

15 Open Rhinoplasty Finesse

Rod J. Rohrich, Erez Dayan, and Kristy L. Hamilton

Abstract

Rhinoplasty remains a technically and conceptually challenging procedure for plastic surgeons. Over the past 25 years, nasal analysis and strategies for correction of functional and aesthetic nasal deformities have evolved considerably. According to the American Society of Plastic Surgeons, rhinoplasty was among the top five most popular cosmetic surgical procedure in 2017, with 218,924 procedures performed. This chapter describes preoperative considerations, nasal analysis, and technical maneuvers that allow the plastic surgeon to obtain consistent results in rhinoplasty.

Keywords: Rhinoplasty, open rhinoplasty, revision rhinoplasty

Key Points

- The open approach allows for optimal visualization and correction of nasal aesthetic and functional issues.
- Functional assessment including examination of the internal and external nasal valve patency, septal deviation, and relevant history (i.e., recurrent sinusitis, rhinitis, allergies) is important.

15.1 Preoperative Steps

- Comprehensive and systematic preoperative nasofacial analysis is requisite to define surgical goals and achieve satisfactory results. However, aesthetic ideals should be approached cautiously as there is significant variability among different ethnicities.
- The senior author (Rod J. Rohrich) approaches the nasofacial examination in a systematic fashion, from three different views—frontal, lateral, and basal (**Video 15.1**).
- Prior to prepping and draping, a 27-gauge needle is used to infiltrate 1% lidocaine containing 1:100,000 epinephrine into the columella, along the infracartilaginous incision, the dorsum, and soft tissues medial and lateral to the nasal bones. The nose is then packed bilaterally with oxymetazoline-soaked pledgets. A moist 3-inch gauze throat pack is placed by the surgeon. This sequence allows ample timing for the vasoconstrictive effect of the local anesthesia to take effect.

15.2 Operative Steps

- A stair-step transcolumellar incision is designed at the narrowest part of the columella and carried into the vestibule 2 to 3 mm laterally. In revision rhinoplasty, the location of the

transcolumellar incision is placed in the preferred location regardless of the presence of previous scars.

- Next, a wide double hook is placed to evert the alar rim over the fourth finger. This maneuver allows for reliable identification of the caudal margin of the lateral crus upon which an infracartilaginous incision is made in a lateral to medial direction toward the nostril apex. This incision sequence leaves a vestibular tissue bridge under the soft triangle, which is incised last (**Video 15.2**).
- A wide double hook is placed at the nostril apices and retracted caudally. The nasal soft tissues are elevated off the cartilaginous framework with fine dissecting scissors. When the caudal portion of the nasal bones is reached, a Joseph periosteal elevator is used to achieve a limited subperiosteal dissection over the areas of planned bony work.
- The oxymetazoline-soaked pledgets are removed from the vestibules bilaterally and a long heavy Vienna nasal speculum is used to microfracture the inferior turbinates through a closed approach from posterior to anterior while pushing the speculum laterally onto the inferior turbinate (**Video 15.3**).
- The five-step component dorsal hump reduction (CDHR) serves to reduce the dorsum in a precise and graduated fashion while maintaining the upper lateral cartilages (ULCs). CDHR begins with (1) separation of the ULCs from the septum (► Fig. 15.1), (2) incremental reduction of the septum proper, (3) dorsal bony reduction, (4) verification by palpation, and (5) final modifications (spreader grafts [► Fig. 15.2a], autospreader flaps [► Fig. 15.2b], suturing techniques, osteotomies) (**Videos 15.4 and 15.5**).
- The ULC tension spanning suture functions to stabilize the ULC to the septum while establishing symmetric dorsal aesthetic lines (► Fig. 15.2c).
- Autospreader flaps can be performed when there is excess horizontal dimension to the ULCs, typically after reduction of a dorsal hump. The anterior edge of the ULCs is folded inward and a 5–0 PDS suture is secured in a horizontal mattress fashion (► Fig. 15.2b).
- Additional sutures can be placed cephalically along the ULCs and septum, as needed, for support or improved contour.
- Septoplasty may be required in cases of nasal obstruction and/or deviation (septal tilt, anterior posterior deviation, craniocaudal deviation, or septal spurs) or in cases where donor cartilage is required.
- Nasal osteotomies are primarily used to narrow a widened bony vault, close an open roof deformity, or straighten deviated nasal bones. The authors prefer a low-to-low percutaneous perforated lateral discontinuous osteotomy (► Fig. 15.3a–c). A sharp 2-mm osteotome is introduced percutaneously at the level of the inferior orbital rim and nasofacial junction parallel to the horizontal surface of the maxilla (**Video 15.6**).

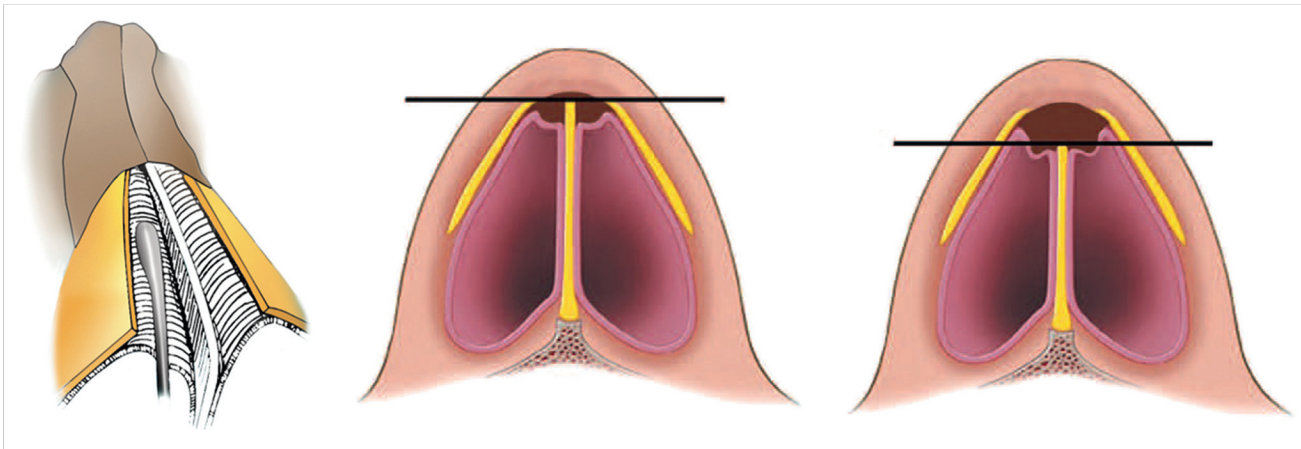


Fig. 15.1 Component dorsum. Surgical approach to the dorsum: separation of the upper lateral cartilages (ULCs) from the septum. The mucoperichondrium of the dorsal septum is elevated, from caudal to cephalad, until the elevator reaches the nasal bones. (Reproduced with permission from Rohrich R, Adams W, Ahmad J, et al. *Dallas Rhinoplasty: Nasal Surgery by the Masters*. 3rd ed. Thieme; 2014.)

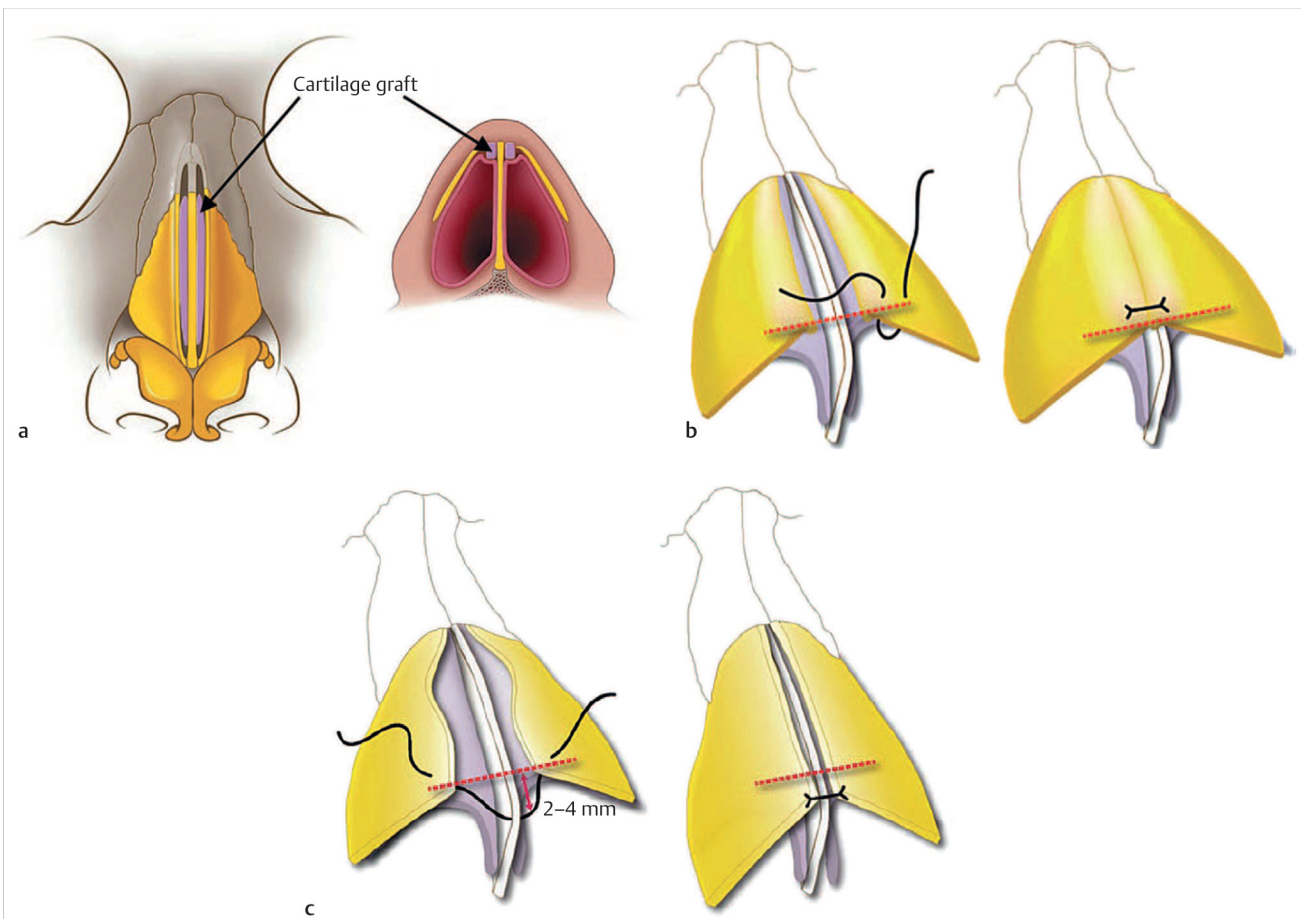


Fig. 15.2 (a) Spreader grafts. Reconstitution of the dorsum: spreader grafts. Spreader grafts may be positioned at or above the plane of the dorsal septum to be visible for aesthetic indications or below it as invisible grafts for purely functional indications. (b) Spreader flaps. Reconstitution of the dorsum: type 3: midvault restoration with spreader flap modification. The 5-0 PDS sutures are placed caudal to the upper edge of the upper lateral cartilages (ULCs), thereby infolding the superior edge of the ULCs. This serves a spreader-type function. This technique should be employed when attempting to widen the midvault. (c) ULC tension spanning sutures. (Reproduced with permission from Rohrich R, Adams W, Ahmad J, et al. *Dallas Rhinoplasty: Nasal Surgery by the Masters*. 3rd ed. Thieme; 2014.)

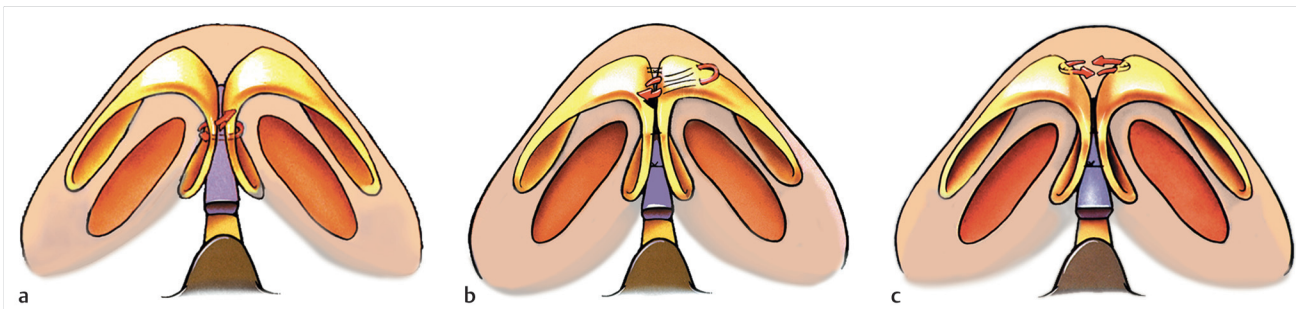


Fig. 15.3 Tip sutures. (a) Medial crural suture. The positioning of the medial crural suture is dictated by the underlying deformity and intended goal. (b) Transdomal sutures. This is a horizontal mattress suture that is placed through the lateral and medial aspects of the domes. (c) Interdomal suture. This is a horizontal mattress suture placed between the domal segments of the middle crura of the lower lateral cartilages (LLCs). (Reproduced with permission from Rohrich R, Adams W, Ahmad J, et al. *Dallas Rhinoplasty: Nasal Surgery by the Masters*. 3rd ed. Thieme; 2014.)

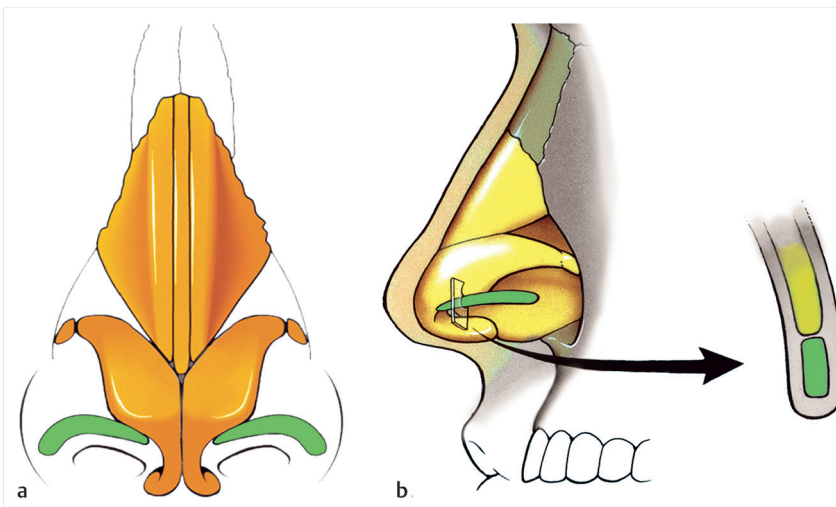


Fig. 15.4 (a, b) Alar contour grafts. Operative planning: alar rim grafts. The primary indications for the alar contour graft are as follows: Primary rhinoplasty patients with congenital alar rim notching, primary rhinoplasty patients with weak nasal alae/soft triangles with propensity for notching, primary or secondary rhinoplasty with mild to moderate external nasal valve collapse, primary or secondary rhinoplasty patients with malpositioned lower lateral crural cartilages, and secondary rhinoplasty patients with minimal vestibular lining loss and at least 3 mm of residual lower lateral cartilage (LLC) alar rim strips. (Reproduced with permission from Rohrich R, Adams W, Ahmad J, et al. *Dallas Rhinoplasty: Nasal Surgery by the Masters*. 3rd ed. Thieme; 2014.)

- The purpose of cephalic trim is to refine the nasal tip and decrease supratip fullness by reducing the vertical height of the lower lateral cartilages (LLCs). The LLC is separated from the ULC at the scroll area. The cephalic portion of the LLC is trimmed leaving 5 to 7 mm medially and 8 to 10 mm laterally.
- Three key tip-suturing techniques to improve position and shape include medial crural, transdomal, and interdomal sutures (► Fig. 15.4a, b) (Video 15.7).
- Alar rim grafts are frequently employed (>90% of cases) to prevent alar retraction (► Fig. 15.5).
- The transcolumnellar incision is meticulously reapproximated with 6-0 nylon interrupted sutures. A double hook is used to slightly evert the alar rim to place interrupted chromic sutures in the lateral aspect of the infracartilaginous incision. The incision behind the soft triangle is left open and dressed with mupirocin-covered Surgicel (oxidized regenerated cellulose) to avoid suture-driven alar retraction or notching in this region.
- Although assessment of alar flare is part of the standard pre-operative nasal analysis, the final decision to perform alar flare reduction occurs only after wound closure. The reason for this is because alar flare heavily depends on tip projection, rotation, and by the length/strength of the lateral crura and alar rims.

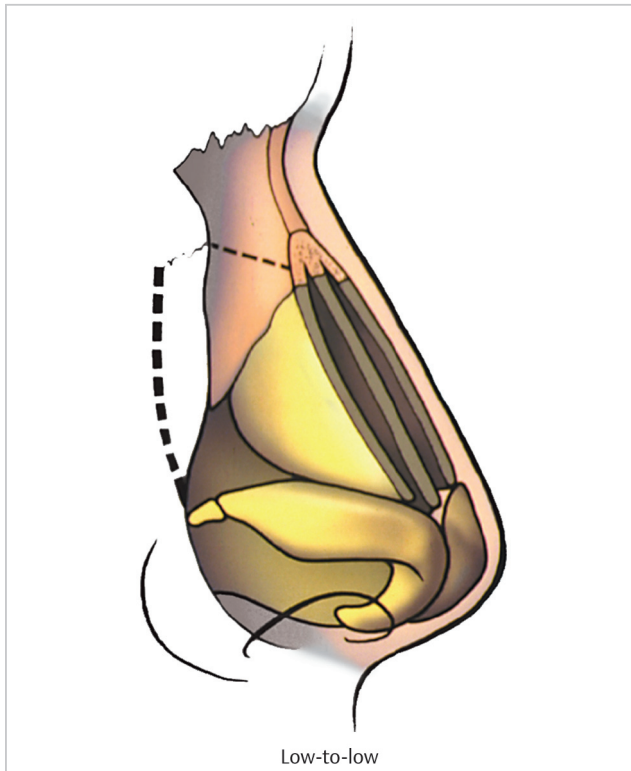


Fig. 15.5 Low-to-low osteotomies. Lateral osteotomy levels. Low-to-low: This osteotomy starts low along the piriform aperture and remains low along the base of the bony vault ending at a location near the intercanthal line. (Reproduced with permission from Rohrich R, Adams W, Ahmad J, et al. Dallas Rhinoplasty: Nasal Surgery by the Masters. 3rd ed. Thieme; 2014.)

15.3 Postoperative Care

- Keep head of bed elevated on two pillows for first 7 days postoperatively.
- Apply crushed ice for first 72 hours to minimize swelling/bruising.
- Avoid pressure on nasal splint (i.e., avoid glasses).
- Keep inside edges of your nostrils clean with hydrogen peroxide saturated Q-tip followed by thin coating of Polysporin ointment. This will prevent crust from forming.
- Patients are instructed to avoid strenuous activity for 4 to 6 weeks.

15.4 Case Example

Frontal, basal, and lateral before and after views to correct a bulbous tip, excess tip projection, and dorsal hump are shown (► Fig. 15.6a–c).

15.5 Conclusion

Rhinoplasty continues to be among the most challenging procedures for plastic surgeons. However, with careful preoperative nasofacial analysis and functional assessment, the rhinoplasty surgeon can approach each nasal component systematically. The graduated approaches outlined in this article allow the rhinoplasty surgeon to achieve desired modifications and corrections to the nose while maintaining adequate nasal support and minimizing complications.



Fig. 15.6 (a) Frontal, (b) basal, and (c) lateral before and after views to correct a bulbous tip, excess tip projection, and dorsal hump.

Further Readings

Ghavami A, Janis JE, Acikel C, Rohrich RJ. Tip shaping in primary rhinoplasty: an algorithmic approach. *Plast Reconstr Surg.* 2008; 122(4):1229–1241

Gunter JP, Rohrich RJ. Management of the deviated nose: the importance of septal reconstruction. *Clin Plast Surg.* 1988; 15(1):43–55

Mojallal A, Ouyang D, Saint-Cyr M, Bui N, Brown SA, Rohrich RJ. Dorsal aesthetic lines in rhinoplasty: a quantitative outcome-based assessment of the

component dorsal reduction technique. *Plast Reconstr Surg.* 2011; 128(1): 280–288

Rohrich RJ, Ahmad J. A practical approach to rhinoplasty. *Plast Reconstr Surg.* 2016; 137(4):725e–746e

Rohrich RJ, Afroz PN. Rhinoplasty refinements: the role of the open approach. *Plast Reconstr Surg.* 2017; 140(4):716–719