

# Nasal Reconstruction Using the Menick Three-Stage Forehead Flap:

Y. Merimi<sup>1</sup>, K. Benmoussa<sup>2</sup>, H. Nejjar<sup>3</sup>, A.Ouardi<sup>4</sup>

<sup>1,2,3,4</sup>Department of Plastic, Aesthetic and Reconstructive Surgery, Oued Eddahab Military Hospital, Agadir, Morocco

## Abstract

Nasal reconstruction after tissue loss remains one of the most difficult challenges in plastic surgery, and no single technique has consistently produced an ideal aesthetic outcome. We report the case of a patient with a full-thickness (transfixing) nasal defect treated with a three-stage forehead flap at the Department of Plastic, Aesthetic and Reconstructive Surgery, Oued Eddahab Military Hospital, Agadir, Morocco. The forehead is the preferred donor site for nasal resurfacing because its skin closely matches nasal skin in color and texture. However, a forehead flap is usually thicker than native nasal skin, regardless of its vascular pedicle. In the classical two-stage technique, the flap is transferred after limited distal excision of frontalis muscle and subcutaneous fat, and the pedicle is divided about three weeks later. This approach may leave the flap insufficiently thinned and carries a risk of necrosis, particularly in smokers and in extensive reconstructions. Menick therefore introduced an additional stage between flap transfer and pedicle division.

**Keywords:** nasal reconstruction, Menick technique, reconstructive surgery, transfixing nasal defect, nasal tumor.

## Introduction

Nasal reconstruction is one of the most demanding procedures in reconstructive surgery. The nose occupies a central position on the face and has a complex three-dimensional structure. Beyond restoring airway function, a satisfactory aesthetic result is essential, as even minor irregularities are immediately visible. Many techniques have been described, ranging from local flaps and skin grafts to regional and free tissue transfer. For nasal resurfacing, the forehead flap has long been the reference technique because of its reliable vascularization, its versatility, and the close color and texture match between forehead and nasal skin.

The conventional forehead flap is performed in two stages: transfer of the flap, followed by division of the pedicle. Although effective, this approach offers limited control over flap thickness and contour, and it carries a risk of necrosis in patients with comorbidities or extensive defects. Menick proposed a three-stage modification, adding an intermediate operation between transfer and pedicle division. This additional stage allows safe thinning of the flap, precise placement of cartilage grafts, and finer contour refinement, improving both the aesthetic and functional results.

We report a patient with a transfixing nasal defect following excision of a basal cell carcinoma, reconstructed with this three-stage forehead flap at the Department of Plastic, Aesthetic and

Reconstructive Surgery, Oued Eddahab Military Hospital, Agadir, Morocco. This case illustrates the reliability and versatility of the technique for complex nasal defects.

### Case Report

A 52-year-old patient with no significant medical history was referred to the Department of Plastic, Aesthetic and Reconstructive Surgery, Oued Eddahab Military Hospital, Agadir, Morocco, for an infiltrative basal cell carcinoma of the nose. Tumor excision with a 1 cm margin resulted in a full-thickness (transfixing) defect involving the nasal tip and the alar wing. Reconstruction was performed using the three-stage forehead flap technique.

### Discussion

Since Menick's modification, the three-stage forehead flap has become the preferred technique for nasal reconstruction. It is reliable and suitable for both superficial and full-thickness defects. The procedure consists of three operations performed at three-week intervals

#### Stage 1

Planning is carried out on the morning of surgery. The supratrochlear artery, which supplies the flap, is first located. A template of the defect is made and transferred to the forehead, positioned so that the flap rotates correctly. The flap design includes a distal extension reserved for reconstruction of the deep (lining) plane.

After resection of the nasal subunits requiring reconstruction, a full-thickness forehead flap including the frontalis muscle is elevated (Figure 1).

The flap is rotated toward the nasal side to facilitate its movement and limit tension on the eyebrow. The lining is reconstructed first by folding the distal portion of the flap and suturing it with absorbable sutures. The flap is then inset into the defect at the nasal tip and nostril wing. The forehead donor site is closed after careful undermining.



**Figure 1: Elevation of the forehead flap**

The deep aspect of the pedicle may be covered with a skin graft, which reduces oozing and bleeding and improves patient comfort. At the end of this first stage, the flap remains thick; excess frontalis muscle is removed during the second stage.

**Stage 2**

Three weeks later, the flap is elevated in a subcutaneous plane, preserving the frontalis muscle and the distal extension used for lining. Excess muscle is excised according to the nasal thickness required, which yields a thinned flap (Figure 2).



***Figure 2 : Thinned flap***

A conchal cartilage graft is placed at the nasal tip to provide support and definition. The flap is then sutured back in place, using quilting-type (capitonnage) stitches to redefine the aesthetic lines of the nose, particularly around the nostril wing (Figure 3).



***Figure 3 :Redefined aesthetic lines of the nose***

The pedicle is left intact until the third stage.

**Stage 3**

In the final stage, the pedicle is divided once the distal portion of the flap covering the defect has fully healed. Skin is trimmed to fit the nasal subunits being reconstructed, here the hemi-tip and the nostril wing. The eyebrow, which the pedicle tends to pull downward, is repositioned to match the contralateral side.

**Conclusion**

In this case, the three-stage forehead flap provided an excellent aesthetic result. Preserving the frontalis muscle limits scarring and flap contraction. The second stage allows muscle thinning, cartilage grafting, and contour definition, and the third stage completes the refinement after pedicle division. In the authors'

experience, this technique is a very effective option for nasal defects of all types, whether full-thickness or superficial, limited to one subunit or involving the entire nose, and its aesthetic results appear superior to those of other techniques. As this is a single case, these conclusions should be confirmed by larger series.

Figure legends

Figure 1: Elevation of the forehead flap.

Figure 2: Thinned flap.

Figure 3: Redefined aesthetic lines of the nose.

### References:

1. Menick, F. J. Nasal Reconstruction: Forehead Flap: *Plast. Reconstr. Surg.* 2004, 113 (6), 100e–111e. <https://doi.org/10.1097/01.PRS.0000117382.57120.23>
2. Menick, F. J. Nasal Reconstruction: *Plast. Reconstr. Surg.* 2010, 125 (4), 138e–150e. <https://doi.org/10.1097/PRS.0b013e3181d0ae2b>
3. Menick, F. J. A 10-Year Experience in Nasal Reconstruction with the Three-Stage Forehead Flap: *Plast. Reconstr. Surg.* 2002, 109 (6), 1839–1855. <https://doi.org/10.1097/00006534-200205000-00010>
4. Menick, F. J. Nasal Reconstruction with a Forehead Flap. *Clin. Plast. Surg.* 2009, 36 (3), 443–459. <https://doi.org/10.1016/j.cps.2009.02.015>
5. Menick, F. J. A New Modified Method for Nasal Lining: The Menick Technique for Folded Lining. *J. Surg. Oncol.* 2006, 94 (6), 509–514. <https://doi.org/10.1002/jso.20488>