

A Study to Evaluate the Outcome of Conventional and Endoscopic Septoplasty

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Abstract

Objective: To evaluate and compare the results of conventional and endoscopic septoplasty.

Methodology: A hospital-based comparative study was performed at SMS Medical College, Jaipur over a period of one year. In this study, 62 patients suffering from deviated nasal septum were divided into two groups of 31 each that underwent conventional and endoscopic septoplasty respectively, and were evaluated in terms of the outcome.

Result: The endoscopic group reported 93.5% post-operative satisfaction rates, 12.9% experienced hemorrhage, 12.9% synechiae, and 9.6% mucosal tear, compared to 80.6%, 25.8%, 16.12%, and 19.35% respectively in the conventional group.

Conclusion: The patients who underwent endoscopic septoplasty fared better than those who underwent conventional septoplasty in terms of success, complications, morbidity, and overall satisfaction.

Keywords: Septoplasty, Mucosal Tear, Haemorrhage, Morbidity

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Introduction

The most common complaint in otorhinolaryngological practice is nasal obstruction, for which a deviated nasal septum is the most common cause [1].

Septoplasty is considered to be an ideal mode of treatment for septal deviation. As initially described by Killian and Freer, septoplasty is classically performed under direct visualization using conventional methods. However, the conventional technique has limitations like poor visualization, comparative inaccessibility, poor

illumination, difficulty in diagnosing the exact pathology, need for nasal packing, unnecessary manipulation, resection, over-exposure and over-resection of the septal framework, which could lead to post-operative complications and thus cannot be applied to all the variants of nasal septum deformities [2].

With the increased trend towards maximum conservation of body tissues, endoscopic septoplasty has begun to replace the conventional technique. It was first

introduced by Lanza and colleagues and Stammberger in 1991 [3,4]. This technique has several advantages including the precise preoperative identification and diagnosis of the septal pathology and associated lateral nasal wall abnormalities. It also helps in better planning of endoscope-aided septal surgery [5].

From the intraoperative standpoint, it provides enhanced visualization with magnification, better space for instrumentation, and causes less mucosal damage, as it provides direct visualization of flaps during the detachment procedure [6]. It is a minimally invasive procedure and serves as a valuable teaching tool in conjunction with video imaging. Endoscopic septoplasty is useful for the treatment of isolated septal spurs, posterior and high deviations. A directed approach such as this leads to limited dissection with minimal manipulation, faster postoperative healing, and a shorter hospital stay [7].

Methodology

All eligible patients were given a detailed explanation of the nature and purpose of the study. A group of 62 patients suffering from deviated nasal septum refractory undergoing medical treatment for long-term nasal obstruction and headache was selected as per the inclusion criteria from the outpatient department of Otorhinolaryngology.

After obtaining their informed, written consent, a detailed history was obtained and a thorough general and local examination were performed. The findings prior to surgery were noted and medication was given to the patients, following which they were taken for the procedure. The patients were sorted into 2 groups at random—a total of 62 envelopes were used, consisting of 31 chits marked as ‘endoscopic septoplasty’ and

another 31 marked as ‘conventional septoplasty’. Prior to the procedure, in the operation theatre, the envelopes were opened and the type of septoplasty to be performed for each patient was decided.

The following parameters were noted intraoperatively:

- a. Duration of the surgery
- b. Loss of blood during the surgery
- c. Accessibility of surgical space.

Nasal packing was performed for all cases in both groups with Merocele nasal packs, following which antibiotics were administered via I.V. The nasal packs were removed on day 3 of the surgery.

The patients of both groups were discharged with a week’s supply of antibiotics and analgesics. Decongestant nasal drops were prescribed for 5 days, followed by saline nasal drops till their next visit. Postoperatively, follow-ups were performed on the 3rd day, 7th day, 1st month and 3rd month, and the following points were noted on performing a diagnostic nasal endoscopy:

- a) The persistence of an anterior/posterior deviation or spur
- b) The formation of synechiae
- c) The persistent pathology of turbinate
- d) The presence of discharge in the middle meatus
- e) The improvement of symptoms of nasal obstruction
- f) Any change in external appearance.

The data collected were entered using Microsoft Excel. It was then analyzed using the chi-square test and the results were obtained.

Results

Table 1: Intraoperative assessment

No. of cases	Group A (Conventional Septoplasty)	Group B (Endoscopic Septoplasty)
Duration of surgery (avg.)	35.5 min	20 min
Approximate amount of blood loss (avg.)	60 ml	40ml

A perioperative assessment of bleeding in patients was carried out in both groups. In the conventional septoplasty group, an average of 60 ml of blood loss was reported, and in the endoscopic septoplasty group, an average of 40 ml of blood loss was observed.

Table 2: Symptoms relieved postoperatively

Symptoms Relieved	Group A (Conventional Septoplasty)	Group B (Endoscopic Septoplasty)
Nasal block	83.87%	96.77%
Nasal discharge	66.66%	86.66%
Headache	80%	100
Allergy	40%	60%
Epistaxis	100%	100%
Sneezing	75%	85.71%

A postoperative follow-up of the patients revealed that 83.87% of cases of Group A and 96.77% of Group B had been relieved of nasal obstruction. Headache was relieved in 100% of Group B cases and 80% of Group A, whereas 66.66 % of Group A and 86.66% of Group B patients were relieved of nasal discharge. 100% of patients in both Groups A & B were relieved of epistaxis.

Table 3: Post-operative findings

Finding	Group A (Conventional Septoplasty)	Group B (Endoscopic Septoplasty)
Septal deformities	0/31	0/31
Hypertrophy of turbinates	6/31	0/31
Discharge in middle meatus	0/31	0/31

This table shows a 100% improvement in septal deformities and middle meatus discharge in both groups. In terms of cases associated with discharge in the middle meatus, 90.4% improvement was reported in the conventional Septoplasty group.

Table 4: Post-operative patient satisfaction

Patient satisfaction	Group A (Conventional Septoplasty)	Group B (Endoscopic Septoplasty)
Very good	80.6%	93.5%
Good	6.5%	6.5%
Satisfactory	3.2%	0%
No change	9.7%	0%

A subjective visual analogue scale (NOSE questionnaires) of the group studied revealed that 80.6% of Group A and 93.5% of Group B patients reported very good improvement, 6.5% of Group A patients and 6.5% of Group B reported good improvement, satisfactory improvement was noted in 3.2% of Group A cases, and no change was found in 9.7% of the Group A cases.

Table 5: Postoperative complications

Complications	Group A (Conventional Septoplasty)	Group B (Endoscopic Septoplasty)
Haemorrhage	25.80%	12.90%
Mucosal tear	19.35%	9.6%
Synechia	16.12%	12.90%
External deformities	0%	0%

Postoperative complications like haemorrhage occurred in 25.80% of patients in Group A and in 12.90% of patients in Group B 12.90%. Mucosal tears were observed in 19.35% of Group A patients and 9.6% of Group B patients. Synechia were present in 16.12% of Group A patients and 12.90% of Group B patients.

Discussion

Endoscopic septoplasty is not primarily intended for relieving nasal obstruction—it is usually performed to gain access to the surgical site as in cases of FESS. However, it has distinct advantages in paediatric cases, revision surgeries, and cases with previous septal perforations. Additionally, in cases with isolated septal spurs, complex deformities need to be corrected by the conventional approach. Caudal deflections are also approached using the conventional method.

In the conventional septoplasty group, 10 patients required a longer preoperative stay due to bleeding on pack removal and improper flap reposition, while in the endoscopic septoplasty group, only 2 patients had to stay for more than 48 hrs. These results are statistically significant, clearly showing that most cases in the endoscopic group required a shorter period of stay.

In the present study as well as in the study by Nayak *et al.* (1998), the complication rates were noted to be significantly higher in conventional septoplasty [8].

In a study by Sindhwani and Wright (2003) [9] 54% of patients with complaints of nasal obstruction and facial pain were cured, 38% showed improvement and 8% did not derive any benefit. A study by Harley *et al.* (2003) [10]. selected patients with nasal obstruction and headache and significant improvement was noted in endoscopic groups when compared to conventional groups. In the present study, more patients in the endoscopic group found relief from these symptoms compared to those from the conventional group (96.77% improvement in nasal obstruction, 100% relief from headache, 90.32%, improvement in nasal discharge) and the results were statistically significant.

In a study by Park *et al.* (1998), synechia were formed in significantly fewer patients in the endoscopic septoplasty group when compared to the conventional group [11]. These findings are in accordance with the present study. The complication rate for endoscopic septoplasty in an study by M. Gupta (2000) was found to be 2.08% [12] In a study by Hwang *et al.* (1999), the complication rate for endoscopic septoplasty

was found to be 5% [13] In the present study, the complication rate in endoscopic septoplasty was noted to be 2%.

Endoscopic Septoplasty is very useful during revision septoplasty procedures. In these cases, scarring from previous septal surgery tends to obscure normal tissue planes, resulting in an increased risk of mucosal tearing with septal perforation.

The endoscopic technique helps achieve optimal visualization of tissue planes, minimizing the risk of mucosal septal perforation by enabling the surgeon to recognize the presence of a mucosal rent, thus preventing the tear from getting enlarged.

A directed endoscopic septoplasty approach is useful to treat isolated septal spurs in the absence of larger septal deviations. A directed approach limits dissection and aids quicker postoperative healing.

In a study by Mladina R *et al.* (1996), patients with Type 5 & 6 deformities of the septum were noted to have a higher prevalence of osteomeatal disease. The results of the present study were in accordance with previous studies and so were significant [14].

The traditional approach to septoplasty involves the use of headlight illumination, visualization through a nasal speculum, and the use of surgical instruments that are typically different from those used during standard endoscopic procedures.

These circumstances can be limiting when treating a narrow nose, approaching posterior deviation or when frequent exchanges are required between headlight and endoscope. In addition, impaired visualization may create a predisposition to nasal mucosal trauma, which can affect endoscopic visualization during sinus surgery.

Compared to the traditional method, the advantages of using endoscopic septoplasty are as follows: enhanced illumination and a

wider field of vision, a more accurate evaluation of the more posterior septal deformities, a more accurate identification of the septal area to be repaired, with a subsequently limited extent of resection (which is the principle of minimally invasive surgery).

Some additional advantages are more limited incisions immediately to the anterior of the septal deviations with a reduced need to raise and retract the flaps, advantages in minor surgical revisions after septoplasty or in septal perforations, a deeper and more precise understanding of the disease of the side walls of the nasal fossa associated with septal malformations, the increased ability to integrate the procedure with other endoscopic procedures of the paranasal sinuses, the ability to perform selective partial resection of the turbinate using the endoscopic method, greater control over bleeding and shorter operating times.

Lastly, endoscopic septoplasty is also an effective teaching tool. When viewed on a monitor, the procedure provides an excellent opportunity for recording and studying anatomy, pathology, and surgical techniques, which can be used in the training of medical students, graduate specialists, and assisting surgeons.

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