Endoscopic Septoplasty†

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Abstract

A retrospective study of endoscopic septoplasties in 28 cases was reviewed to assess the role of endoscopic technique in nasal septal surgery. The results of endoscopic septoplasties had the favorable outcomes and several attractive advantages.

Key word : Endoscopic Septoplasty, Retrospective Study, Chronic Sinusitis

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Septoplasty, first described by Cottle in 1947, has been used for decades as a treatment to correct nasal airway obstruction[1]. In some cases septoplasty is done to achieve adequate visualization for further work on the nose or paranasal sinuses. With the expanding role of endoscopic sinus surgery (ESS), correction of the deviated septum has increasingly been done to facilitate adequate visualization. Lanza et al[2] described endoscopic techniques to correct septal deformities in 1991. Since that time, a number of articles[3-9] seem to indicate that surgeons perform concomittent endoscopic septoplasties under varying situations not only to treat symptomatic nasal obstruction but also for improving surgical access to the middle meatus as an adjunct to ESS. The introduction of powered instrumentation has made endoscopic septoplasty a more minimal invasive surgery with the use of the powered burr which allows direct ablation of the pathologic septal area[10]. Endoscopic septoplasty is a minimal access surgery that provides several important advantages when compared with standard headlight septoplasty. The purpose of this study was to assess the role of endoscopic septoplasty including surgical indications, technique, and complications.

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MATERIAL AND METHOD

A retrospective review was carried out on all patients who had undergone septoplasty from January 1997 to June 1999 at Vajira Hospital, Bangkok. A total of 35 consecutive septoplasty patients were identified. Of these, 28 septoplasties (80%) were performed with the application of the endoscopic technique. The medical record of the 28 endoscopic septoplasty patients were reviewed for surgical indications, intraoperative technique, findings, and post-operative complications.

Technique

The procedure is as follows : computed tomography (CT) scan (Fig. 1) or clinical observation reveals a broadly deviated septum, an isolated spur or limited deviated septum causing airway obstruction, impingement on the middle meatus or obstruction of the view and access to the surgical area of the sinus procedure. If septoplasty is planned as a concurrent procedure with ESS, it will be done completely before starting ESS to prevent contamination. The O-degree scope is put into place and the deviated nasal septum is brought into view. After 1 per cent lidocain with 1 : 100,000 epinephrine is injected subperichondrially along the septum bilaterally, the incision is made immediately ipsilateral to the side of maximal deviation, caudal to deviation (Fig. 2). The limited dorsal to ventral extent of the incision is limited by the dorsal to ventral extent of the deviation[4]. Mucoperichondrial flap elevation is performed with a Cottle or Freer elevator to raise a pocket until complete extent of the septal deformity has been dissected. The septal cartilage is then incised and stair stepped several millimeters posterior to the mucosal incision. The contralateral mucoperichondrial flap elevation is then performed with the same extention. At this point the deviated cartilage is excised or scored with endoscopic scissors, punches, or forceps. Next, a Takihashi or small, straight-biting forceps is used to remove the bone or cartilage which caused the deviation. For some cases powered instrumentation is used[13]. Only the unilateral mucoperichondrial flap is elevated. Then the powered burr with intermittent irrigation and suction is used to ablate directly focus to septal pathology, whereas, the outer sheath protects the mucoperichondrial flap[10]. The septal flaps are returned to their anatomic positions. Quilting sutures are used to hold them in place. Sometimes there is a tear in the flap on the side of the spur or deviation; the free end of the flap is simply positioned in

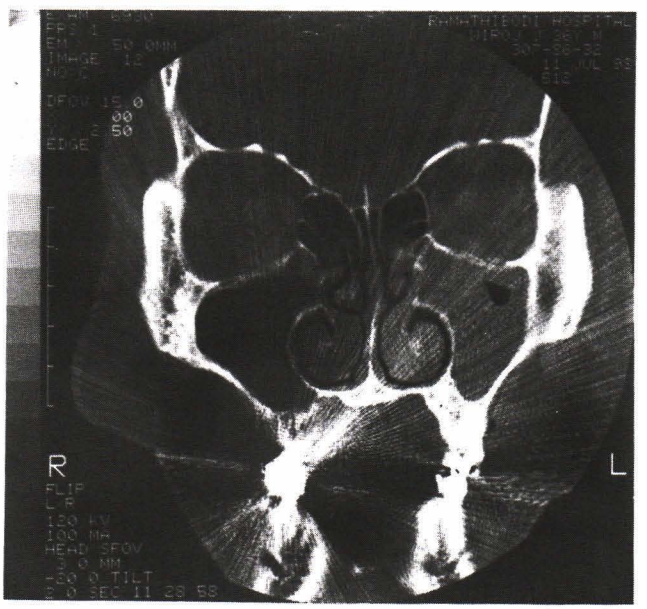

Fig. 1. Coronal CT scan shows limited septal deviation into the left middle meatus area with sinusitis.

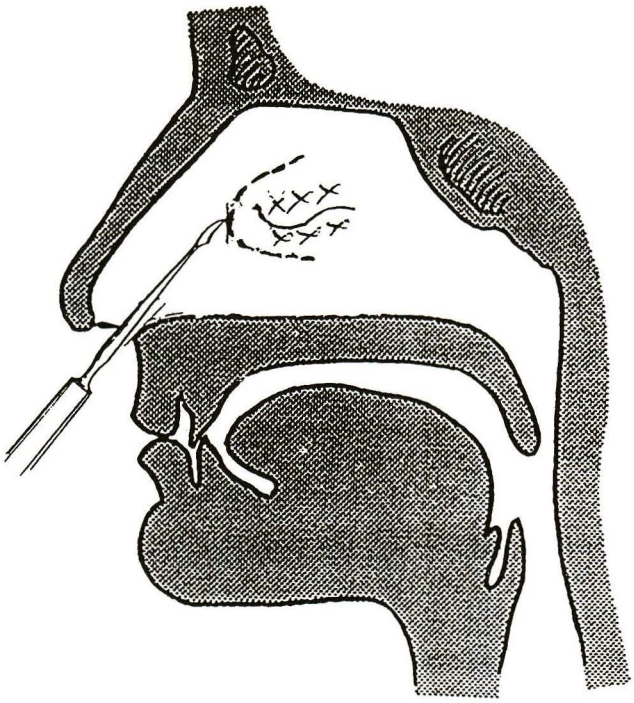

Fig. 2. Sickle knife is used to perform an incision immediately caudal to the septal deviation.

place against the opposite intact mucoperichondrial flap. The surgeon may then proceed with the sinus operation. When the entire procedure is complete, the 0-degree scope is used to inspect the area of the septoplasty to ensure the flaps have been laid in place and that no further obstruction exists.

RESULTS

22 of 28 cases were performed using endoscopic septoplasty in conjunction with ESS. 6 of 28 cases were performed alone as the primary procedure. 3 of 28 cases (11%) were revision septoplasties. 15 of the septal deformities were spurs (54%), whereas, 7 of the deviations were broadly based deflections (25%). In 6 patients (21%) more than 1 type of septal deformity was encountered. Complications in this series were rare. Minor sequelae included small synechia to the lateral nasal wall in 2 patients; these were lysed in an office setting and resolved without difficulty. There were no septal perforations. All surgical sites healed with normal mucosa, and no obstruction recurred after the procedure.

DISCUSSION

Conventional septoplasty has changed very little over the years. The traditional approach involves headlight illumination, a number of nasal speculums, and surgical instruments that are very much bigger than those used during standard endoscopic sinus procedures. There are occasions in which a more limited procedure is suited for focal pathology[5]. For example, during ESS an isolated septal spur or fracture may limit access to the paranasal sinuses. Pediatric septoplasty is characterized by limited tissue dissection and a targeted approach [11,12]. Under these circumstances, endoscopic septoplasty is needed.

The endoscopic approach to septoplasty provides several advantages over the standard headlight technique[7,8]. First, the endoscope provides better visualization, especially in more posterior dissection. Because the endoscope can be passed easily under the mucoperichondrial flaps, minimal retraction of the flaps is required to gain excellent visualization. Thus, the incision can be performed

more posteriorly, immediately anterior to the deviated area. The extent of the flap elevation anteriorly in the nose is minimized and also the operating time is minimized too. Post-operative edema is, therefore, reduced. Second, the instruments used for ESS are adequate, therefore, few additional instruments are required. This allows smooth integration of septoplasty and ESS. Awkward exchanges between headlight and endoscope are thereby avoided. Surgical instruments can be more precisely placed and manipulated.

The ability to reduce mucosal elevation facilitates recognition of mucosal flap tears and prevents worsening of injury. This is a very important advantage in cases of revision septoplasty in which elevation of mucosal flaps may be hindered by scar tissue formation(6).

Finally, endoscopic septoplasty is of particular benefit for technique tool and documentation. The use of video monitors to demonstrate the surgical anatomy and technique offers continuous learning opportunities for surgical assistants, students and operating room staff rather than the intermittent pauses when using the headlight approach.

In addition to its indication for nasal obstruction, endoscopic septoplasty has proved particularly useful when performed in conjunction with ESS for both intraoperative and post-operative concerns. The major relative contraindications for endoscopic septoplasty(8) are 2-fold : when the deformity involves a significant caudal deflection, and when significant associated external deformities are present, for which a septorhinoplasty approach would be indicated.

Complications were rare and were promptly addressed through careful post-operative care.

SUMMARY

Septoplasty is an important complement to ESS. Not only for the treatment of functional symptoms of obstruction but also for ensuring adequate exposure for intraoperative and post-operative access to the sinuses. The endoscopic approach offers an attractive alternative to the headlight approach with better visualization and better integration into endoscopic sinus procedures. A mininal invasive surgical strategy can be applied to more limited septal deformities, minimizing the extent of flap dissection and post-operative edema. The endoscope is not needed for routine septoplasty. It is of great value for septal spurs or ridges projecting into middle or inferior turbinates and meatuses, superior-posterior deviations obstructing the sphenoid sinus ostium and revision cases. Finally, endoscopic septoplasty is an excellent teaching tool when used in conjunction with video monitors.

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การผ่าตัดผนังกั้นกลางจมูกด้วยวิธีใช้กล้องส่อง†

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ได้ผ่าตัดผนังกั้นกลางจมูกด้วยวิธีใช้กล้องส่องในผู้ป่วย 28 ราย 22 ราย ทำร่วมไปกับการผ่าตัดไซนัสด้วยกล้องส่องเพื่อรักษาภาวะไซนัสอักเสบเรื้อรัง 6 ราย ผ่าตัดเฉพาะส่วนผนังกั้นเพื่อแก้ไขโครงสร้างของจมูกที่ผิดปกติ ผลการผ่าตัดทั้ง 28 ราย ได้รับผลดีที่น่าพอใจ โดยปราศจากข้อแทรกซ้อนที่สำคัญ การผ่าตัดผนังกั้นกลางจมูกด้วยวิธีใช้กล้องส่องนี้มีข้อดีกว่าการผ่าตัดวิธีดั้งเดิม คือ ใช้เวลาผ่าตัดน้อยลง มีความบอบช้ำต่อผนังกั้นจมูกน้อยกว่า สามารถแก้ไขส่วนคดที่อยู่ลึกได้ดีกว่าเดิม และภาพจากกล้องส่องสามารถต่อกับจอโทรทัศน์เพื่อใช้ในการเรียนการสอนได้

คำสำคัญ : การผ่าตัดผนังกั้นกลางจมูกด้วยวิธีใช้กล้องส่อง, การศึกษาย้อนหลัง, ภาวะไซนัสอักเสบเรื้อรัง

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