

Three-Staged Reconstruction of a Nasal Defect

CHRISTOPHER WEYER, DO, FAOCD, FACMS, FAAD,* NATHALIE C. ZEITOUNI, MDCM, FRCPC,[†] AND J. RYAN JACKSON, DO[‡]

The authors have indicated no significant interest with commercial supporters.

An 86 year-old woman nursing home resident presented for the treatment of a recurrent basal cell carcinoma of the left lateral nasal tip. The lesion had been present for 2 years. At presentation, it measured 1.1 cm. Mohs micrographic surgery was performed by surgeon

C.W. The tumor was resected with negative margins after 6 stages of Mohs surgery. The resulting defect measured 2.5×2.2 cm with loss of underlying cartilage and partial full-thickness loss of the alar rim (Figure 1). How would you reconstruct this defect?

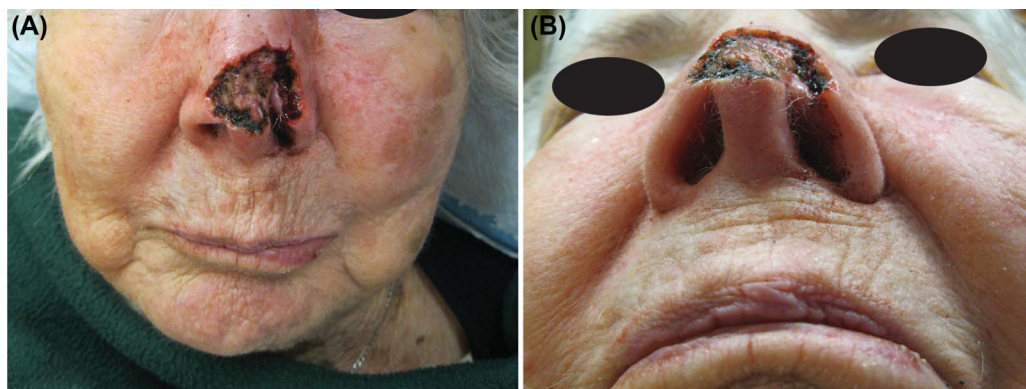


Figure 1. (A) Frontal view of defect after Mohs surgery for recurrent basal cell carcinoma on the left lateral nasal tip. (B) Inferior view of defect after Mohs surgery for recurrent basal cell carcinoma on the left lateral nasal tip.

*Dermatology and Plastic Surgery of Arizona, Tucson, Arizona; [†]University of Arizona Cancer Center at Dignity Health, Phoenix, Arizona; and [‡]Northeast Regional Medical Center, General Medical Education, Kirksville, Missouri

© 2018 by the American Society for Dermatologic Surgery, Inc. Published by Wolters Kluwer Health, Inc. All rights reserved.
ISSN: 1076-0512 • Dermatol Surg 2018;44:1611–1614 • DOI: 10.1097/DSS.0000000000001487

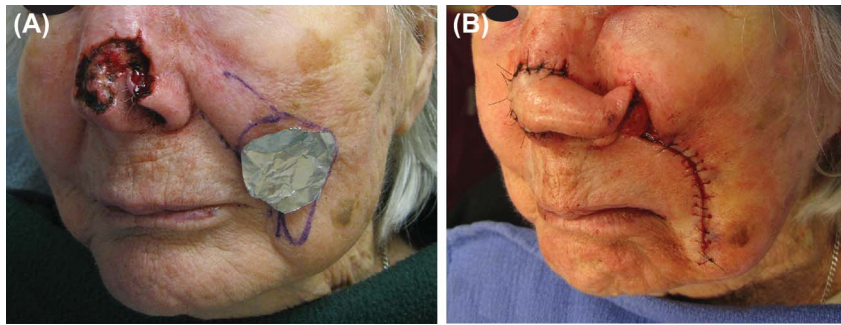


Figure 2. (A) Designed the flap as a melolabial interpolation flap planned with as a 3-stage reconstruction. Flap placed with the cartilage graft for rim support. (B) Medial rotation of the flap.

Resolution

The approach to repairing a large multi-subunit full-thickness wound begins with a thorough assessment of the patient’s anatomy, available tissue reservoirs, and personal reconstructive expectations.¹ Some of the common difficulties encountered in the repair of a full-thickness alar rim defect include potential nasal valve collapse, notching of the alar rim, and the overall complex topographic relationships of the nose.² Minor deformities on the nose seem to be magnified because of its focal anatomic location. Techniques that produce aesthetically acceptable results with limited complications, such as a 3-stage forehead flap and 2-stage paramedian forehead flap, were considered. However, the disadvantages of a paramedian forehead flap include potential flap thickness created by tissue folding that may require an intermediary thinning stage before division and inset.³ The patient expressed concern of not being able to wear her glasses resulting in vision impairment which was a concern with both the 3- and 2-staged forehead flap. Thus, further

reconstruction techniques were discussed. The overall goals of the repair were to maintain nasal aperture and function and to balance color, texture and restore skin contour. After consideration of the options and plans to achieve the above-mentioned goals, a decision was made to repair the nasal defect through a 3-stage melolabial interpolation flap.

First Stage: Cartilage Graft for Rim Support and Melolabial Flap Placed

A 3-stage melolabial interpolation flap was planned for reconstruction with cartilage to be taken from the left antihelix for rim and nasal valve support (Figure 2A). The defect site was measured in a normal anatomic position based on the symmetry of patient’s nose and normal anatomic position of the alar rim. The ala was raised to its normal anatomic position and aluminum foil was used as a template to design a flap (Figure 2A). The melolabial interpolation flap was performed with a planned medial rotation of the flap (Figure 2B). The lateral aspect of the flap by design

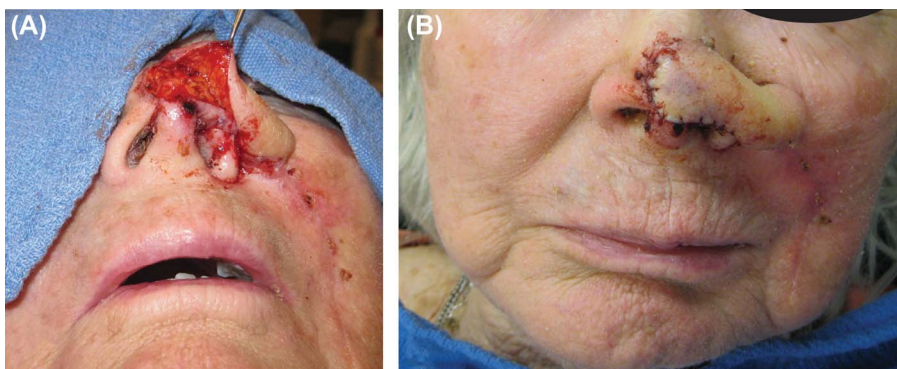


Figure 3. (A) Distal tip and alar rim debulked. (B) Once debulked and contoured the flap was resecured.

became the internal nasal lining and folded back on itself with the medial portion of the flap becoming the outer cutaneous cover of the nasal tip, ala, and sidewall.

To eliminate the necessity of removing the nasal lining sutures, 5/0 chromic gut was used to secure the nasal lining portion of the flap. The cartilage graft was taken from the left antihelix. Pockets were tunneled in the medial and lateral aspects of the defect. The cartilage graft was placed and secured with 4/0 vicryl in between the flap after the internal portion was sewn. The remaining flap was folded back on itself for the cutaneous defect. Then, the flap was contoured to cover the nasal cutaneous portion of the defect and secured with 5/0 nylon. The donor sites on the left cheek and left ear were closed with 4/0 vicryl and 5/0 nylon.

Second Stage: Four-Week Status After Stage I, the Distal Portion of the Flap and Alar Rim was Elevated, Debulked, and Contoured

A secondary procedure was conducted 4 weeks after initial surgery. The area was anesthetized. The flap was

transected along the alar rim to optimize contour during thinning and to camouflage the scar. Approximately 2 to 3 mm of tissue was lifted along the distal tip and alar rim. The flap was debulked, contoured, and resecured with 5/0 plain gut (Figure 3).

Third Stage: Flap Takedown With Proximal Flap Contouring

Three weeks after the secondary procedure (7 weeks from the initial flap procedure), a resection of the flap stalk was conducted. The proximal portion of the stalk was inset to the left cheek with 5/0 vicryl and 5/0 plain gut (Figure 4A,B). The proximal portion of the flap located on the nose was raised, debulked then secured with 5/0 plain gut once hemostasis was achieved (Figure 4A,B). A 5-month follow-up is shown in Figure 4C,D.

Discussion

The forehead skin is acknowledged as the best donor site to resurface the nose because of the ideal quality of color and texture.³ The 3-stage forehead flap technique of nasal reconstruction with an intermediate operation has been historically recommended, regardless of the defect size or depth.³

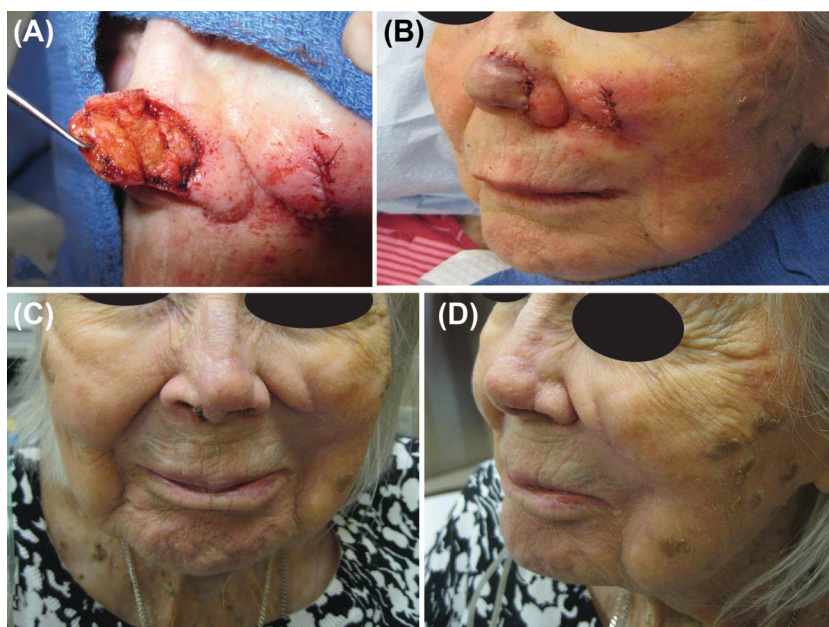


Figure 4. (A) Proximal portion of the flap reflected after being raised, debulked before inset. (B) Proximal portion of flap secured with 5/0 plain gut. (C) Frontal view after the 5-month follow-up status after the 3-stage melolabial interpolation flap. (D) Side view after the 5-month follow-up status after the 3-stage melolabial interpolation flap.

However, because of the patient's specific requests, an alternative nasal defect reconstruction was performed. After thorough literature review, we could not find any publication on a 3-stage melolabial interpolation flap. This flap was completed in 3 stages to assist in the balance of blood supply versus tissue bulk. A heavy initial debulking of the flap risks vascular compromise. Thus, waiting 4 weeks allowed for the establishment of new and adequate blood flow for the nasal lining portion of the flap. This also permitted thinning and contouring of the delicate tissue distally and along the alar rim. Three weeks after the intermediate stage of lifting and thinning the flap, there was adequate blood supply distally for final take down of the flap stalk. This occurred a total of 7 weeks after initial flap creation. If this technique is not completed in the above-mentioned 3 steps, ischemic flap death could result. The 3-stage melolabial interpolation flap offers an alternative technique in comparison to the 3-stage forehead flap for nasal reconstruction and should be considered as a repair option for nasal defects.

Conundrum Keys

- (1) Before considering reconstructive surgery, a tumor-free plane must first be obtained.
- (2) The staged melolabial flap produces both functional and aesthetic results.
- (3) Appropriate time between each stage and flap debulking decreases the risk of vascular compromise.

References

1. Taghinia AH, Pribaz JJ. Complex nasal reconstruction. *Plast Reconstr Surg* 2008;121:15e-27e.
2. Rohrich RJ, Griffin JR, Ansari M, Beran SJ, et al. Nasal reconstruction—beyond aesthetic subunits: a 15-year review of 1334 cases. *Plast Reconstr Surg* 2004;114:1405-1416. Discussion 1417-9.
3. Menick FJ. A 10-year experience in nasal reconstruction with the three-stage forehead flap. *Plast Reconstr Surg* 2002;109:1839-55.

Address correspondence and reprint requests to:
 Christopher Weyer, DO, FAOCD, FACMS, FAAD,
 Dermatology and Plastic Surgery of Arizona, 698 E
 Wetmore Road, #310, Tucson, Arizona 85705, or e-mail:
 chrisweyerdo@gmail.com