Reconstructive repair of decreased nasal aperture

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INTRODUCTION
Reconstruction of nasal defects following Mohs micrographic surgery (MMS) is often challenging. One complication that may arise is a decreased nasal aperture. The decreased nasal aperture leads to decreased patency of the external nasal valves and can contribute to nasal valve insufficiency. One study reported that up to 21% of patients with nasal tumors or defects located at the nasal tip, ala, alar crease, or sidewall had some form of nasal valve insufficiency.1 Nasal valve insufficiency can lead to uncomfortable symptoms, including feelings of obstruction, inability to breathe solely through the nose, and feelings of stuffiness. For severe symptoms, surgical intervention may be necessary.

CASE REPORT
An 87-year-old man underwent MMS for a basal cell carcinoma of the right alar groove. At the time of MMS, the patient desired single-stage closure due to multiple comorbidities and difficulty with travel. A V-to-Y advanced flap was performed. At follow-up, he was satisfied with the cosmetic result; however, he noted a decreased nasal aperture, causing obstruction (Fig 1). For reconstruction, again he desired single-stage reconstruction. A modified composite auricular graft1 with dermal extension was designed to increase the size of the nostril.

The procedure was performed by an otorhinolaryngologist (B.E.H.) with the patient under general anesthesia. The auricular cartilage was harvested from the right ear. The composite flap was designed at the helical root with cartilage wings extending beyond the harvested skin and cutaneous/dermal extension onto the preauricular region (Fig 2).

Incision was performed, and the cartilage wings were freed from the overlying skin. The preauricular dermal extension was freed from the overlying skin and from the deep subcutaneous fat. Nostril stenosis was released along the nasofacial junction of the ala with a through-and-through cut. Once the ala was fully released, tunnels were made into the nasal ala and into the facial soft tissue for cartilage wings to sit within as braces. An additional tunnel was made along the nasofacial junction for the dermal extension. The graft was placed into the pocket, and the skin was trimmed to match the defect. The external inset was sutured in an interrupted fashion using 6-0 prolene on a P1 needle, the internal inset utilized 5-0 chromic on a P2 needle, and a xeroform bolster was placed.

Auricular reconstruction was performed subsequently. The defect at the helical root was corrected with a wedge excision of the scaphoid fossa. The residual helix was advanced medially. The resected scaphoid fossa cartilage was placed as a cartilage graft at the missing helical root to reestablish root contour. The cartilage was reapproximated with a 5-0 polydioxanone (PDS) suture on a P3 needle. The auricular skin incisions were sutured closed with 6-0 fast-absorbing gut suture. The preauricular cutaneous defect from the dermal graft was closed with a cutaneous flap advanced vertically along the preauricular region and closed with deep 5-0 polyglactin 910 (Vicryl) suture and cutaneous 6-0

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Abbreviation used:
MMS: Mohs micrographic surgery
Fig 1. Preoperatively there was a decreased nasal aperture of the right naris seen in oblique views (A, B), frontal view (C), and inferior view (D).

Fig 2. A, Design of composite flap. B, Composite flap. C, Ala was released and tunnels made into nasal ala. D, Composite graft next to defect. E, Cartilage wings placed with nasal ala tunnels. F, Flap sutured into place.
fast-absorbing gut. A xeroform bolster was created to eradicate dead space in the reconstructed auricle and maintain root contour during healing.

DISCUSSION

The patient healed well without any complications and 100% take of the composite flap. The graft fixed the rim, provided support, and restored the nasal aperture (Fig 3). The ear had an acceptable appearance postoperatively, with no significant asymmetry, cupping, or collapse (Fig 4). The patient reported improved nasal breathing.

Although this flap has been described previously, it is not described in the dermatology literature or used in dermatology surgery. Incorporation of dermal extension to the composite graft increases the surface area for vascular ingrowth and provides additional soft tissue for reconstruction of volume defects. This flap can be used as an alternative for MMS defects that result in complete loss of alar rim or as a revision option for decreased nasal aperture.

Conflicts of interest

None disclosed.

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