

# Comparative Evaluation of Conventional Versus Endoscopic Septoplasty for Deviated Nasal Septum

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## Research Article

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## Abstract

**Objectives:** To evaluate the advantages and disadvantages along with comparison of results of endoscopic septoplasty over conventional septoplasty.

**Methods:** The prospective type of study was conducted in a tertiary referral centre and a total of 60 patients between the ages group of 18-35 years having symptomatic deviated nasal septum and refractory to conservative medical treatment were included in the study while patients with uncontrolled hypertension or diabetes, having upper respiratory tract infection or allergic rhinitis were excluded from the study. Patients were divided into two groups: Group A-consisted of 30 patients, in whom conventional septoplasty was done and Group B-consisted of 30 patients, in whom endoscopic septoplasty was performed. Post-operative assessment was carried out at 48hrs, 15days, 1 month and 3 months after the surgery.

**Results:** 24 (80%) patients of Group A had improvement in nasal obstruction, 18 (90%) showed symptomatic relief from nasal discharge and headache was relieved in 17 (85%) patients. In Group B, 27 (90%) patients had improvement in nasal obstruction, 20 (90.9%) showed relief from nasal discharge and headache was relieved in 20 (95.2%) patients. Residual septal deviation was seen only in 3 (10%) patient of Group A. 3 (10%) cases developed synechiae in Group A as compared to 1 (3.3%) case in Group B. Lip oedema developed only in 3 (10%) of cases in Group A. Bleeding from nose requiring repacking was seen in 3 (10%) patients of Group A and 1 (3.3%) in Group B.

**Conclusion:** Endoscopic septoplasty showed better results as compared to conventional septoplasty as endoscope gives better illumination and improved access to deviated nasal septum and allows limited incision, limited flap elevation, and achieves correction with least resection and thus reducing the post-operative complications.

**Keywords:** Septoplasty; Endoscopic; Conventional

## Introduction

During the 19th Century surgeon started tackling deviated nasal septum by different techniques. Earlier methods of correcting the spurs and angulations by shaving down the convexities or by complete removal of the deviations by punch forceps has been replaced now a days by a newer concept of preservation of the septal framework which gives rise to lesser complications. In this modern era, use of endoscopes in surgery is gaining popularity and is a fast developing concept. The application of endoscopic techniques to the correction of septal deformities was initially described in 1991 by Lanza, et al. [1] & Stammberger [2]. Endoscopic septoplasty provides a direct targeted approach to the septal anatomical deformity, allowing a minimally invasive procedure with limited septal mucosal flap dissection. Better light visualization and magnification provided by the endoscope increases the precision of the surgical procedure thus facilitates accurate identification of the pathology and improves accessibility to remote areas. Endoscopic septoplasty is associated with significant reduction in patient's morbidity in both preoperative and post-operative period due to limited extent of flap dissection, limited manipulation and resection of septal framework thus obviating the need for a tight pack and requiring packing for a lesser duration. Transition between septoplasty and endoscopic sinus surgery is also possible when the surgery is being performed with the endoscope. However the endoscope has its own limitations which include loss of binocular vision and need for frequent cleaning of the tip of the endoscope especially when there is bleeding.

## Materials and Methods

The prospective type of study was conducted in a tertiary referral centre and a total of 60 patients between the ages group of 18-35 years having symptomatic deviated nasal septum and refractory to conservative medical treatment were included in the study while patients with uncontrolled hypertension or diabetes, having upper respiratory tract infection or allergic rhinitis were excluded from the study. Patients were divided into two groups: Group A-consisted of 30 patients, in whom conventional septoplasty was done and Group B-consisted of 30 patients, in whom endoscopic septoplasty was performed. A written informed consent was obtained from all patients before surgery explaining the procedure and possible outcomes and complications. Institutional ethics committee clearance was obtained for the study. All patients underwent detailed nasal

endoscopic examination using 0 and 30 degree rigid 4mm nasal endoscopes. The nasal cavities were packed with cotton pledgets soaked in 4% xylocaine with adrenaline for about 10 minutes. Three packs were put, one along the floor, another along roof and third in the middle meatus. Presence of deviated nasal septum, turbinate hypertrophy, polyps and chronic sinusitis were noted. X-ray Paranasal sinuses (Water's view) were done in all patients. Technique of endoscopic septoplasty: Using wide angle 0 degree, 4mm endoscope, infiltration of the nasal septum was done with 2% xylocaine with adrenaline (1: 1 Lac) on the convex side of the cartilaginous septum and along the crest and bony septum on both sides including the spur wherever present. After giving incision mucoperichondrial flap was raised using a suction elevator under direct visualization with a 0-degree rigid 4mm endoscope. Suction elevator was found to be useful as an alternative dissecting instrument to simultaneously clear any blood from the field of view during flap elevation. After completing remaining usual steps small sized Luc's forceps was used to excise the deviated cartilage or bone from the vomer or the perpendicular plate of the ethmoid.

All patients were kept on oral antibiotics (ampicillin and cloxacillin), analgesics and antihistaminics. The patients were discharged on the second postoperative day following pack removal. Nasal decongestant drops were advised following pack removal. Patients were assessed at 48hrs, 15days, 1 month and 3 months after the surgery for:

- a) Subjective improvement- headache, nasal obstruction, rhinorrhea, post nasal drip and hyposmia.
- b) Objective assessment- Nasal endoscopic examination for persistent deformity, contact with turbinate, discharge in the middle meatus or any other complications.

## Results

A total of 60 patients with symptomatic nasal septal deviations were included in the study.

30 patients (Group A) underwent conventional septoplasty while the remaining 30 (Group B) underwent endoscopic septoplasty. There were 20 males (66.2%) and 10 females (32.3%) in Group A with mean age of 24.63 years and 21 males (70.1%) and 9 females (30%) in Group B with mean age of 25.03 years. Most of the patients presented with complaints of nasal obstruction,

nasal discharge and headache in both the groups with a duration of 1-5 years. Distribution of patients according to the symptoms and on the basis of endoscopic preoperative findings is shown in Table-1 and 2.

X-ray Paranasal sinuses-Water's view (Occipito-mental): This was done in all cases to confirm and document the septal pathology and the related sinuses status. The documentation of findings is shown in Table 2.

Presenting Symptoms	Group A (%)	Group B (%)
(1) Nasal obstruction	30 (100%)	30 (100%)
(2) Nasal discharge	20 (66.6%)	22 (73.3%)
(3) Headache	20 (66.6%)	21 (70%)

Table 1: (P=0.8)

Endoscopic Findings	Group A (%)	Group B (%)
(1) Deviated nasal septum R L	10 (33.3%) 20 (66.6%)	12 (40%) 18 (60%)
(2) Spur R L	9 (30%) 3 (10%)	9 (30%) 6 (20%)
(3) Hypertrophy of inferior Turbinate	3 (10%)	3 (10%)
(4) Middle meatus Pathology (Polyp/Discharge)	6 (20%)	9 (30%)

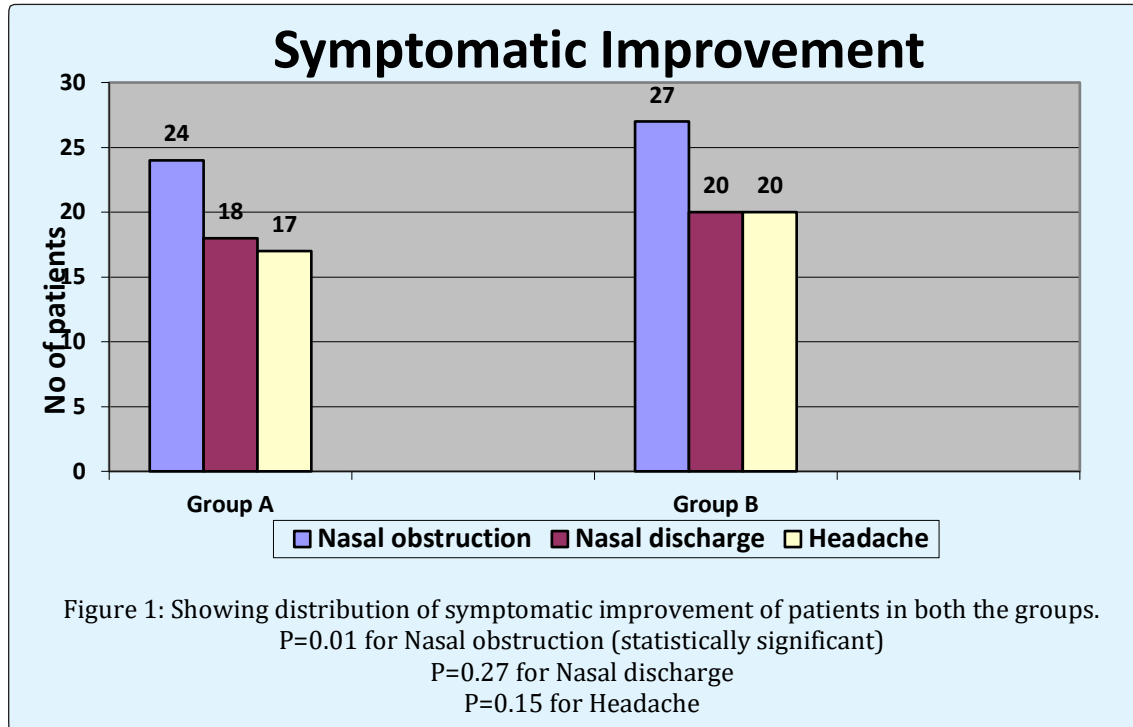
Table 2: P=0.89

X-ray Findings	Group A (%)	Group B (%)
(1) Septal deviation	30 (100%)	30 (100%)
(2) Basal spur	12 (40%)	15 (50%)
(3) Inferior turbinate hypertrophy	3 (10%)	3 (10%)
(4) Hazy / Opaque sinuses	6 (20%)	12 (40%)

Table 3 (P=0.89)

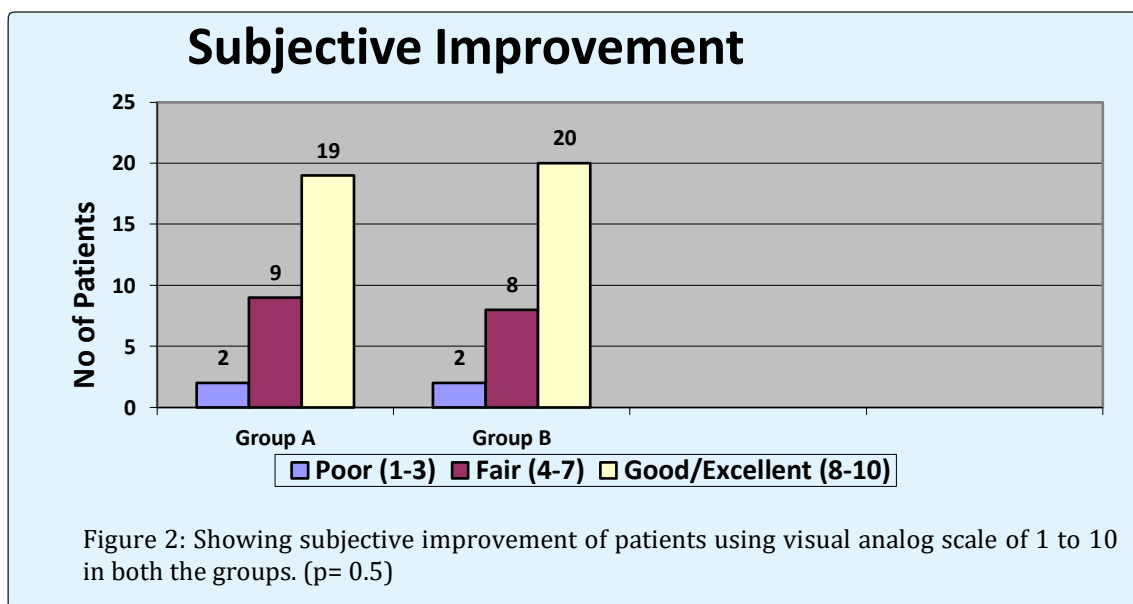
While most of the patients were discharged within 48 hours of surgery i.e. following pack removal, 6 patients of conventional septoplasty required a longer stay due to bleeding or lip oedema. 24 (80%) patients of Group A had improvement in nasal obstruction, 18 (90%) showed

symptomatic relief from nasal discharge and headache was relieved in 17 (85%) patients. In Group B, 27 (90%) patients had improvement in nasal obstruction, 20 (90.9%) showed relief from nasal discharge and headache was relieved in 20 (95.2%) patients (Figure 1).



No major complications occurred in our study. Bleeding from nose requiring repacking was documented in 3 patients of conventional septoplasty and one patient in endoscopic septoplasty. Synechiae occurred in 3 patients in Group A and 1 in Group B. Upper lip oedema developed only in 3 cases of Group A and none in Group B. Surgical results were graded on both subjective

(symptomatic relief) and objective improvement (post-operative endoscopic findings). Subjective assessments of patients were done using a visual analog scale of 1 to 10 (with 1 to 3 considered poor, 4 to 7 fair and 8 to 10 good to excellent results) as depicted in Figure 2.



Objective improvement (post-operative endoscopic findings) is shown in Table 4.

Post-operative Endoscopy	Group A (%)	Group B (%)
(1) Residual deviation	3 (10%)	-
(2) Synechiae	3 (10%)	1 (3.3%)

Table 4: According to Fischer exact test ( $p=0.04$ )

## Discussion

Surgery on a deviated nasal septum has undergone several modifications since its inception, starting from radical septal resection to mucosal preservation and subsequent preservation of the possible septal framework. The study was conducted to compare the results of conventional septoplasty with endoscopic septoplasty. Patients were assessed in the postoperative period for symptomatic improvement (subjective), endoscopic findings (objective) and complications, if any. There were no statistically significant differences in general health, nasal specific health or demographics between the two study groups. The commonest symptom with which our patients presented was nasal obstruction, seen in almost all the patients in both the groups (100%), nasal discharge in 66.6% (20/30) cases of Group A and 73.3% (22/30) cases of Group B, headache in 66.6% (20/30) cases of Group A and 70% (21/30) cases of Group B. Thus both our study groups were comparable and homogenous in terms of the patient symptomatology ( $p=0.08$ ). These observations in our study were almost similar to those made by Fjermedal [3] in which he calculated the frequency of pre-operative symptoms according to questionnaire given to 478 patients. He found that nasal stuffiness was seen in 100% of the patients, headache in 58%, crusting in 50%, dry / sore throat in 48%, snoring in 46%, rhinorrhea in 46%, hyposmia in 36% and nasal speech in 33% patients. On endoscopic examination of the nose, we found left sided deviation to be more common than right sided high deviated nasal septum. This finding was in accordance with the study done by Peacock [4] who also found left sided septal deviation more common than right. In both groups the deviation was found to be bony in majority. In order to assess the results of septoplasty postoperatively we used nasal specific questionnaire as in various previous studies. In our study we found statistically

significant improvement in patient's symptomatology in Group B. Our findings were in accordance with the study by Nayak, et al. [5] who also found endoscopic septoplasty to be more effective in treating symptoms such as nasal obstruction (55% in conventional vs 88% in endoscopic group) and headache (55% in conventional vs 82% in the endoscopic group).

In our study, 3 (10%) patient of Group A had residual septal deviation while no patient (0%) of Group B had residual deviation. 3 (10%) cases developed synechiae in Group A as compared to 1 (3.3%) case in Group B. Lip oedema developed in 3 (10%) of cases in Group A as compared to none in Group B. Bleeding from nose requiring repacking was present in 3 (10%) patients of Group A and 1 (3%) was seen in Group B. The difference was statistically significant ( $p=0.04$ ). In a similar study by Nayak et al<sup>5</sup>, the post-operative incidence of persistent deviation and contact areas was much lower following endoscopic correction compared to conventional septal surgery (49% and 20% respectively in conventional vs 13% and 0% respectively in the endoscopic group). In another similar study by R Bothra & NN Mathur [6] minor complications, such as hemorrhage, infraorbital edema and nasal pain, were slightly more frequent following conventional septoplasty compared with endoscopic septoplasty. Duration of hospital stay was also longer (i.e. more than 48 hours) after conventional septoplasty compared with endoscopic septoplasty. Gulati, et al. [7] also confirmed the similar results in their study.

## Conclusion

Overall the study showed better results and less complication in endoscopic septoplasty as compared to conventional septoplasty group as endoscope gives better illumination and improved access to deviated nasal septum and allows limited incision, limited flap elevation, and achieves correction with least resection.

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