Repair of Combined Cheek and Nose Defects: Categorization and Utilization

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Abstract

Keywords

- ▶ combined cheek and nose defect
- ▶ forehead flap
- ▶ Shark Island pedicle flap
- ▶ full-thickness skin graft

Combined cheek and nose soft tissue defects can represent a formidable challenge to the reconstructive surgeon. It is important for the surgeon to think of these defects as four separate categories: cheek with nasal sidewall, cheek with nasal sidewall and exposed bone, cheek with nasal sidewall plus ala, and cheek with simple posterior ala defect. This categorization will help the surgeon plan the repair and provide a successful aesthetic outcome. There are multiple repair options that the surgeon can use, and the surgeon should be facile with all types. It is universally agreed that the cheek defect must be repaired prior to undertaking the repair of the nasal defect.

Combined cheek and nose defects are frequently encountered post Mohs surgery. The resultant defects can present a substantial challenge to the reconstructive surgeon and are frequently approached incorrectly, often resulting in significant and unnecessary deformities. The general concepts of reconstruction have been previously discussed both in the plastic surgery and dermatology literature.¹

By definition, cheek and nose defects violate multiple aesthetic subunits. To obtain acceptable reconstructive results, the surgeon must preserve the unique anatomical boundaries of the nose and cheek. The nasolabial fold, lateral alar sulcus, and junction of the sidewall and cheek create complex interactions of contours and shadows that help define the face. Any distortion of these landmarks is easily visible and can compromise the reconstructive effort. It is important for the surgeon to approach these defects systematically. Here we provide a concise strategy for approaching combined cheek and nose defects.

Surgical Approach and Considerations

Most surgeons agree that the appropriate approach to a combined cheek and nasal defect is to initially address the cheek, making no attempt at using the nasal reconstruction to fix the

cheek. Any attempt to repair both the cheek defect and the nasal defect with a nasal reconstruction technique is ill-advised (▶ **Fig. 1**). The great majority of cheek defects can be fixed with simple linear closures or cervicofacial advancement flaps (▶ **Fig. 2**).^{2,3} It is prudent to anchor the leading edge of either technique along the nasal sidewall with periosteal anchoring sutures to avoid late migration. In addition, it is incumbent upon the reconstructive surgeon to restore the facial symmetry of the cheek/nose junction in relation to the other side. For this reason, the contralateral normal side is utilized as a template to ensure that the cheek/nose junction has been restored prior to undertaking the nasal reconstruction.

There are four very general categories of combined cheek and ala defects:

1. Cheek with nasal sidewall
2. Cheek with nasal sidewall and exposed bone
3. Cheek with nasal sidewall plus ala
4. Simple posterior partial ala and cheek

Each of these defects is approached differently.

Cheek with Nasal Sidewall

For combined cheek and sidewall only, a Mohs defect can be approximated with either a linear closure or cervicofacial advancement with simple full-thickness skin grafting.

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Fig. 1 Poor outcome using a forehead flap for both cheek and nose repair. (A) Sidewall and cheek defect. (B) Forehead flap used to reconstruct both defects. (C) Poor outcome after inset requiring revision.

Fig. 2 (A) Combined cheek and nose defect. (B) Status post cervicofacial advancement. Repairing the cheek prior to nasal reconstruction is imperative.

Remember that the nasal sidewall is a relatively featureless, flat defect, and this can be preferentially repaired with a full-thickness skin graft (►Figs. 3 and 4).⁴ Defect-only skin grafting yields superior results in the senior author's experience.

Cheek with Nasal Sidewall and Exposed Bone

With defects involving exposed bone, soft tissue coverage is required. The reconstructive surgeon may choose between a cervicofacial advancement flap for cheek reconstruction with a simple subcutaneous tissue turnover flap to provide a soft tissue base for full-thickness grafting or convert to a cervicofacial flap with an ipsilateral paramedian forehead flap.

Cheek with Nasal Sidewall plus Ala

For a combined cheek and sidewall defect with involvement of the nasal ala, reconstruction is best achieved with a cervicofacial advancement flap for the cheek and an ipsilateral paramedian forehead flap for the ala (►Fig. 5). Cartilage grafting is often required to reconstruct the contour of the ala when addressing a complete alar defect. The conchal bowl provides a suitable source of cartilage. Stability and complete repair of the cheek is required before undertaking a formal nasal reconstruction. For patients with cheek defects and large heminasal defects involving coverage, lining, and cartilage, the safest surgical approach is to repair the cheek defect

Fig. 3 (A) Preop combined cheek and nose defect. (B) Status post cervicofacial flap and full-thickness skin graft to sidewall. (C) 1-month postop frontal view. (D) 1-month postop oblique.

weeks before undertaking the nasal reconstruction. This approach ensures cheek stability prior to committing to the nasal reconstruction. An unstable cheek will forever doom the nasal reconstruction.

Simple Posterior Partial Ala and Cheek

Defects involving the base of the posterior ala and the adjacent cheek can be addressed with a Shark Island pedicle flap.⁵ This flap utilizes a simple elevation, turn-in, and

Fig. 4 (A) Preop combined cheek and nasal sidewall defect. (B) Closure using cervicofacial advancement and full-thickness skin graft. (C) 4-months postop follow-up. (D) 4-months postop follow-up.

Fig. 5 (A) Combined cheek, sidewall, and complete alar defect. (B) After forehead flap and conchal bowl cartilage graft to reconstruct the ala. (C) 11-months postop.

Fig. 6 Shark flap. (A) Combined cheek and posterior ala defect with flap design. (B) Immediate postop.

advancement of the cheek to reconstruct both the ala and the cheek defect simultaneously (→**Fig. 6**). The Shark Island pedicle flap provides enough rigidity and stability by itself not to require simultaneous cartilage grafting for small defects, but cartilage grafting may be used for larger alar defects.

For isolated alar base defects, it is very important to reconstruct the entire volume discrepancy, as a significant amount of volume is usually required. The ala curves in on itself at the cheek/nose junction; a large amount of soft tissue reconstruction is needed to address the defect. The requirements for cartilage grafting are not mandatory, particularly with a small posterior ala Mohs defect. Even those defects close to the rim may not require cartilage

grafts, as notching does not commonly occur on isolated posterior ala defects.

Conclusion

The closure of combined cheek and nose defects following Mohs surgery is often complex. Breaking the defects down into the four aforementioned categories will help the surgeon devise a successful plan for reconstruction. Paramount to addressing cheek/nose defects is to make sure the cheek reconstruction precedes the nasal reconstruction. As with all types of facial reconstruction, the surgeon need not adhere to any rigid guidelines, but use his or her experience to help give the patient the best possible aesthetic reconstruction.

References

- 1 Rohrich RJ, Griffin JR, Ansari M, Beran SJ, Potter JK. Nasal reconstruction—beyond aesthetic subunits: a 15-year review of 1334 cases. *Plast Reconstr Surg* 2004;114(6):1405–1416, discussion 1417–1419
- 2 Soliman S, Hafez DA, Hollier LH Jr, Thornton JF. The rationale for direct linear closure of facial Mohs' defects. *Plast Reconstr Surg* 2011;127(1):142–149
- 3 Doermann A, Hauter D, Zook EG, Russell RC. V-Y advancement flaps for closure of nasal defects. *Plast Reconstr Surg* 1989;84(6):916–920
- 4 Menick FJ. Defects of the nose, lip, and cheek: rebuilding the composite defect. *Plast Reconstr Surg* 2007;120(4):887–898
- 5 Cvanara JL, Wentzell JM. Shark Island pedicle flap for repair of combined nasal ala-perialar defects. *Dermatol Surg* 2006;32(5):726–729