

Chapter 21 . Increasing Tip Rotation

- **Indications:** Patients in whom there is little or no nostril show likely have excessive downward rotation of either the nose itself or the nasal tip (Figure 21-1). The amount of rotation is best described by the angle between the nose and upper lip. The normal value for the nasolabial angle in females is approximately 100 degrees to 105 degrees and in males it is approximately 95 degrees to 100 degrees. Patients in whom this angle is too acute may be candidates for techniques that rotate the tip upwards. The position of the nose is determined by the elements that stabilize the nasal tip. These include the skin over the lower lateral cartilages, the position of the lower lateral cartilages themselves, the fibrous attachments between the lower and upper lateral cartilages, and those between the lower lateral cartilages and the caudal septum. Lateral crura that are positioned more obliquely within the nasal tip and alar margin contribute to decreased tip rotation. Hyperactivity of the *depressor septi nasi* muscle can also be an important factor contributing to decreased rotation of the nasal tip, especially during smiling. An “overactive” depressor septi muscle that contributes to drooping of the nasal tip is diagnosed by the “smile test” (ie, the nasal tip drops slightly when the patient smiles). Division of this muscle has been described as a treatment for the patient with a positive smile test.¹
- **Markings:** No specific markings need to be made preoperatively. A well-thought-out plan for surgery should be created. The estimated degree of change in the nasolabial angle is helpful in predicting the maneuvers that will be required to effect this change.
- **Approach:** The major contributors to the nasocolumellar angle are the caudal end of the septum and the anterior nasal spine of the maxilla. Rarely are the middle crura of the lower lateral cartilage a significant factor. Both of these structures can be approached through either a closed or an open approach. With an open approach, the skin is undermined to free the lower lateral cartilages of restrictive forces. The individual lower lateral cartilage complexes can be separated by dissecting through the loose soft tissue between them to allow visualization of the caudal septum. The anterior spine is found by dissecting inferiorly to the maxillary bone. With a closed approach, a hemi- or complete transection incision allows similar exposure of these structures.

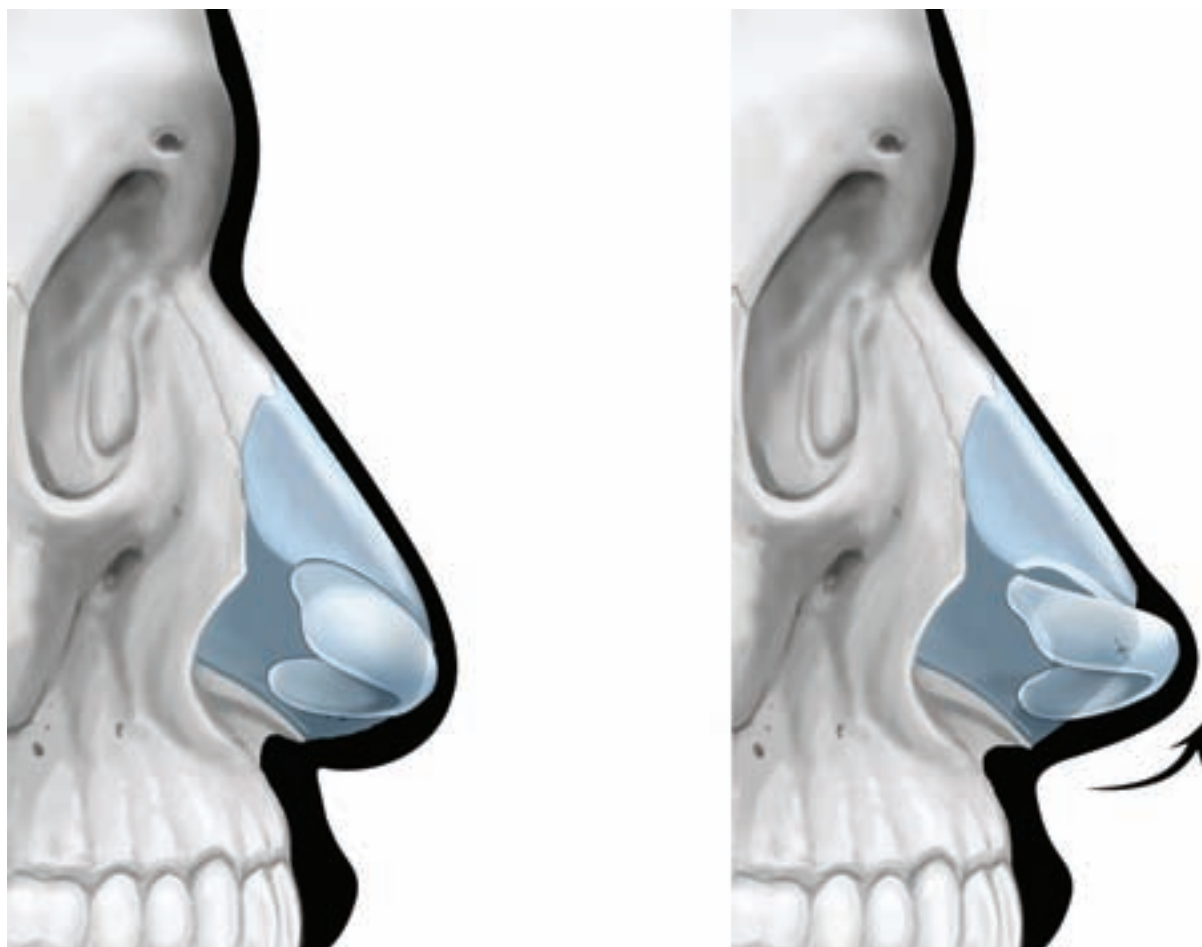


Figure 21-1. Under-rotated nasal tip and its correction.

- *Technique:* Small increases in tip rotation may be achieved by simple excision of the cephalic border of the lower lateral cartilages (Figure 21-2). Trimming a portion of the cephalic border of the lateral crura of the lower lateral cartilages is performed as a means of reducing the fibrous attachments between the lateral crura and upper lateral cartilages. In addition, the space created by the excision allows the more inferior portions of the cartilage to rotate in a counterclockwise direction to fill the space. Calipers are used to measure the amount of cartilage from the cephalic aspect of the lower lateral cartilage that is to be left behind to maintain support of the external nasal valve. In general, no less than 4 mm to 6 mm should be left for support. A #15 blade is used to incise the cartilage along its length being careful to avoid injury to the underlying nasal mucosa. The portion to be resected is then grasped with forceps from either end and removed with either the scalpel or a fine scissors. It should be kept on the operative field in moist saline gauze in case it is required as an onlay graft.
- The lower lateral cartilages may also be rotated superiorly by the use of sutures placed between the medial crura and the septum to fix the lower lateral cartilages in a more cephalad position (Figure 21-3). This suture engages the nasal tip and is attached to the antero-caudal septum. As it is tightened, it rotates the tip in a counterclockwise direction. The knot is set at the desired angle of tip rotation.
- Another means of rotating the nasal tip is by transection of the lateral crural complex. The skin over the lateral aspect of the lateral crura may be undermined and the attachments of the lower lateral cartilage to the accessory cartilages transected in a vertical direction. To maintain or increase the amount of rotation of the nasal tip, a columellar strut graft may be needed. The graft should be taken from a source that provides straighter, denser cartilage (septum, rib) rather the ear, which is more contoured and malleable. The graft material is placed between the medial crura of the lower lateral cartilages and sutured to both to provide intrinsic support. A septal extension graft can also be used to control the tip rotation. This should be a straight, large, rigid piece of cartilage that will be able to be secured to the septum and the medial and middle crura. The septal end can be secured with PDS sutures, and then the tip rotation is set and secured by suturing the septal extension graft to the middle crura. This graft maintains the desired projection. Septal cartilage is ideal because it is strong and straight. Rib cartilage may warp, and ear cartilage is too soft. A 0.5-mm PDS foil may be used to add rigidity to the ear cartilage or minimize warping on rib cartilage.

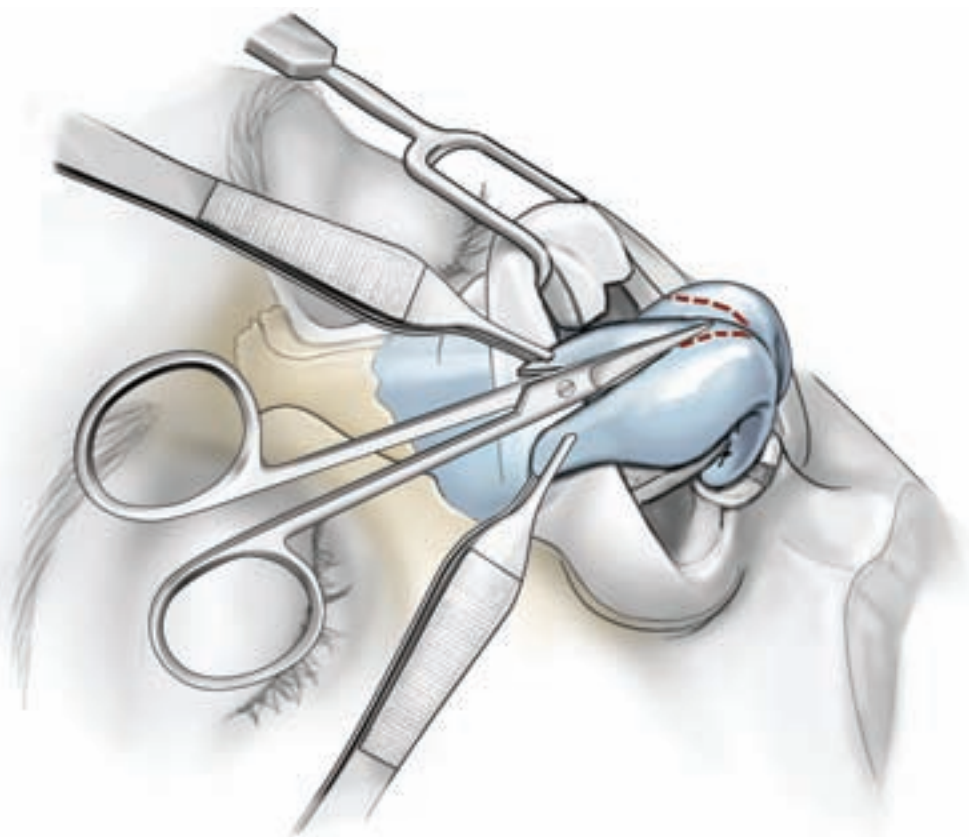


Figure 21-2. Cephalic trim of the lower lateral cartilages.

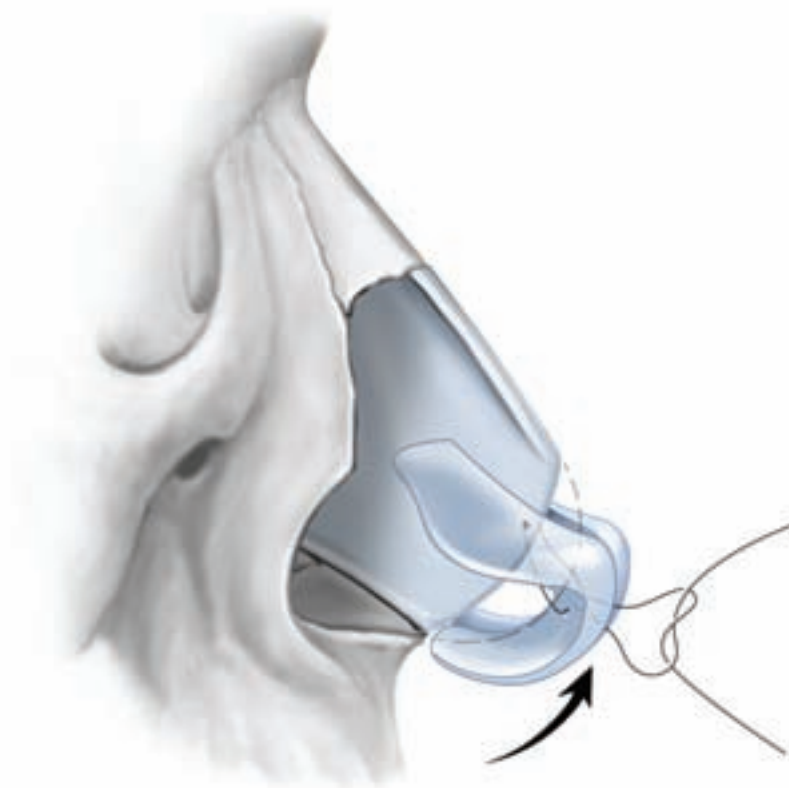


Figure 21-3. Tip rotation by means of caudal septal suture.

- Either a prominent or weak caudal septum will affect tip rotation. Several millimeters of caudal septum may be resected to produce changes in tip projection (Figure 21-4). If this is performed more anteriorly, some increased rotation of the tip will be anticipated. If performed more posteriorly, close to the anterior nasal spine, a greater deepening of the infranasal region will be achieved resulting in a more acute nasolabial angle.
- A weak nasal spine that produces an acute nasolabial angle can be enhanced with a graft of cartilage placed between the lower lateral cartilages, which extend caudal to the medial crura of the lower lateral cartilage. This graft may stop just short of the anterior nasal spine or may be sutured to it to further prevent migration. Some surgeons elect to augment the maxilla along the inferior aspect of the piriform aperture with either a rolled piece of autogenous fascia or alloplast (ProPlast or GoreTex). This technique generally warrants an approach via an upper gingivobuccal sulcus incision.
- Finally, one or more of the depressor septi nasi fascicles may be detached from their origin on the anterior nasal spine and insertion on the septum (Figure 21-5). This may be accomplished through an intranasal approach, in which the muscle fibers may be taken off the medial crus footplate and septal cartilage. Additionally, separation of the muscle fibers off the anterior nasal spine may be accomplished through either the existing intranasal approach or through a separate gingivobuccal sulcus incision.
- *Postoperative management:* A single Steri-strip placed down one sidewall, across the columella, and back up the other sidewall suffices as a dressing to hold the repositioned tip-columella complex in place.
- *Pitfalls:*
 - Rotation of the nasal tip should always be considered carefully. As the tip rotates cephalad, the length of the dorsum shortens and the amount of nostril show increases.
 - Resection of the cephalic portion of the lateral crura of the lower lateral cartilages disrupts the fibrous attachments to the upper lateral cartilages and may weaken tip support.
 - Resection of the caudal septum may rotate the nasal tip upwards. This may be a desired change, but should certainly be anticipated in the event it is not.
 - Any tissue placed along the piriform aperture may become visible when the patient smiles or may restrict animation of the face.
 - Alloplast may migrate or become exposed, warranting removal and ultimate replacement if still desired.
- *Tips:*
 - When performing cephalic resection from the lower lateral cartilages, it is important to measure from the inferior aspect of the cartilage and leave at least 4 mm to 6 mm of remaining cartilage. It is important that what remains is symmetric, not what is removed.
 - If indicated, resection of the caudal septum should be performed before harvesting septum to avoid leaving the caudal strut of septum narrower than the recommended 1 cm.
 - In addition to augmentation of the caudal septum with a graft, separate pieces of cartilage may be placed beneath the skin of the columella to achieve further correction as necessary.
 - Alloplastic augmentation should be avoided if possible since safe, reliable alternatives exist.

REFERENCE

1. Rohrich RJ, Huynh B, Muzzaffar AR, et al. Importance of the depressor septi nasi muscle in rhinoplasty: Anatomic study and clinical application. *Plast Reconstr Surg.* 2000;105:376.

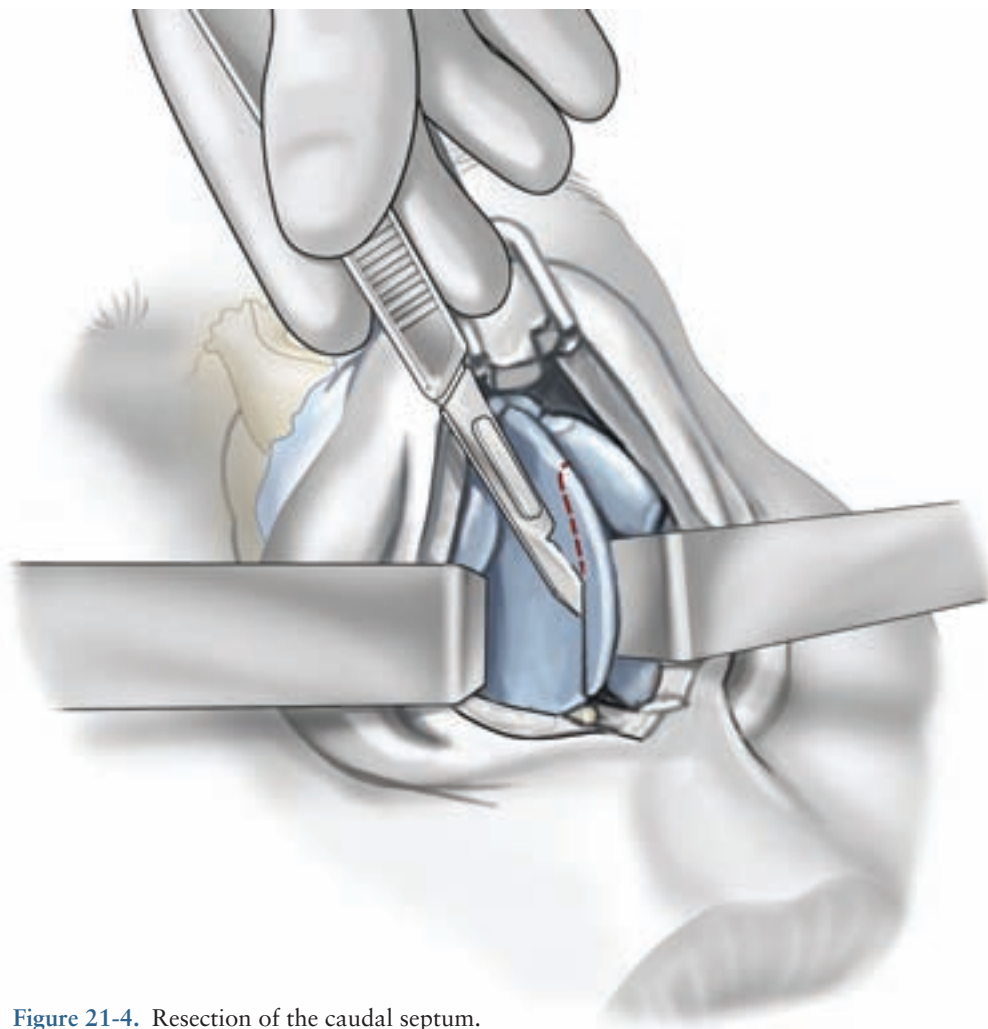


Figure 21-4. Resection of the caudal septum.

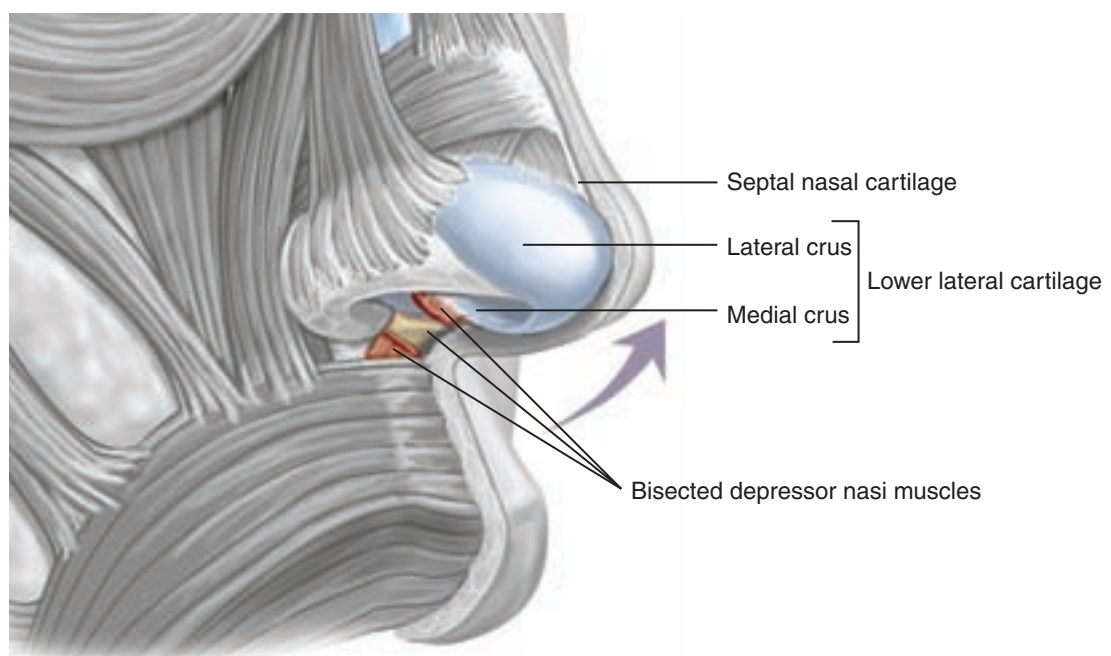


Figure 21-5. Transection of the depressor nasi muscles.