in understanding and applying it. With this paper, we try to briefly systematize and clarify these indications and the technical details in comparison with the alternative - very currently used – internal lateral osteotomy.

Although in our experience we only use external osteotomies in 30 % of the cases, we find the results very satisfactory and we recommend to perform it when the anatomic conditions ask for it.

Introduction

Rhinoplasty is one of the most rewarding cosmetic interventions, for the patient and also for the surgeon. Technically speaking, every case is different, and the surgeon's experience is very important. Each rhinoplasty operation must be carefully planned based on the analysis of the patient's deformity and desires.

The osteotomies are classified by the method of approach in internal (endonasally) and external (percutaneously). Their place in operative sequence is after the dorsal correction and septal surgery.

The purpose of lateral osteotomies is to narrow the bony base of the nose, after the dorsal correction, by closing the open dorsal roof.¹

The technical aspects

An external lateral osteotomy is usually performed using a 2 mm osteotome. It is not necessary to use a scalpel for the skin incision, as the osteotome incises the skin at the halfway point of the proposed osteotomy pathway. The procedure is then executed according to the external perforated technique, by means of a series of dotted incisions every 3 mm,

comparable to the edge of a stamp, by moving the osteotome subcutaneously.^{2,3} (Figures 1-3)
A lateral pressure applied now will narrow the bony pyramid, making the dorsum thinner.



Figure 1. Skin incision at the halfway of the osteotomy pathway



Figures 2 and 3. During the section of the frontal process of the maxillary osteotome is maintained in the subcutaneous plane

When I perform it

This external technique, compared with the internal lateral osteotomy, has an important advantage: it enables a lower thus more lateral section of the frontal process of the maxillary bone, thereby avoiding the lateral 'rocker' or steplike deformities. As the periosteum contacts between incisions are preserved, the nasal bone doesn't descend and stays leveled to the edge of the frontal process of the maxilla (Figure 4). This remains valid not only if the dorsum has a good alignment from the start, but also following a dorsal correction. In the case of an internal osteotomy the periosteum layers are sectioned and the nasal bones can thus descend (Figure 5). In summary, if the nasal dorsum has a correct alignment, it is suitable to perform a percutaneous or external lateral osteotomy thereby avoiding the excessive narrowing of the piriform aperture. In selected cases the external osteotomy through an additional small skin incision at the base of the nose can also be very useful.

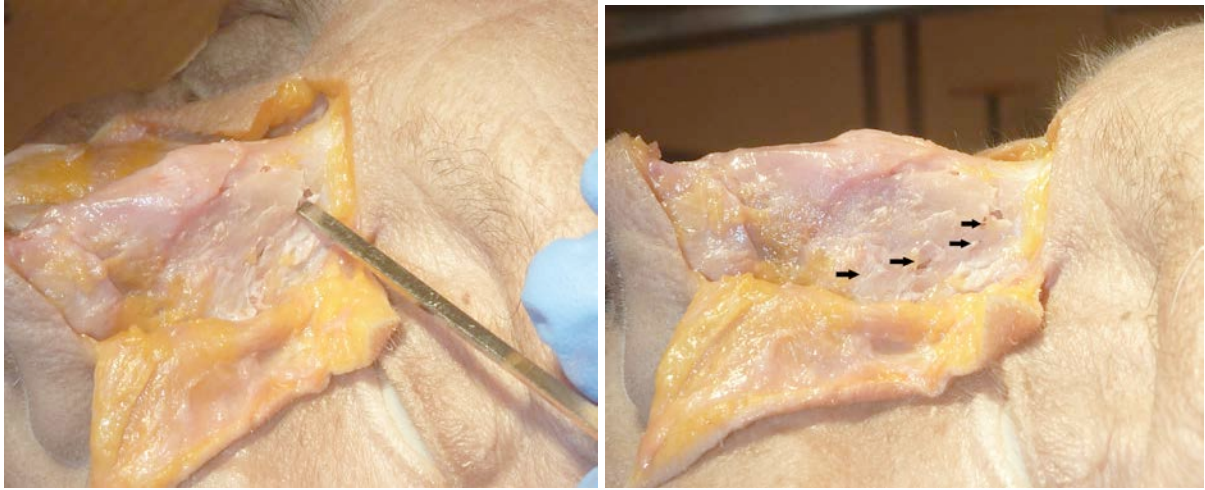


Figure 4. External lateral osteotomy - female cadaver dissection. The arrowheads indicate each separate osteotomy.

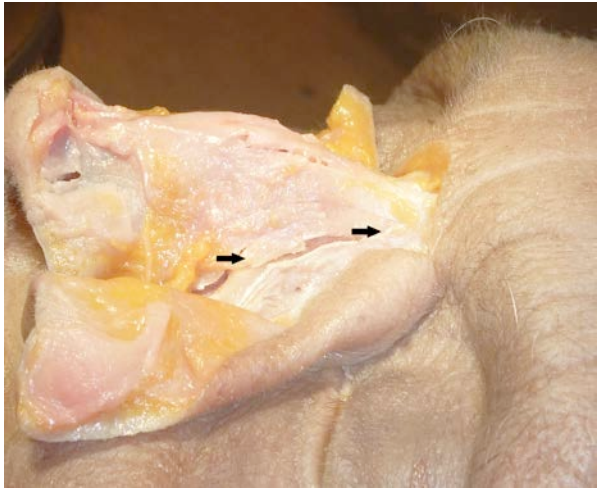


Figure 5. Internal osteotomy - female cadaver dissection. The arrowheads point at the inferior and superior edge of the osteotomy line. Note the linear interruption of the periosteum.

However, the external approach becomes more difficult to perform if the nasal bone is thick and firm. In this case it may be more suitable to try the 3mm osteotome (especially when our patient is a male) (Figure 6).

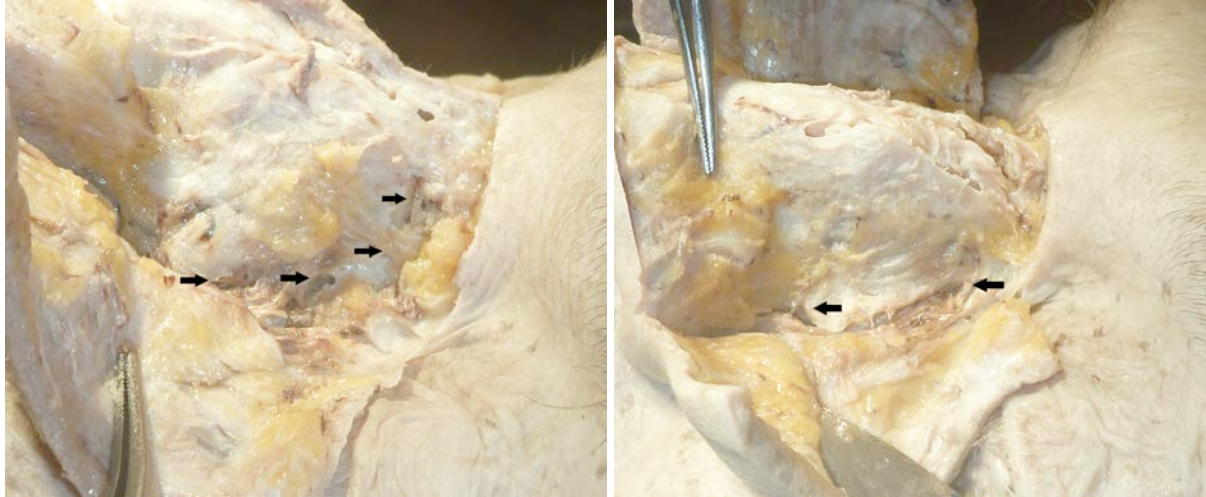


Figure 6. The same comparison between external (left side) and internal osteotomy (right side) - male cadaver dissection

Generally the two techniques respect the mucosa except for the incision in the case of internal osteotomy: the place where the osteotome penetrates the mucosa (Figure 7).

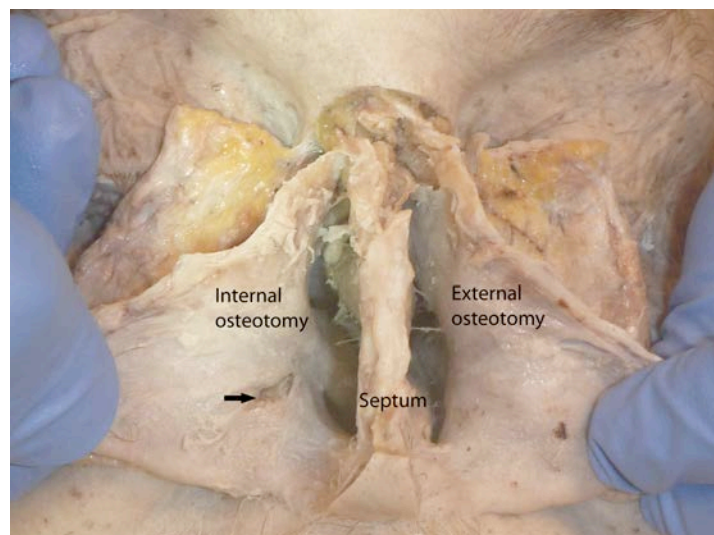


Figure 7. At the finalization of the cadaver dissection, the nasal pyramid is separated in the midline and the mucosal lining is exposed. In this cadaver internal osteotomies have been performed on the right nasal bone, external on the left nasal bone. Unlike the external procedure a small incision is observed in internal osteotomy (arrow)

In terms of operation length, both techniques are of the same duration.

The scar of the skin after external osteotomy is imperceptible (Figure 8).



Figures 8. Once healed, the skin incision becomes imperceptible (arrows)

In my daily practice I choose to perform external percutaneous lateral osteotomies, except in cases with a very large nose which will require to be narrowed at the patient's request, in cases where the nose can sink further following hump removal, and finally in patients with a very hard and thick nasal bone.

References

1. Rolling KD. Primary rhinoplasty. Osteotomies. In: Rolling KD, Ed. *Rhinoplasty: an atlas of surgical technique*. Springer, New York, 1999:304.

2. Trenité GJ. Surgery of the osseocartilaginous vault. Osteotomies. In: Trenité GJ, Ed. *Rhinoplasty: a practical guide to functional and aesthetic surgery of the nose*. Kugler publications, The Hague, 2005:102.
3. Trenité GJ. Guidelines for cadaver dissection. Osteotomies. In: Trenité GJ, Ed. *Rhinoplasty: a practical guide to functional and aesthetic surgery of the nose*. Kugler publications, The Hague, 2005:246.

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