



Endoscopic septoplasty

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In spite of its popularity and good subjective outcomes after surgery, traditional open septoplasty does present significant morbidity and the potential for complications. Flap elevation for classical septoplasty results in significant pain and postoperative nasal obstruction. Potential complications from flap elevation include septal hematoma and septal perforation. Although the procedure is the only option for a severely deviated nasal septum, there are situations when the obstructive component is localized to 1 area, often caused by a single spur. Minimally invasive techniques that reduce postoperative morbidity are often preferred if they can accomplish the same results. Initially described by Lanza et al, endoscopic septoplasty is a less invasive technique to correct a localized obstruction. Endoscopic minimally invasive spur resection gives the surgeon the possibility of limiting the dissection to the area of deviation, thereby reducing postoperative swelling and the development of complications, like septal hematoma. In addition, it avoids the need for postoperative packing, which can be a major source of morbidity.

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Septoplasty is a commonly performed surgical procedure aimed at relieving nasal airway obstruction, often in conjunction with other nasal and sinus procedures, such as cosmetic rhinoplasty and functional endoscopic sinus surgery (FESS).¹ Other indications include rhinologic headache, which is due to irritation caused by the contact of the septum with the lateral nasal wall, and chronic sinusitis secondary to septal deviation. The rationale for developing an endoscopic technique from a traditional "headlight" approach comes from the fact that during common nasal procedures, the surgeon's view is obstructed due to the narrowing caused by septal spurs or septal deviations.² Endoscopy enables the surgeon to localize the spurs and remove them under direct visualization by performing an incision precisely over the spur, thus minimizing surgical trauma. In addition, it avoids the need for postoperative packing, which can be a major source of morbidity.³ When combined with FESS, endoscopic septoplasty enables an easier access to the middle meatus, which can otherwise be impaired by subtle deflections of the septum. Endoscopic

septoplasty is also of great value in approaching the frontal sinus, skull base, orbit, and pterygopalatine fossa.

A smoother transition between septoplasty and endoscopic sinus surgery is an advantage of the endoscopic approach. Often a continuous exchange between open septoplasty instruments (including headlight) and endoscopic instruments (particularly when performing simultaneous FESS) disrupts the flow of the procedure. Endoscopic septoplasty eliminates these additional steps, and because the instruments for endoscopic septoplasty and FESS are similar, fewer additional instruments are required.

Visualization with the endoscope also allows for better diagnosis of posterior septal deformities and difficult deviations in the instance of revision cases. In fact, an incision localized to the site of the spur avoids excessive scarring secondary to mucosal trauma because minimal submucosal dissection and cartilage resection are performed. This is a very important advantage in the case of further revision septoplasties.⁴

Operative technique

After applying topical oxymetazoline in cotton pledges for decongestion, an injection of lidocaine 1% and epi-

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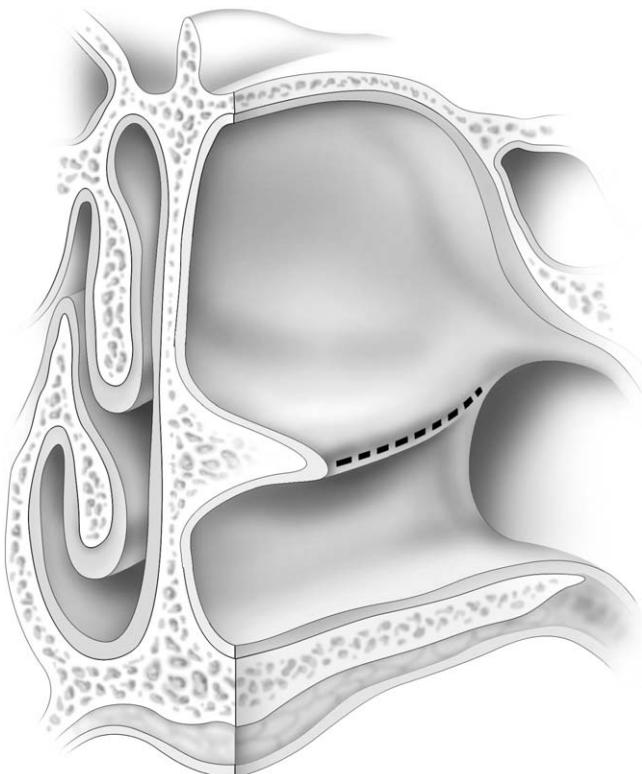


Figure 1 The incision is made parallel and right over the spur.

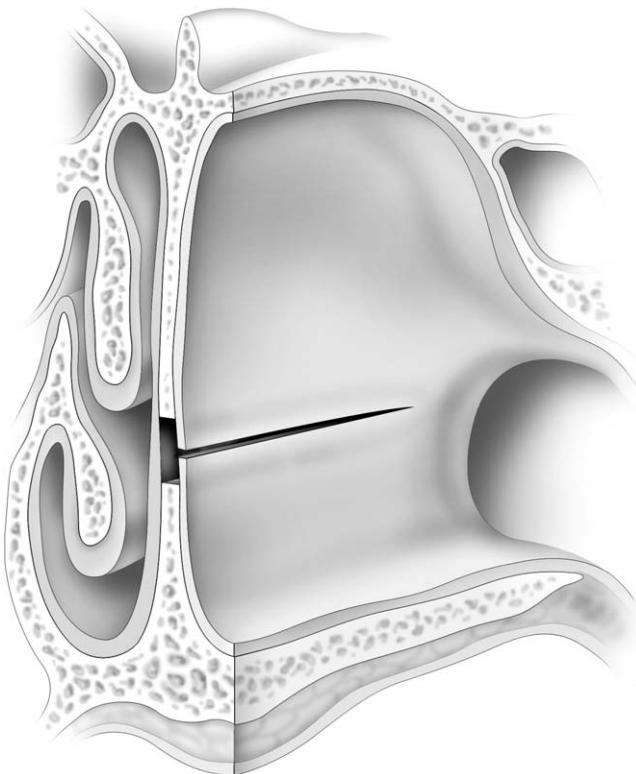


Figure 3 After the spur is removed, the flaps are repositioned, and the incision is left open.

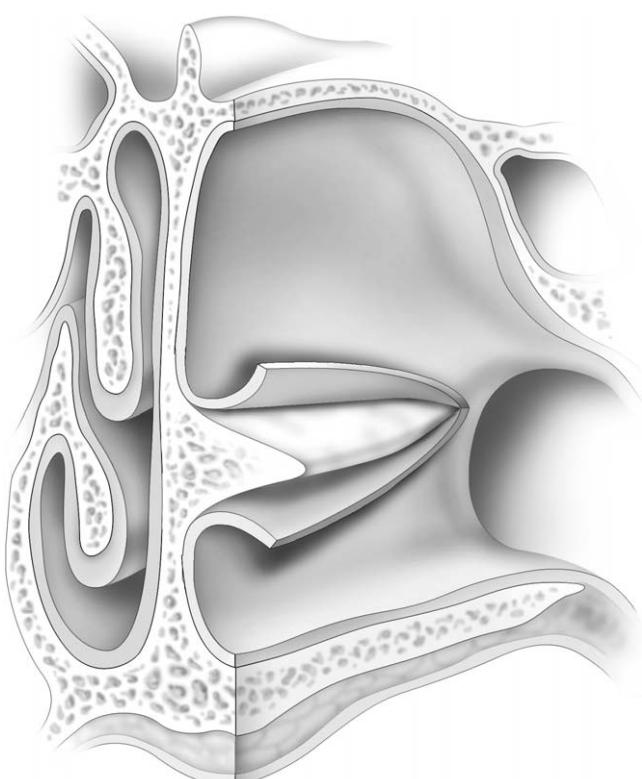


Figure 2 Flaps are then elevated above and below the spur, taking care not to perforate the mucosa.

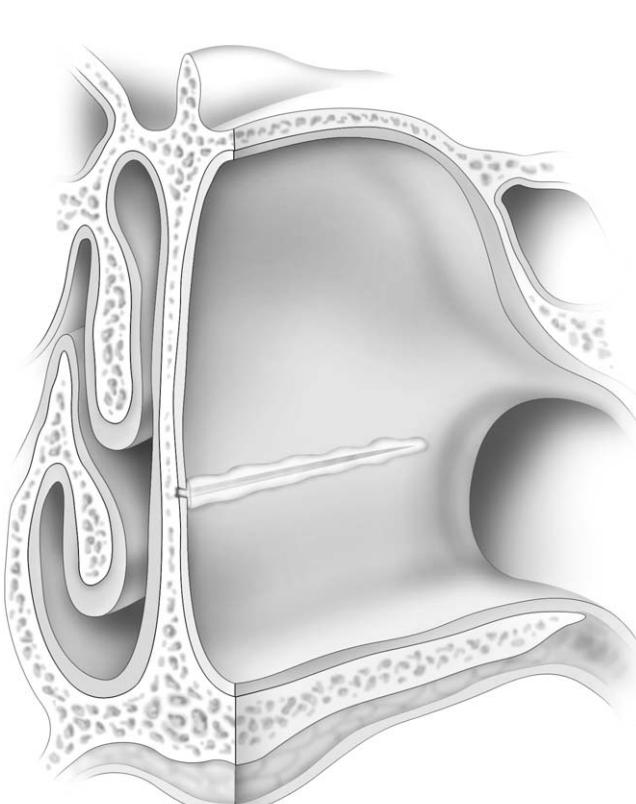


Figure 4 Incision site sealed with Bioglue.



Figure 5 Septoplasty burr. (Image courtesy of Medtronic Xomed, Inc.)

nephrine (1:100,000) for hemostasis is performed in a subperichondrial plane, which constitutes the key step in septoplasty. The infiltration can be done from anterior to posterior, or the opposite, although the authors prefer the former. While multiple injections might be needed over the spur, it is the first injection that needs to be applied in the right plane and with high pressure, to elevate the perichondrium. This is usually accomplished by injecting at the dorsal anterior injection point. Waiting 10 minutes after injection maximizes the effect of vasoconstriction. Under direct vision with a 0° endoscope, an incision with a sickle knife is made just parallel to and over the spur (Figure 1). Flaps are then elevated with a Freer or Dunning elevator above and below the spur, taking care not to perforate the mucosa (Figure 2).

After delicate dissection to avoid injury to the contralateral mucoperichondrium, the bony or cartilaginous spur is exposed and removed. Cartilaginous spurs can be removed with a Dunning elevator, whereas bony spurs are removed with an osteotome by seating it against the base of the spur. It may also be fractured with a Freer chisel. The incision site can be left open (Figure 3) after the flaps are repositioned. The site can alternatively be sealed with Bioglue (Cryolife, Inc, Atlanta, GA) (Figure 4). Horizontal mattress sutures can also be used if the area is easily accessible for suturing.

Techniques using powered instrumentation have also been described.⁵ The flap can be elevated with the elevator at the end of the powered septoplasty burr (Medtronic Xomed, Inc, Jacksonville, FL) (Figure 5), or with a Cottle, Freer, or Dunning elevator, if a cutting microdebrider is used. The instrument is then positioned with the burr facing the spur, which is subsequently shaved off until the surface is even with the rest of the septum. The speed of the burr (in rpm) can be adjusted, depending on the thickness of the

spur. In a narrow septal cavity, however, the suction from the microdebrider makes the procedure more challenging because the vacuum created tends to attract and collapse the mucosal flaps around the instrument.

Although the utilization of an endoscope eliminates both the retracting and assisting of the nasal speculum during surgery, the advantages of good visualization and magnification surpass the limitation of this 1-handed technique. This procedure is designed to eliminate a localized area of obstruction caused by a single spur.

Postoperative treatment and complications

This procedure usually does not need nasal packing or splints postoperatively, which eliminates a significant source of discomfort. Patients are then instructed not to blow their nose and to use saline spray to keep the nasal mucosa moisturized. Pain control is achieved with acetaminophen/codeine, and patients are discharged home on the same day of surgery.

The complications after endoscopic septoplasty are the same as for traditional septoplasty but are likely far less common. These include hemorrhage, septal perforation, an incompletely resected spur causing persistent nasal obstruction, and the development of synechiae postoperatively. Proper patient selection is the essential element in achieving good results, as with any other technique. In our experience, the number of patients who are appropriate candidates represent only a small percentage of the total number of patients who require septal surgery. Nevertheless, when performed, endoscopic septoplasty has excellent results, with minimal morbidity.

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