

# An Approach to the Late Revision of a Failed Nasal Reconstruction

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**Background:** Most nasal reconstructions previously repaired with regional flaps require a revision to improve appearance and function. Many local flaps also create significant landmark and contour distortions, such as alar crease obliteration or nostril margin malposition.

**Methods:** Over 400 nasal reconstructions with regional tissues, primarily forehead flaps, and 100 local flap repairs were evaluated to identify the causes of failure of the primary repair, to classify late deformities, and to develop an approach to the late revision of a nasal reconstruction. Surgical timing, staging, incisional approaches, and operative technique were defined with the goal of restoring normal dimension, volume, position, projection, symmetry, skin quality, border outline, and contour.

**Results:** Deformities can be classified as “minor,” when overall dimension, volume, and position are satisfactory but nasal landmarks are imperfect, nostril margins are asymmetric, or the nostrils are small; or “major,” when there is a significant failure to restore the basic fundamental character of the nose. It is bulky, shapeless, malpositioned and without landmarks. These characteristics determine incision sites, the extent of required flap relevation, soft tissue excision and cartilage grafting, the number of stages, the use of secondary local flaps, surgical delay, and the need for reoperation with a second regional flap.

**Conclusions:** Revision is accomplished through new direct incisions and old peripheral border scars. Soft tissue excision and secondary cartilage grafts can effectively reestablish contour. Lining deficiencies are addressed by transferring discardable local excess skin from the nostril margin, columella, cheek, or upper lip to open the airway. If local tissues are inadequate, a second regional flap must be transferred to resurface or line the nose. (*Plast. Reconstr. Surg.* 129: 92e, 2012.)

**A**lthough transfer of a forehead flap, septal ear or rib cartilage, and lining is straightforward, reconstructing a “nose” is a challenge. These donor materials are “unlike” nasal tissues and must be modified to create a facsimile that appears to be a nose, but is not.

Almost all complex reconstructions, and some more simple repairs, will require a late revision. It is discussed with the patient at his or her initial visit, before initiating repair, as the final step of a staged repair. It is an opportunity to improve the result, not a sign of failure.

Hopefully, if the initial attempt was planned and executed carefully, only minor imperfections require improvement. However, when form and

function remain significantly impaired, the surgical solution is less obvious. Nevertheless, the goal remains: to reestablish a normal appearance, defined by the regional units of surface quality, border outline, and three-dimensional contour, and an open airway.

**Disclosure:** *The author has no financial interest to declare in relation to the content of this article.*

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From St. Joseph's Hospital.

Received for publication March 7, 2011; accepted June 21, 2011.

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DOI: 10.1097/PRS.0b013e3182362226

Unfortunately, the following traditional misconceptions seem to preclude successful revision:

1. Patients and surgeons fear “scars” and attribute a bad result to the presence or number of scars, rather than to a failure to restore nasal contour or landmarks. Consequently, to avoid new scars, revisions are approached only through the flap’s peripheral border scars, which limits precise soft-tissue recontouring.
2. After pedicle division, extensive reelevation of the covering flap from its recipient inset is precluded by its random-only blood supply. Flap undermining is limited to maintain vascularity, necessitating multiple, staged, piecemeal excisions.
3. A shapeless repair is assumed to require “flap thinning” or “gross debulking,” rather than precise three-dimensional contouring of underlying hard and soft tissues.
4. External skin, underlying soft tissues, and lining are “fixed” by scar and cannot be remodeled secondarily to conform to a nasal shape.
5. No local excess is available to correct tissue deficiencies, always necessitating the transfer of a second regional flap.
6. Patients want the simplest, quickest repair and wish to avoid revision operations.

Over 400 regional flaps, primarily forehead flaps, and 100 local flap repairs were evaluated after congenital deformity, trauma, cancer excision, and facial burns to identify the cause of failure of the primary repair, to classify resultant deformities, and to develop an approach to revision.

### A MODERN APPROACH TO NASAL REVISION

The original defect and the materials and techniques chosen will determine the final result and likelihood of complications.<sup>1,2</sup> The need for revision will be determined by the following:

1. The original goal of repair: The objective may have been a healed wound—measured only by tissue survival—or the aesthetic restoration of the normal guided by the contralateral normal or ideal, the exact replacement of missing tissue layers in dimension and outline, complete subunit support before pedicle division, and the choice and modification of donor tissues to supply thin, supple cover and lining.
2. The defect site, size, and depth: As the wound becomes larger and deeper or en-

croaches on the more highly contoured inferior nose, the requirements for tissue replacement and restoration of complex three-dimensional shapes become greater.

3. The availability and choice of donor materials, methods, and surgical staging: The surgeon makes choices and manipulates materials, methods, and stages. Each has advantages and disadvantages that contribute to or detract from the final result. These limitations must be accepted, their outcome anticipated, and modifications planned during the initial repair. If not, they must be addressed during the revision. A forehead flap is thicker than nasal skin and must be “thinned” to create thin conforming cover in two or three stages. Lining must be thin and supple, neither stuffing the airway nor bulging outward to distort the external shape. Because traditional replacements (e.g., prefabricated, hingeover, or traditional folded lining) are thick, stiff, and permit only limited support, the aesthetic and functional result will be impaired, necessitating a later correction. A middle layer of cartilage and bone must be restored to shape and support the soft tissues. Septal, ear, and rib cartilage have inherent differences in quality, quantity, and shape that will influence the result.
4. Patient factors: Smoking, irradiation, infection, and old scars increase the risk of complications.
5. Unforeseen problems: An error in planning, design or execution, distortion caused by gravity, edema, and tension; scar contracture; or unexpected complications (necrosis or infection) may impair the final result and necessitate a late revision.

With the resolution of edema and induration 4 months after pedicle division, the degree of deformity and location of residual imperfections are evaluated. Anatomical and aesthetic deficiencies and the priorities and order of repair are determined.

The surgeon must decide whether the initial repair can be revised by minimizing residual deformities or whether the reconstruction must be redone with a second regional flap. In that case, a preliminary operation may be useful for recreating the defect, defining the anatomical deficiencies, and determining whether residual materials can be reused effectively. If a revision is possible, the ideal dimensions, volume, symmetry, and

landmarks are restored by adding, subtracting, or repositioning external skin, soft and hard tissues, and lining.

Exact templates, designed on the contralateral normal or the ideal, are used to determine the dimension, outline, and contour of the needed tissue modifications and the position of the new alar base, alar crease, and nasolabial fold. No local anesthesia is injected. All procedures are performed under general anesthesia to permit the intraoperative evaluation of vascularity and three-dimensional contour without vasoconstriction or fluid distortion.

Exposure is obtained through direct incisions within the flap's external surface, disregarding old scars. These direct incisions permit precise excision of excess soft tissue and remain largely invisible, hidden within the ideal subunit joins. Conversely, the surgeon can elevate the flap along its peripheral borders to more widely expose the majority of the flap's recipient bed and perform more extensive debulking.

Fortunately, despite the modern emphasis on axial, fascial, and myocutaneous blood supplies, the random vascularity of a transferred facial flap is robust through its dermal vascular bed and subcutaneous inset. Healed to the recipient bed, a previously transferred flap can be reelevated extensively with 2 to 3 mm of subcutaneous tissue. This permits wide soft-tissue sculpting and secondary cartilage grafting under direct vision.

Up to 80 percent of the flap's inset can be reelevated after pedicle division, exposing the underlying soft tissue and old cartilage grafts and allowing their manipulation and replacement. Safe relevation depends on the ratio of the surface area reelevated versus the remaining intact recipient base, the vascularity and quality of the inset (soft tissue versus less vascularized bone or cartilage beds), prior irradiation, old scars within the transferred flap, and the closure tension necessitated by tissue transposition or secondary support grafting. In practice, the site and extent of incision and undermining are determined by the location and degree of the deformity, not by a fear of devascularization. If an additional problem area is unreachable, the flap can be reelevated, several months later, along another of its borders, based on a different area of its recipient bed.

Because of this rich vascularity, excess skin along the elevated flap's border can also be cut out of the reelevated flap's edge ("flap within a flap"). More often, excess skin is transposed from a thick nostril margin or columella—or from the upper lip—to augment deficient lining or supply soft-

tissue filler. Although septal or ear cartilage may suffice, their prior use, limited dimension, or inadequate rigidity or shape make rib grafts especially useful for molding stiff tissues.

### CLASSIFYING THE REVISION

In a *minor revision*, the overall dimension, volume, and position of the nose are satisfactory but the nasal landmarks are imperfect, the nostril margins asymmetric, the airways small, or the forehead donor or other facial scars less than ideal. Usually, a minor revision is accomplished in one stage by addressing local problems. Similar techniques can also be used to correct distortions that follow the repair of less complex defects with local flaps (i.e., the obliteration of the alar crease or nostril rim asymmetry).

"*Finesse*" definition is achieved by disregarding old scars. *Direct incisions*, hidden in the contour lines of subunits, permit precise exposure and excision of excess soft tissue and scar and the placement of secondary cartilage grafts. The location of direct incisions and excisions is determined by exact templates, based on the contralateral normal or the ideal, to position the subsequent scars in the joins between subunits.

The ideal alar crease is marked (Fig. 1). Using a direct incision to expose the underlying excess soft tissue and old cartilage grafts, skin above and below is elevated with 2 mm of subcutaneous fat. Excess bulk is excised, sculpting the convexity of the normal ala inferiorly and a flat sidewall superiorly. During closure, the inferior incision edge is secured to the deep tissue in the alar crease with fine subcuticular suture. The elevated skin is reapproximated to the recipient bed with 5-0 polypropylene quilting sutures that are removed at 48 hours. [See **Figure, Supplemental Digital Content 1**, which shows the ideal alar crease marked with ink, based on contralateral normal templates, <http://links.lww.com/PRS/A427>. The alar crease is defined by direct incision, disregarding old scars. Excess soft tissue is excised to sculpt a round convex ala. (From Menick F. *Nasal Reconstruction: Art and Practice*. Philadelphia: Saunders-Elsevier; 2009.)]

When the nostril is thick, the ideal nostril margin is incised (Fig. 2). The lining is elevated with 1 mm of soft tissue circumferentially. Excess soft tissue between the lining and the old primary cartilage graft is excised to "thin" the thick margin. [See **Figure, Supplemental Digital Content 2**, which demonstrates marking of the ideal nostril, <http://links.lww.com/PRS/A428> (same procedure as shown in Supplemental Digital Content 1). The



**Fig. 1.** Minor revision. A major avulsion of the forehead, right orbit, upper lid, cheek, lip, and nose was débrided and grafted with cervical skin. Subsequently, the cheek was resurfaced with expanded cheek skin, and the right dorsum and the sidewall were resurfaced with a horizontal forehead flap. The orbit was reconstructed with cranial bone grafts. Upper lid ptosis was uncorrectable. One year later, the missing nasal tip and ala were repaired with a cervical tube pedicle flap, hingeover lining, and ear cartilage support. The right tip and ala lack definition, the nostril rim is displaced inferiorly, and the nostril is small.

old lining is elevated thinly and tissue excess is excised between the old lining and cartilage graft. The circumference of the constricted lining is released at the alar base at a right angle to the nostril margin. Excess skin along the nostril rim, between the ideal and old nostril edge, is transposed as an inferiorly based skin flap to enlarge its dimension. (From Menick F. *Nasal Reconstruction: Art and Practice*. Philadelphia: Saunders-Elsevier; 2009.)]

The position and shape of a hanging nostril margin are altered by direct rim excision. The stenotic airway is corrected by lining release and

local transposition flaps (see major revision). A tip graft is positioned through a border scar, or a direct incision, to refine and augment the tip. The dorsum is augmented or lowered through the flap's border.

If the nasolabial fold has been obliterated by a cheek flap advanced within the lip subunit of a composite defect, it is recreated by sculpting a flat lip surface through a direct incision at the ideal nasolabial fold position while maintaining the fullness of the cheek (Fig. 3). Forehead, nasal, or other facial scars are revised or a long lip short-



**Fig. 2.** The dimension, volume, symmetry, and nasal landmarks are restored and the airway is open. (From Menick F. *Nasal Reconstruction: Art and Practice*. Philadelphia: Saunders-Elsevier; 2009.)

ened by a subsill lip excision. (See **Figure, Supplemental Digital Content 3**, which demonstrates the ideal position of the nasolabial fold marked with ink, based on a template designed from the contralateral upper lip, <http://links.lww.com/PRS/A429>. A direct incision is made along the ideal fold and the skin elevated thinly over the lip, disregarding the old lip scar. Excess fat is excised over the orbicularis oris muscle to contour a flat upper lip. The lip skin is released from its alar attachment, allowing it to fall posteriorly at the alar base. The incision is closed, reapproximating the lip skin with quilting sutures and subcuticular sutures to the new nasolabial fold. The alar defect was resurfaced with a full-thickness skin graft.)

A *major revision* is required when there is a significant failure to restore the basic characteristics of the nasal unit. The dimension, volume, platform, position, projection, proportion, and symmetry of the nose are grossly incorrect. The repair is bulky, shapeless, and without landmarks. The airways may be stenotic and the nose asymmetric, malpositioned, or collapsed because of tissue excess or deficiency or inadequate support. More than one staged revision may be needed for correction.

In a major revision when the nose is shapeless and bulky, gross debulking (wide soft tissue sculpting) is approached through peripheral incisions along the borders of the flap. This permits wide



**Fig. 3.** Minor revision. (Left) A new small superficial Mohs' defect lies within the right ala. However, the primary deformity is the asymmetric distortion of the nasolabial fold caused by the advancement of a prior cheek flap to resurface part of the posterior right ala and lip. The lateral upper lip is bulky and the cheek flap's medial border scar is visible as a pseudonasolabial crease. (Right) Postoperatively, the nasolabial folds are symmetric. Lip contour is correct. The old cheek scar within the lateral lip subunit "has disappeared" and is no longer apparent because the expected lip contour and landmarks have been restored.

exposure and extensive soft-tissue excision and cartilage grafting. Some months later, it may be necessary to perform a finesse revision, through new direct incisions, to improve local landmarks, such as the alar crease or nasolabial fold.

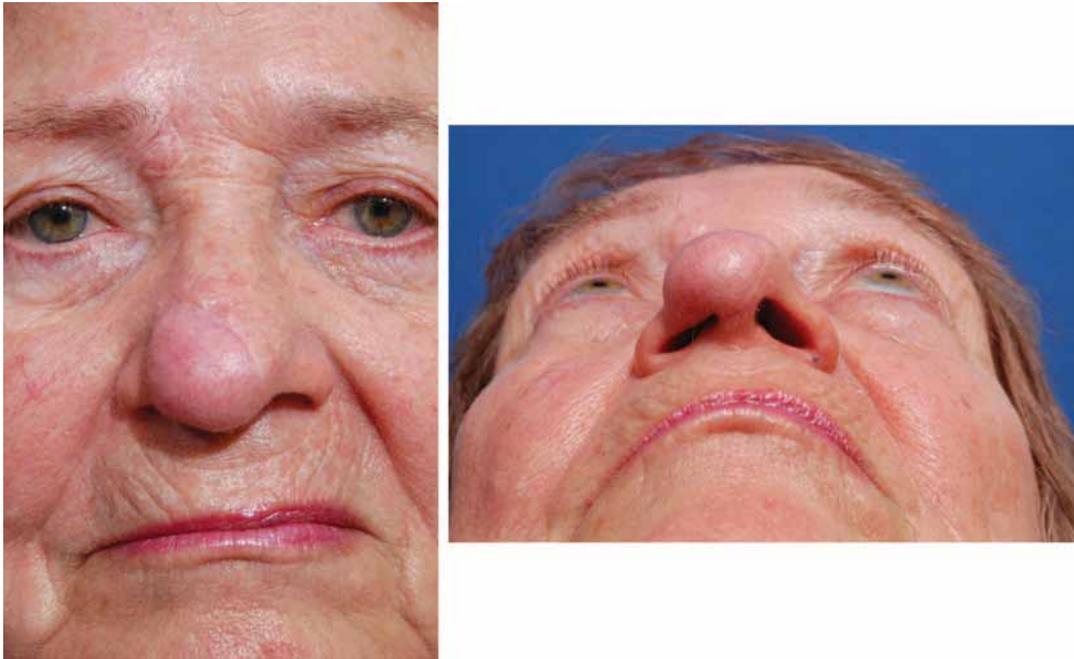
Most often, the distal, most aesthetic parts of the nose are addressed first. The old flap is elevated with 2 to 3 mm of subcutaneous fat on a superior base, maintaining as little as 20 percent of the flap's inset. Wide exposure permits extensive subcutaneous excision and the placement of additional support grafts for the tip, columella, and ala. Flap necrosis does not occur if vascularity is evaluated carefully intraoperatively and tension is avoided.

Three months later, if the upper nose remains bulky, the flap can be reelevated on an inferior base. The skin of the superior dorsum and sidewall, which vascularized the inferiorly elevated flap during the first revision, is elevated on an inferior base to permit further contouring in areas that could not be reached during the first revision.

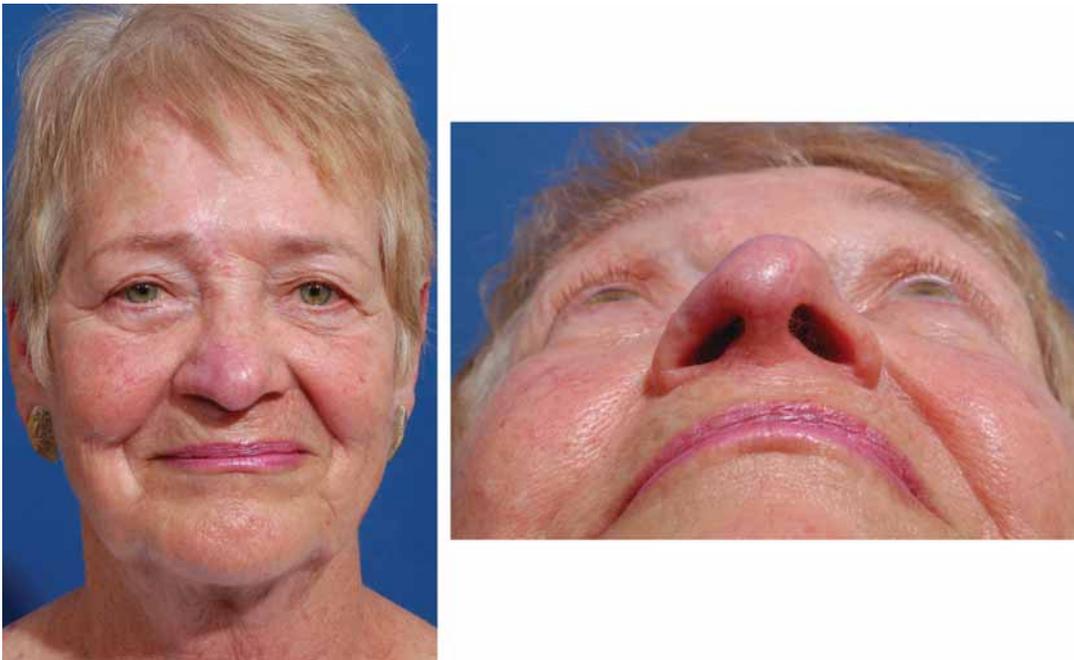
When the deformity is less severe (type 1) but the overall nasal dimension and contour require alteration, the skin flap is reelevated with 2 to 3 mm of subcutaneous fat, along the flap's border

scar to create skin of "nasal thinness." This exposes the underlying recipient bed. Based on exact templates, excess bulky soft tissue and poorly shaped cartilage grafts are excised to sculpt three-dimensional shape and dimension. Old grafts are repositioned or replaced, as needed—a columellar strut, tip graft, alar margin batten, dorsal graft, or sidewall brace (Figs. 4 and 5). (See **Figure, Supplemental Digital Content 4**, which demonstrates the peripheral flap border, midline, and subunit outline marked with ink, <http://links.lww.com/PRS/A430>. The old flap is elevated with 2 mm of subcutaneous fat on less than 30 percent of the recipient inset, based on the left hemitip. The underlying excess subcutaneous fat, residual frontalis, and scar are exposed. The soft tissue is excised, exposing the underlying tip cartilage and thin lining. An ear cartilage nostril margin batten has been fixed to support and reposition the nostril margin. The flap is reapplied to the recipient bed with peripheral and quilting sutures. Then, 2 mm of the right nostril margin was trimmed later to improve rim symmetry.)

In more difficult cases (type 2), all anatomical layers are distorted and must be modified. The old cover and lining layers are too thick and are



**Fig. 4.** Major revision, type 1. After partial resurfacing of the tip and ala with an unsupported thick two-stage forehead flap, the nose is bulky and the right nostril margin asymmetric and collapsed, obstructing the airway.

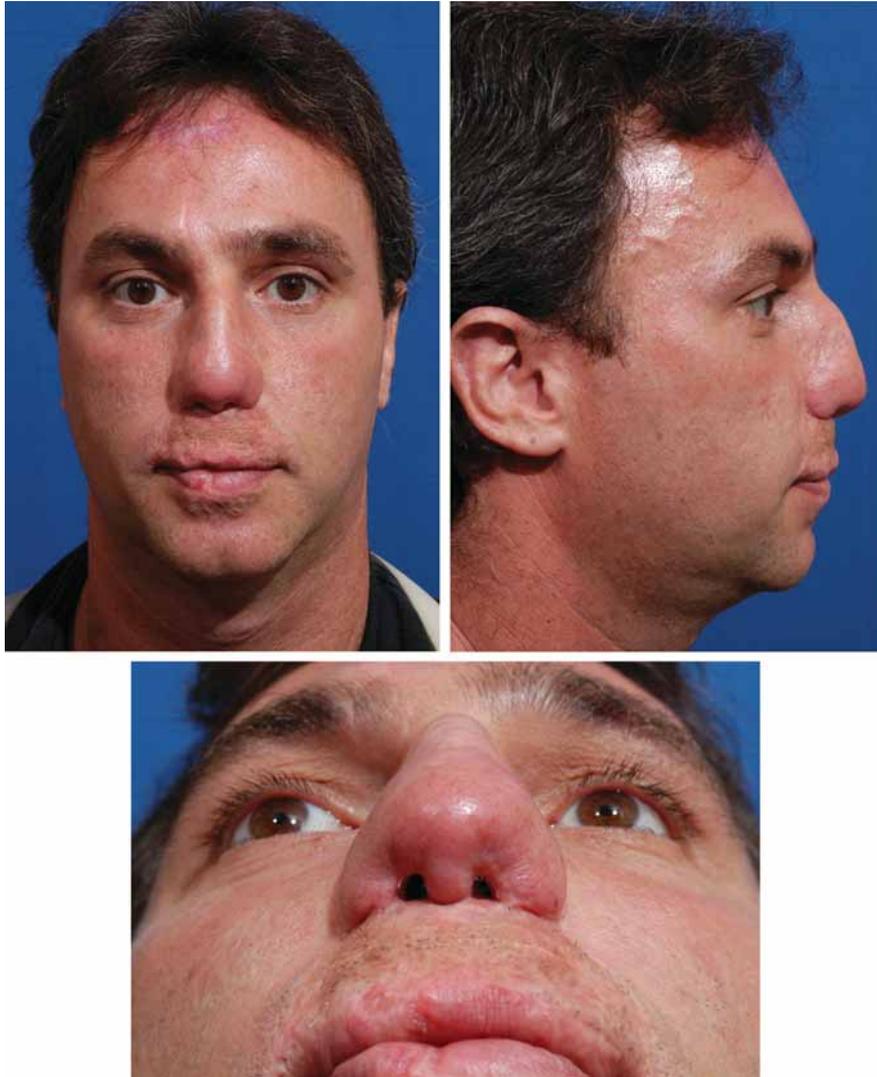


**Fig. 5.** Postoperatively, because the dimension, volume, symmetry, and three-dimensional contour are restored, nonsubunit flap border scars are not grossly apparent. The nostril margin is repositioned and supported.

“fixed” by a concrete-like midlayer of amorphous scar and poorly designed support (Fig. 6).

To improve the result, covering skin is elevated thinly. Then, the defect is “recreated” by aggressive intraoperative excision, discarding the scarred fi-

brotic soft tissue and poorly designed support between cover and lining. (See **Figure, Supplemental Digital Content 5**, which demonstrates the past forehead flap resurfacing the distal dorsum/supratip and distal nose, <http://links.lww.com/PRS/A431>. The



**Fig. 6.** Major revision, type 2. Pneumococcal sepsis led to necrosis of the nose, lip, and all four extremities. Initially, the nose was repaired with hingeover lining flaps, a two-stage forehead flap, and limited alar and tip cartilage grafts. The result is shapeless and inadequately supported. A past attempt to open the stenotic airways had failed. The skin grafted lip is long and the vermilion is distorted.

borders of the old forehead flap, nasal and lip subunits, and the ideal nostril margin and stenotic nostril margin are marked. Excess forehead skin along the nostril margin and excess skin graft within the superior upper lip will be used to provide additional nasal lining. The forehead flap is reelevated on a superior base with 2 to 3 mm of subcutaneous fat. The remaining inset covers less than 20 percent of the original flap inset over the superior nose. The underlying fibrotic soft tissue and old cartilage grafts are excised and discarded down to the underlying lining. The thin but constricted lining is incised at a right angle to the nostril margin at the nasal floor. Laterally based

flaps of old skin graft, within the excessively long upper lip, are transposed to resurface the nasal floors and increase the circumference of nostril bilaterally.)

After scar excision, old cover and lining reexpand and often return, significantly, to their original quality and dimension. They become more supple and will conform to newly designed secondary subunit support grafts. Once support is reestablished, the lining is resuspended with suture to the new cartilage grafts, supporting and shaping the airway. The covering flap is fixed with temporary quilting sutures to the newly contoured recipient site. The altered cover, lining, and new

support grafts are thus recombined to rebuild a “new nose” with the modified old materials.

Such widely reelevated flaps tolerate significant tension and allow placement of a new rigid support framework to augment projection and establish a correct three-dimensional contour. The nasal shape is thus improved by soft-tissue sculpting, secondary cartilage grafts, and the modification of cover and lining quality by subcutaneous scar excision. If local anesthesia with epinephrine has not been injected, the new contour is visible intraoperatively and the vascularity of the tissues can be evaluated during reelevation and closure.

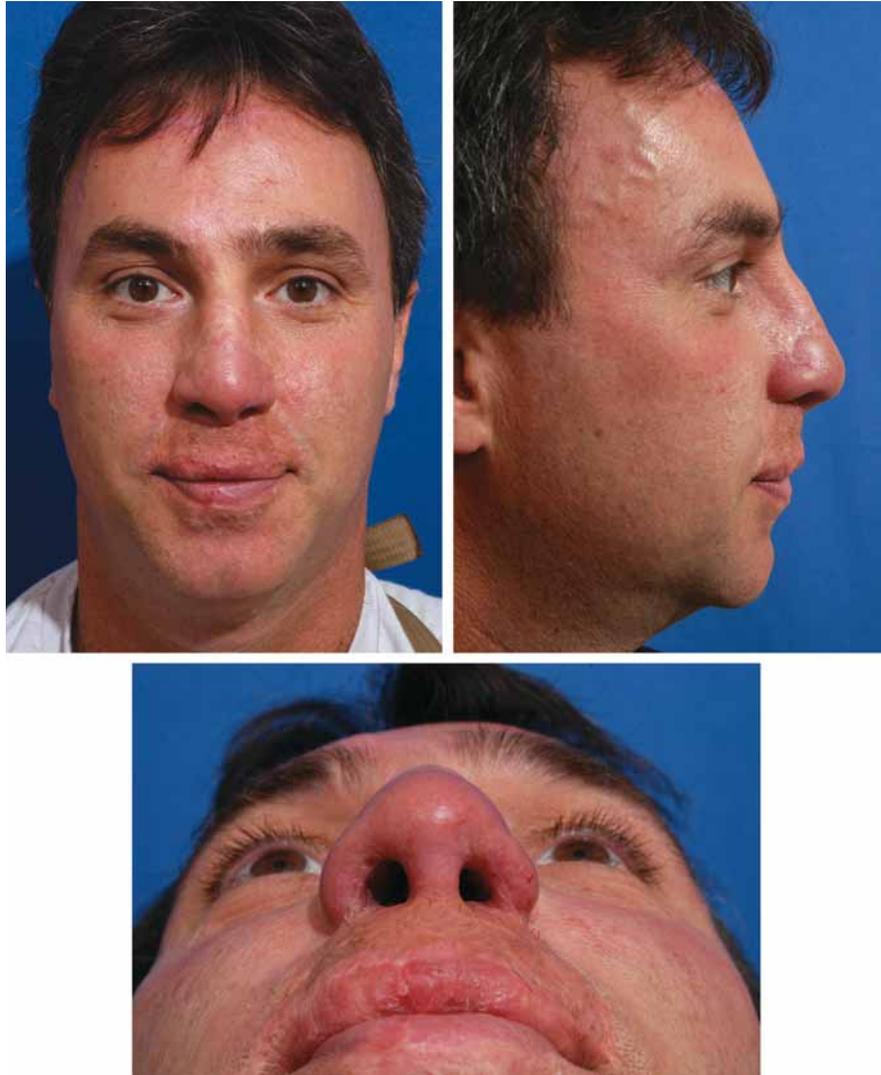
If lining is deficient within a stenotic airway, skin must be added to enlarge the circumference of the nostril and increase lining dimension. After reelevation of the old lining along the nostril rim with 1 to 2 mm of underlying soft tissue, the lining is incised at a right angle to the nostril margin at the apex of the vestibule or alar base, in the areas of greatest deficiency. The gap, created within the vestibule, the nostril floor, or both, is filled with small transposition flaps, cut from within a thick or hanging nostril margin, a wide columella, or from excess within a long upper lip below the nostril sill. Less often, excess skin along the distal free margin of the elevated forehead flap can be used. Such flaps are highly vascular and survive reliably. More than one local flap can be used. A full-thickness skin graft or composite graft can also be placed within the nasal floor, if desired. (See **Figure, Supplemental Digital Content 6**, which demonstrates rib cartilage grafts positioned to support the columella, tip, and nostril margins, <http://links.lww.com/PRS/A432>. They suspend the lining and mold the overlying covering flap. Then, excess forehead flap skin along the distal margin of the old forehead flap is incised bilaterally, as small medially based tongue-like flaps, and transposed into anterior vestibular releasing incisions to enlarge the nostril circumference at the vestibular apex. In a minor revision, when debulking of the overall nose is not required and the forehead flap is not reelevated, these transposition flaps are incised from excess skin along the thick or hanging nostril margin and transposed into any lining deficiency after elevating the lining through rim incisions and excision of bulk between the old cartilage support graft.)

During a second revision, landmark definition can be further defined by finesse soft-tissue sculpting through direct incisions, if needed (Fig. 7). [See **Figure, Supplemental Digital Content 7**, which shows minor revision, <http://links.lww.com/PRS/A433>. Two months later, the dorsal hump is lowered and an

additional tip graft is placed through the dorsal border scar. The alar creases are defined by direct incision and soft-tissue sculpting of soft tissue to recreate convex alae and flat sidewalls. Old scars are disregarded. The excised excess is seen in another patient (*right*). Vermilion irregularities are revised by direct excision. The forehead scar is revised.]

When the nasal skin is inadequate in dimension but the nose lies within scarred, burned, or skin-grafted skin of the adjacent lip and cheek (type 3), the nasal skin surface can be augmented by delaying extension flaps for the columella, ala, or nasal sill from the adjacent units. These are subsequently shifted to add skin to the surface of the ala and nasal sill or to lengthen the columella (Fig. 8). (See **Figure, Supplemental Digital Content 8**, which demonstrates how old scar and skin grafts are delayed, as extension flaps of the old forehead flap, to provide additional skin to lengthen the columella, line the membranous septum, and resurface the nasal sill and ala, <http://links.lww.com/PRS/A434>. One month later, the forehead flap with its delayed lip and cheek extensions was elevated and repositioned, adding dimension to the columella, ala, and nasal floor surfaces. The lateral and central philtral upper lip subunits were skin-grafted, after discarding residual scarred skin within the subunits.)

Subsequently, major soft-tissue excisions are performed through peripheral incisions along the border of the flap to debulk the nose and add secondary cartilage grafts. Later, landmarks can be further refined through direct incisions and the stenotic nostril opened by thinning of the lining, release of the stenosis, and transposition of discardable excess from a thick or long nostril rim, columella, or upper lip to increase the dimension of the airway (Fig. 9). (See **Figure, Supplemental Digital Content 9**, which shows, 2 months later, the nasal subunits marked with ink, <http://links.lww.com/PRS/A435>. The old forehead flap, with the delayed extension flaps, must be contoured in stages to permit soft-tissue sculpting and cartilage grafting. First, the old flap is elevated over the tip and dorsum, based laterally on the left ala and sidewall inset. The underlying excess scar, fat, and frontalis are excised. The tip and soft triangle are supported with ear cartilage grafts to restore contour. The flap is reapplied to the recipient bed. Six weeks later, the flap is reelevated, based medially on the dorsum and tip, to expose the left ala and sidewall. Excess soft tissue is sculpted and the ala is supported with a nostril margin batten. During a later minor revision, the alar crease was defined through direct incisions.)



**Fig. 7.** At 5 months, the volume, dimension, projection, symmetry, and overall contour are improved. The nostrils are open.

### REOPERATION WITH A SECOND REGIONAL FLAP

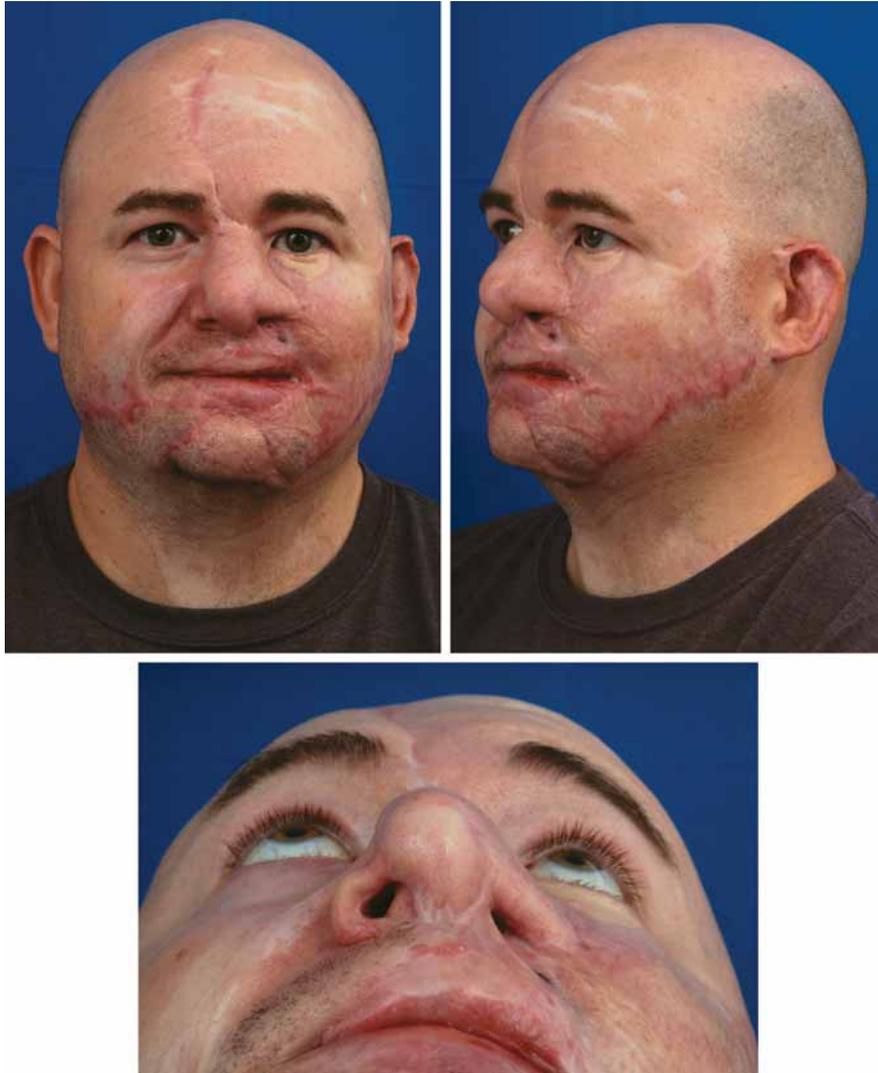
When the manipulation of a failed repair by augmentation, reduction, sculpting, support placement, or repositioning of tissues will be inadequate, the reconstruction must be redone. The repair must be taken down and additional tissue supplied with a regional flap, most often a forehead flap, often with a folded extension for lining.

To perform the reoperation, the defect is recreated by “returning the normal to its normal position” to define the dimension, outline, position, and volume of tissue deficiency. This may require a preliminary operation. The contralateral normal or the ideal is used as a guide to design flaps and support grafts with the correct dimensions and outline.

Excess tissue, within the initial repair, is used for other purposes—cover, lining, or soft-tissue bulk, with or without a preliminary surgical delay. A new regional flap with its own axial blood supply is added to supply covering skin or folded lining. Multiple stages will be required if the cover and lining deficiencies are great and the repair must be redone.

### CONCLUSIONS

Most major reconstructions require revision to reestablish normal appearance and function. Many local flap repairs of smaller, superficial defects also create significant landmark and contour distortions, such as alar crease obliteration or nostril margin malposition. These imperfections should not be accepted.



**Fig. 8.** Major revision, type 3. A burned face remains scarred and distorted after nonfacial skin grafts, local and regional flaps, two cervical expansions complicated by extrusion and infection, and a two-stage forehead flap. The columella is short, the nasal sill is contracted, the left ala is malpositioned onto the cheek, and the airway is stenotic. The nose is shapeless.

Patients remain fixed on the desired end result. They are not concerned about the number of stages if their preinjury appearance can be restored. In fact, they wish to appear normal and do not care what you do or how long it takes.

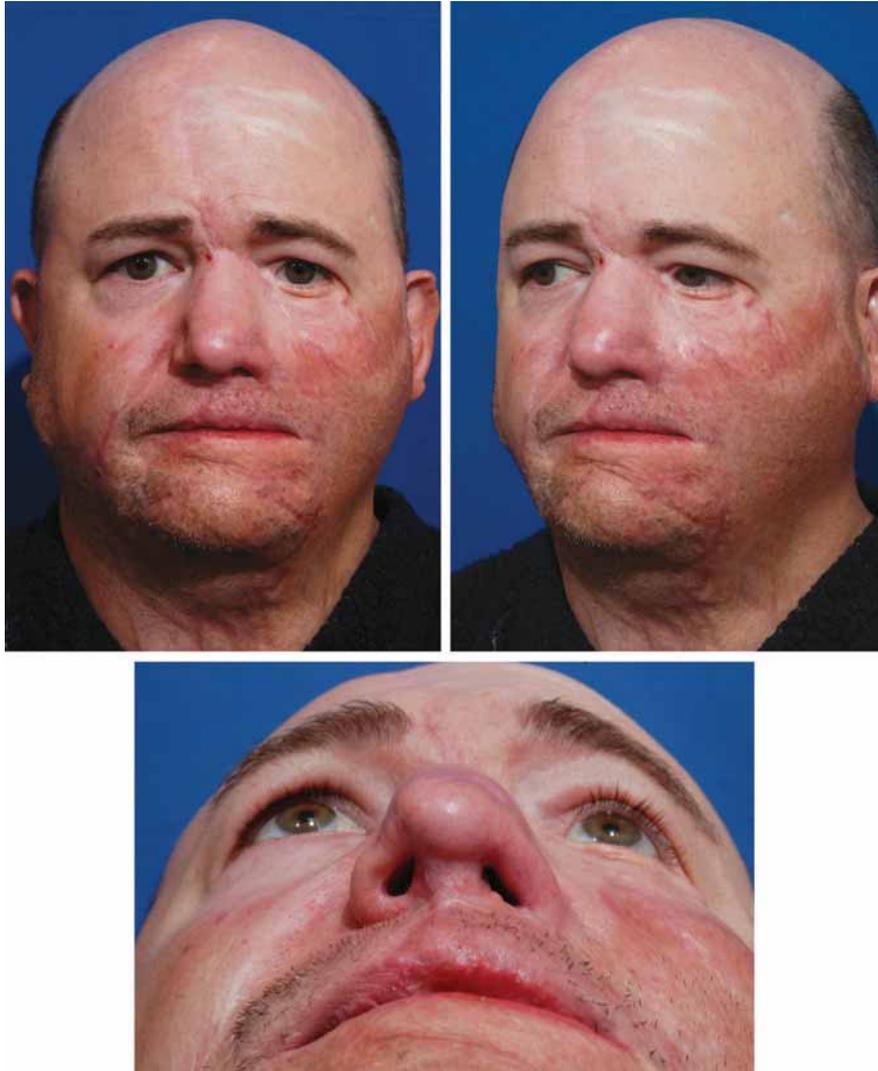
A revision should be considered an opportunity to improve the result, not a sign of failure. It is guided by the contralateral normal or the ideal. The goal must be to restore the correct dimension, volume, position, projection, symmetry, skin quality, border outline, and contour.

The surgeon first performs a meticulous preoperative analysis to define deficiencies, priorities, and order of repair. Incision position, extent of undermining, staging, and operative techniques

are determined after classifying the number, degree, and location of deformities.

Although traditionally presumed to be unreliable, the random blood supply of a transferred facial flap is robust. If the nose is bulky and shapeless overall, the old covering flap can be reelevated extensively through old border scars, permitting wide exposure and midlayer soft- and hard-tissue modification, or local imperfections can be addressed through direct incisions, disregarding old scars. These new incisions lie inconspicuously hidden in the expected contour depressions of the nasal subunits.

Soft-tissue excisions and secondary cartilage grafts reestablish contour by remodeling the architectural midlayer. When seen through thinned



**Fig. 9.** Postoperatively, the nose appears normal. During the nasal repair, the left cheek and upper and lower lips were resurfaced with a third expanded cervical flap, improving facial skin quality and correcting lip ectropion. Follicular hair grafts improved the beard pattern of the lip.

external skin, the appearance of a “normal nose” is restored. Because these alterations are performed under general (without local) anesthesia, the improved contour can be visualized intraoperatively. The vascularity of the cover and lining flaps is evaluated without epinephrine vasoconstriction, permitting wide elevation without significant risk of necrosis.

A lining deficiency is supplied by transferring discardable excess skin within the nasal margin, columella, or from the cheek or upper lip to augment inadequate lining and open the airway. At times, the nasal repair cannot be revised. Local tissues are inadequate and a regional flap must be transferred to resurface or line the nose.

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#### PATIENT CONSENT

*Patients provided written consent for the use of their images.*

#### REFERENCES

1. Burget G, Menick F. *Aesthetic Reconstruction of the Nose*. St. Louis: Mosby; 1993.
2. Menick FJ. *Nasal Reconstruction: Art and Practice*. Philadelphia: Saunders-Elsevier; 2009.