Original Article

Endoscopic Septoplasty: Retrospective analysis of 60 cases

Sufian Nawaiseh, Nemer Al-Khtoum
King Hussein Medical Center, Amman, Jordan.

Abstract

Objective: To review retrospective data of 60 patients who underwent endoscopic septoplasty over a period of two years.

Methods: The medical records of 60 patients who underwent endoscopic septoplasty during the period December 2008 and November 2009 at the King Hussein Medical Center (Amman, Jordan) were reviewed for surgical indications, intraoperative technique, findings, and postoperative complications.

Results: Nasal obstruction was the most common presenting symptom, being found in 55 (91.6%) patients. Out of 60 cases, thirty seven were performed in conjunction with endoscopic sinus surgery. In 23 cases, endoscopic septoplasty was performed alone as the primary procedure.

Nasal endoscopic evaluation located nasal septum deviations in the following order; 29 of the deviations were broadly based deflections (48.3%), whereas 23 of the septal deformities were spurs (38.3%). In 8 (13.3%) patients more than 1 type of septal deformity was encountered. No major complications occurred in the immediate post-operative period. Minor complications, such as haemorrhage occurred in one (1.6%) patient and septal haematoma in one (1.6%) patient.

Conclusion: Endoscopic septoplasty is an effective technique that can be performed safely alone or in combination with endoscopic sinus surgery with minimal additional morbidity. It provides significant clinical and excellent teaching tool when used in conjunction with video monitors over traditional approaches (JPMA 60:796; 2010).

Introduction

Surgery on a deviated nasal septum has progressed from radical removal of cartilage, and mucosa and radical removal of cartilage only by submucous resection to the modern techniques of septoplasty.[1,2]

Today, there is an emphasis on the preservation of structure to provide adequate support of the nasal framework and to resist the effects of scarring. Further refinements in the diagnosis and treatment of nasal obstruction are possible with the use of the endoscope.

Nasal endoscopy is an excellent method for the precise diagnosis of pathological abnormalities of the nasal septum. It permits the correlation between these abnormalities and the lateral nasal wall.[3] While nasal endoscopy is typically used for diagnosis and treatment of sinus disease, endoscopy can be combined with powered instrumentation to perform nasal septal surgery.

Over the last two decades, the applications for endoscopy in the field of rhinology have evolved beyond functional endoscopic sinus surgery (FESS). Septoplasty, which is among the three most commonly performed procedures in otolaryngology,[4] is particularly well suited to endoscopic application.

Endoscopic septoplasty as a minimally invasive technique can limit the dissection and minimize trauma to the nasal septal flap under excellent visualization. This is especially valuable for the patient having had previous nasal septal surgery.[5,6]

In this study, we carried out a retrospective analysis of 60 patients who underwent endoscopic septoplasty over a period of two years.

Patients and Methods

A retrospective review was performed to identify all patients who had undergone endoscopic septoplasty during the period December 2008 and November 2009 at the King Hussein Medical Center, Amman, Jordan.

The medical records of the 60 endoscopic septoplasty patients were reviewed for surgical indications, intraoperative technique, findings, and postoperative complications.

The inclusion criteria were those patients with limited septal deviation, septal spur with nasal obstruction, or a deviated septum with septal correction required in order to access the ostiomeatal complex (OMC) for functional endoscopic sinus surgery. The exclusion criteria were patients with septal deviation, gross external nasal deformity requiring septorhionplasty.

Technique for Endoscopic Septoplasty included position of the patient, preparation, and draping for septoplasty. Under endoscopic visualization with a 0 degree endoscope, the following steps were performed: Topical oxymetazoline was applied for decongestion; 1% lidocaine

with 1:100,000 epinephrine was injected subperichondrially along the septum and at the greater palatine foramina bilaterally. A vertical incision was made caudal to the deviation. For a broadly deviated septum, a standard Killian or hemitransfixion incision was used. For more posterior isolated deformities, the incision was placed posteriorly in the immediate vicinity of the deformity, obviating extraneous flap elevation.

Mucoperichondrial flap elevation was performed with a Cottle elevator under direct endoscopic visualization with a 0-degree endoscope. The flap elevated was limited as it was raised from over the most deviated portion of the nasal septum, i.e. posteriorly, without disturbing the anterior normal septum. Septal cartilage was incised parallel but posterior to the flap incision and caudal to the deviation. If the deviation was found to be mainly bony, the incision was made at the bony-cartilaginous junction. The contralateral mucoperichondrial flap elevation was then performed. Flap elevation was continued bilaterally until the complete extent of the septal deformity had been dissected.

The small Luc's was used to excise the deviated portion. Adequacy of the surgical correction was assessed by returning the mucosal flaps to the midline and inspecting the nasal airway bilaterally while palpating areas of residual deviation. Once satisfactory correction had been achieved the flap was repositioned back after suction of blood and edges of the incision were made to lie closely without the need of suture.

The procedure was completed with packing of the nasal cavity with merocele. Patients were instructed not to blow their nose and to use saline spray to keep the nasal mucosa moisturized. Pain control was achieved with paracetamol, and patients were discharged home following pack removal 24 hours postsurgery.

Results

A total number of 60 patients underwent endoscopic septoplasty over a period of two years, of these there were 42 males and 18 females. The age of the patients ranged between 18 and 43 years with the average age being 25.2 ± 3.6 years.

Nasal obstruction was the most common presenting symptom, being found in 55 (91.6%) patients. The duration of presenting symptoms varied from three months to 8 years, with a mean duration of 39.7 ± 7.4 months.

All of these patients had nasal septal deformities associated with other sinus or nasal pathology (i.e. chronic sinusitis, polyps). They were treated medically before surgery with topical steroids sprays, mucolytics, and antihistamines. All of the patients were studied with endoscopic nasal evaluation and CT scan.

Out of a total of 60 cases, 37 were performed in conjunction with endoscopic sinus surgery. In 23 cases, endoscopic septoplasty was performed alone as the primary procedure.

Nasal endoscopic evaluation located nasal septum deviations in the following order; 29 (48.3%) of the deviations were broadly based deflections, whereas 23 (38.3%) of the septal deformities were spurs. In 8 (13.3%) patients more than 1 type of septal deformity was encountered.

Our study found no major complications in the immediate post-operative period. Minor complications, such as haemorrhage occurred in one (1.6%) patient and septal haematoma in one (1.6%) patient.

Discussion

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).[7] 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.[8]

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.

Endoscopic septoplasty has been described previously by other authors;[9-12] however, the techniques used have traditional septoplasty or sinus surgery instrumentation.

According to Brennan et al.[13] the ideal objective in septal surgery is permanent correction of deviation with avoidance of any complication. Four basic principles are consistent with this objective: good exposure; safe elevation of flaps; resection of only a limited, necessary amount of septum; and elimination of aetiological dynamic forces. Of these four principles, the first three are best achieved by an endoscopic approach to the septum. The procedure described in this study provided a smooth transition from endoscopic sinus surgery to septoplasty. It has the advantage of a targeted approach to the specific septal problem, without the need for exposing excessive bone and cartilage, thereby improving healing time and decreasing tissue trauma. In our study, the time required for surgery could not be analyzed because our cases required different combinations of surgical procedures.

Based on our experience in endoscopic septoplasty, there is no difference in the complication rate compared with open septoplasty and it is at least as effective as traditional

open techniques in correcting septal deviations posterior to the mobile septum. However; Hwang et al.[5] in their retrospective study of 111 patients undergoing endoscopic septoplasty, reported haematoma in 0.9%, asymptomatic perforation in 0.9%, and synechiae formation in 4.5% patients. In a retrospective study of 116 patients, Chung et al.[6] described transient dental pain/hyperaesthesia in 4.3%, asymptomatic septal perforation in 3.4%, synechiae formation in 2.6%, epistaxis 0.9%, septal haematoma in 0.9%, and persistent septal deviation requiring revision septoplasty in 0.9% patients. However, in our study we reported only haemorrhage which occurred in one (1.6%) patient and septal haematoma in one (1.6%) patient. These rates commensurate with those reported in the literature for traditional headlight septoplasty.[5,6]

Conclusion

Endoscopic septoplasty is an effective technique that can be performed safely alone or in combination with endoscopic sinus surgery with minimal additional morbidity. It provides significant clinical and excellent teaching tool when used in conjunction with video monitors over traditional approaches.

References

1. Cottle MH, Loring RM. Surgery on the nasal septum: New operative procedures aid indications. Ann Otol Rhinol Laryngol 1948; 57: 705.
2. Cottle MH, Loring RM, Fischer GG, Gaynon IE, et al. The maxila-premaxila approach to extensive nasal septum surgery. AMA Arch Otolaryngol 1958; 68: 301-13.
3. Cantrell H. Limited Septoplasty for endoscopic sinus surgery. Otolaryngol Head Neck Surg 1997; 116: 274-7.
4. Siegel N, Glicklich R, Taghizadeh F, Chang Y. Outcomes of septoplasty. Otolaryngol Head Neck Surg 2000; 122: 228-32.
5. Hwang PH, McLaughlin RB, Lanza DC, Kennedy DW. Endoscopic Septoplasty: Indications, technique and results.Otolaryngol Head Neck Surg 1999; 120: 678-82.
6. Chung BJ, Batra PS, Citardi MJ, Lanza DC. Endoscopic septoplasty: revisitation of the technique, indications and outcomes. Am J Rhinol 2007; 21: 307-11.
7. Stewart MG, Smith TL, Weaver EM, Witsell DL, Yuch B, Hannley MT, et al. Outcomes after nasal septoplasty: Results from the Nasal Obstruction Septoplasty Effectiveness (NOSE) study. Otolaryngol Head Neck Surg 2004; 130: 283-90.
8. Lanza DC, Rosin DF, Kennedy DW. Endoscopic septal spur resection. Am J Rhinol 1993; 7: 213-6.
9. Nayak DR, Balakrishnan R, Murthy KD. An endoscopic approach to the deviated nasal septum - a preliminary study. J Laryngol Otol 1998; 112: 934-9.
10. De Sousa A, Inciartef L, Levine H. Powered endoscopic nasal septal surgery. Acta Med Port 2005; 18: 249-56.
11. Raynor E. Powered endoscopic septoplasty for septal deviation and isolated spurs. Arch Facial Plast Surg 2005; 7: 410-2.
12. Sindwani R, Wright ED. Role of endoscopic septoplasty in the treatment of atypical facial pain. J Otolaryngol 2003; 32: 77-80.
13. Brennan HG, Parkes ML. Septal surgery: the high septal transfixion. Int Surg 1973; 58: 732-4.