Chapter3 0. Septal Modification

- *Indications*: Some deflection of the nasal septum in any plane is likely present in most patients. Those with significant deviation of the septum are candidates for septoplasty since deviation of the septum limits airflow at the level of the internal nasal valve. Obstruction of 50% to 60% of the anterior and inferior aspect of the airway generally leads to symptoms of obstruction. The diagnosis is made by careful internal examination with a nasal speculum and an adequate light source. At times, the deviation may be symptomatic by impeding airflow through one or both nostrils. Preoperatively, the nature of the deviation should be identified. Deflection of the septum can be simply in one plane, such as the anterior-posterior direction or superior-inferior direction, or in a combination of planes. The patient should be questioned about prior manipulation of the septum and evidence sought on physical examination. Often a scar will be noted on one or more sides of the septal mucosa to indicate prior intervention. A cotton-tipped application can be used to gently palpate the septum if there is concern that portions were previously removed or damaged. Cartilage that has been removed and replaced as a graft usually does not retain its earlier pliability.
- *Markings*: No external markings are necessary to plan one's approach to the nasal septum. The extent of the septum should be appreciated so that 1 cm of dorsal and caudal cartilage is preserved as supporting elements of the remaining septum. Depending upon one's internal approach, the proposed lateral mucosal incision may be drawn 1 cm from the caudal edge through the right nostril if the surgeon is standing on the right side of the operating room table.
- *Approach*: The septal cartilage may be harvested laterally through the nostril or caudally between the crura of the lower lateral cartilages. In either instance, both a topical and a submucosal vasoconstrictive agent should be used. Topically, oxymetazoline or cocaine is commonly used. The former is delivered by aerosolized spray while the latter may be dispensed as a 4% solution into a small cup and soaked into 1-in by 6-in cotton pledgets. To minimize absorption, the pledgets should be gently wrung out. These are then packed into the nose (two to three per side) after the nasal hairs are trimmed and before the face is prepped. Additionally, a dilute solution of epinephrine (1:200,000) may be injected submucosally on either side of the septum before beginning the harvest to further minimize bleeding as well as provide hydrodissection of the mucosa off the underlying cartilage. When a lateral approach is chosen, an incision may be made one centimeter from the caudal edge of the septum. This may be delineated by gently deflecting the columella to the left to identify the most inferior aspect of the septum. The incision should be made through the mucosa and perichondrium initially. Dissection then proceeds carefully along the cartilage with a Freer or cottle elevator. Leaving 1 cm of intact septum dorsally and caudally, the septal cartilage is traversed with the sharp end of the cottle elevator or a scalpel. This allows access for contralateral mucosel elevation from the septum. Care is taken to not violate the opposite mucosa to prevent fistula formation (Figure 30-1). This may be difficult if there is significant deflection of the septum either towards or away from the surgeon. Dissection should continue posteriorly to the perpendicular plate of the ethmoid and inferiorly to the vomer and anterior nasal spine (Figure 30-2). The caudal 1-cm margin of septum should be left intact to prevent collapse.
- *Technique*: Manipulation of the septum is then performed to achieve/restore straightness and thus improves airflow.

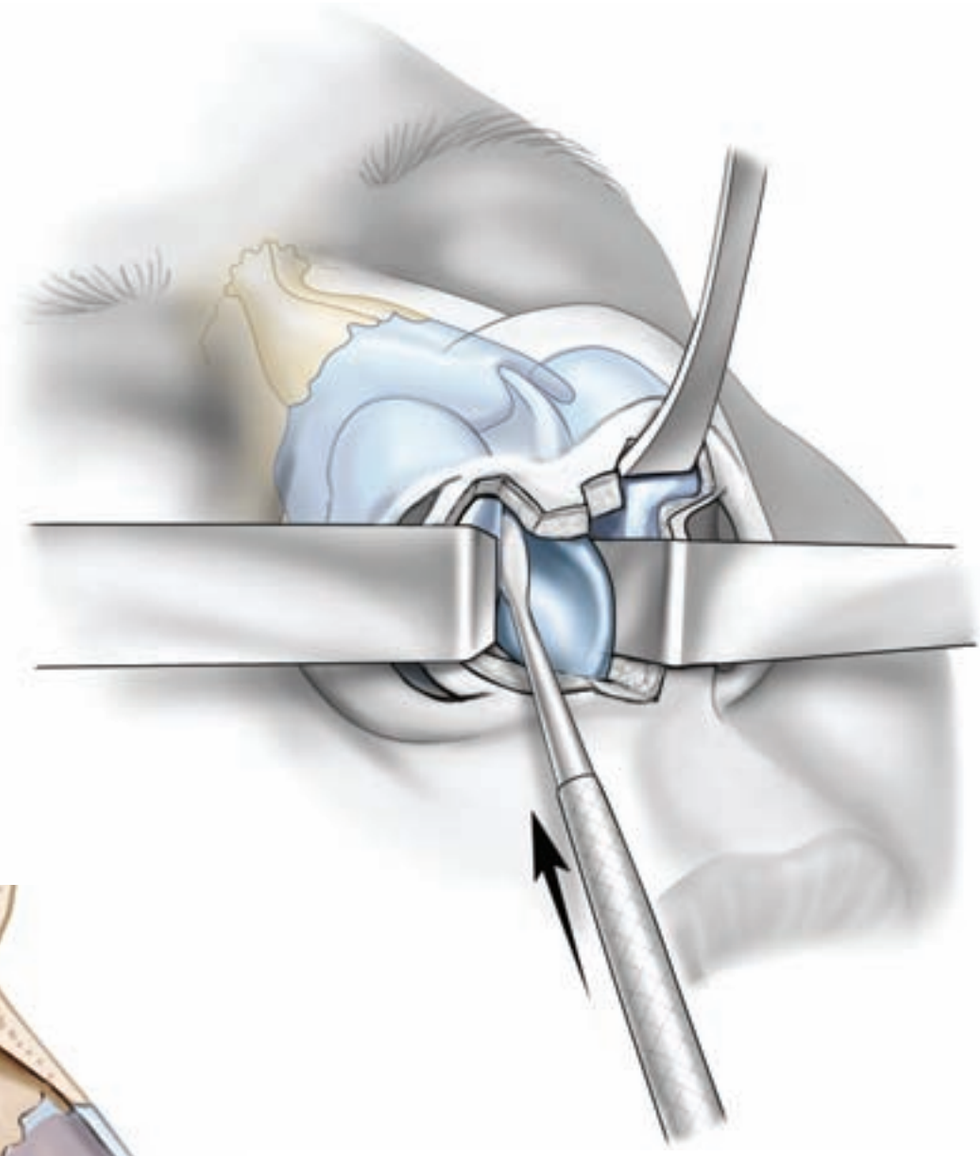

Figure 30-1. Careful dissection of mucosa off septal cartilage.

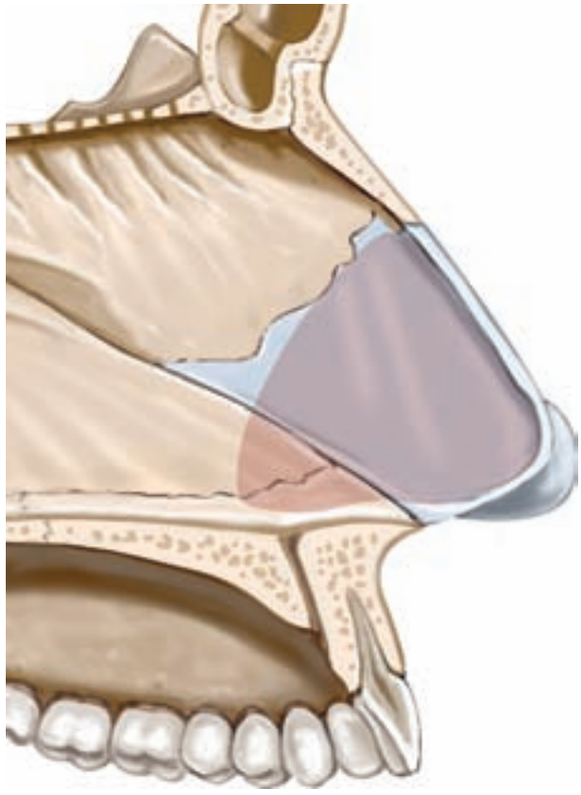

Figure 30-2. Extent of septal dissection.

- If the septum is minimally deflected, it may be scored on the concave side to weaken it and facilitate bending (Figures 30-3 and 30-4). If it is moderately deflected, it may be incised at several levels to create a fan-like structure that is weaker than the deflected one. If severely deflected, a portion may be removed and either left out or softened by gentle crushing and replaced (Figure 30-5).
- Closure of the septal mucosa should include dissolvable sutures to re-approximate the edges as well as mattress sutures to re-approximate the right and left sides if cartilage is removed. In this way, accumulation of fluid and blood into the potential space is minimized.

- *Postoperative management*: Following harvest of septal cartilage, the two leaves of mucosa should be re-approximated with absorbable mattress sutures. Some surgeons opt to pack the nostrils to further minimize the chance of fluid collecting beneath the mucosa. If nonabsorbable Vaseline gauze is used for packing, the patient should be placed on antibiotics to minimize the possibility of developing bacteremia and resultant toxic shock syndrome. A similar plan should be used for silicone tubes surrounded by absorptive material. Dissolvable Gelfoam may similarly be used for packing, but does not need to be removed.
- *Pitfalls*:
  - If dissection around the septum is too limited, injury to the mucosa is more likely with introduction of instruments to harvest the cartilage, such as a Ballenger knife.
  - Perforations of the mucosa overlying the septum may lead to persistent fistulae if they are opposite a mucosal defect. The best means of treatment is prevention. Care should be taken to slowly dissect the mucoperiosteum off the septal cartilage cognizant that unrecognized prior trauma to the septum might have led to areas of unnatural adherence.
  - Hematomas or seromas may form in areas between the mucosal leaves where cartilage was removed. To minimize this complication, one or more mattress sutures should be passed across the remaining intact mucosa to obliterate any potential dead space.
- *Tips*:
  - Care should be exercised in determining the anatomy of the deformed cartilage. Careful dissection along the septum is important. The septum is frequently warped in any of one or more planes. Straight dissection posteriorly or inferiorly can result in perforation.
  - An idea of the shape of the septum preoperatively will help minimize the incidence of inadvertent perforation.
  - In attempting to traverse the septal cartilage but leave the contralateral septal mucosa intact, a gloved finger may be placed along the septum opposite the incision and used to palpate the depth of the knife blade. The blade should pass through only the cartilage and not the contralateral mucosa as indicated by palpation of the knife and mobility of the boundaries of the cartilage.

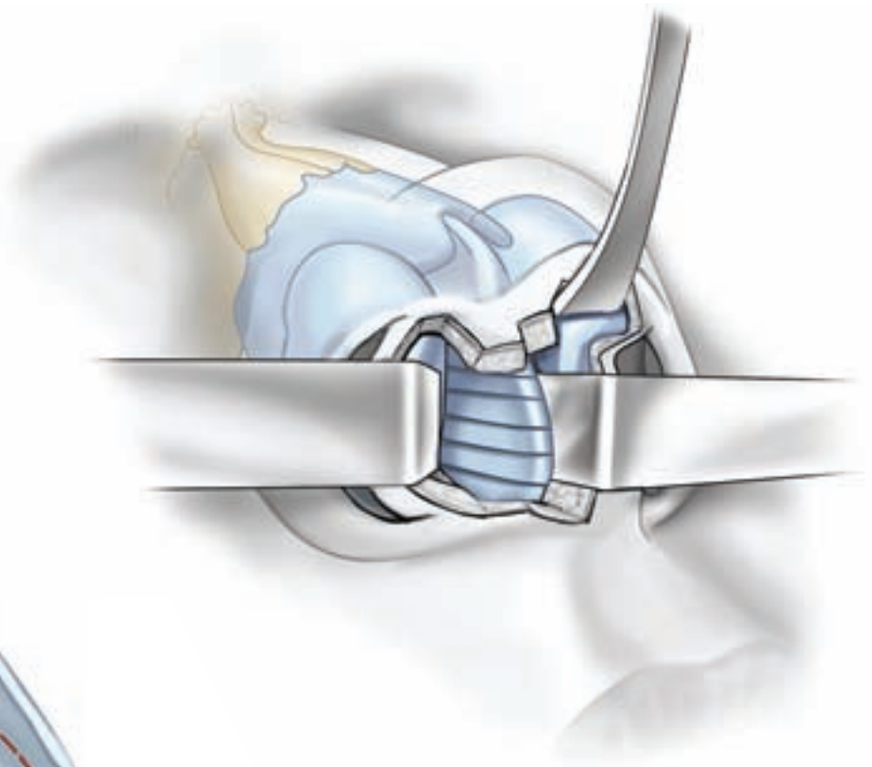

Figure 30-3. Partial-thickness incisions along the concave side of the septum to allow straightening.

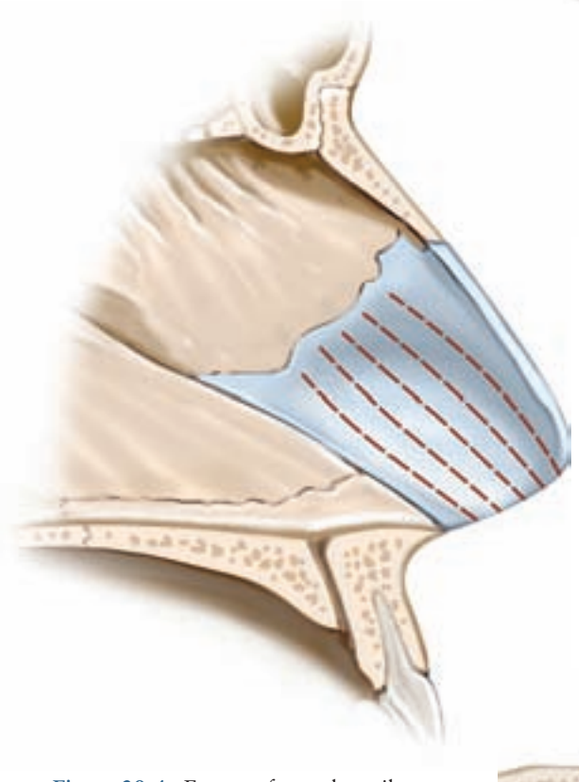

Figure 30-4. Extent of septal cartilage scoring.

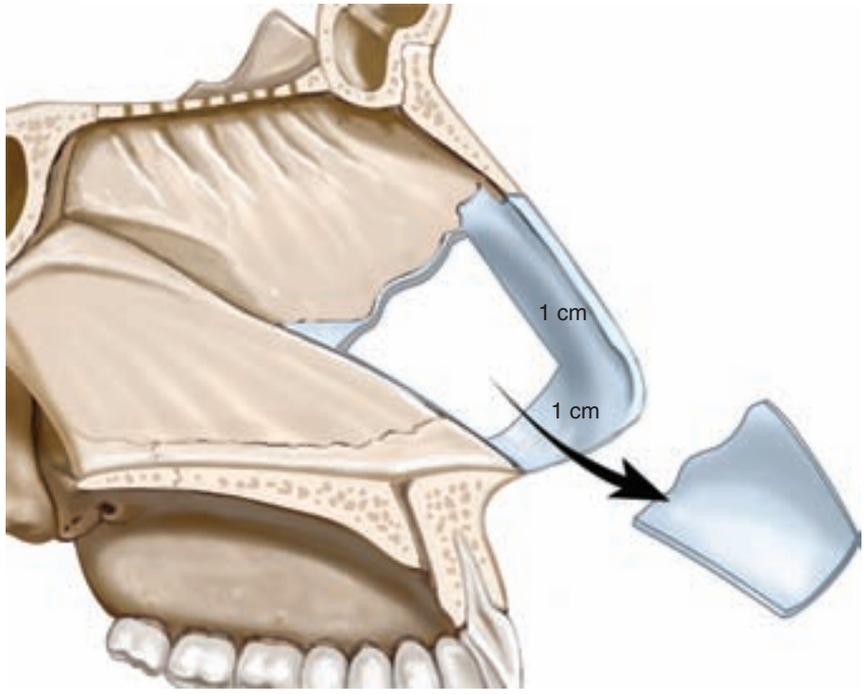

Figure 30-5. Excision of deviated septal cartilage leaving sufficient support dorsally and caudally.