

## **Research Article**

# **Does the Use of an Endoscope in Conventional Septal Surgery Provide Benefit in Patients of Deviated Nasal Septum?**

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**Abstract:** Nasal obstruction is one of the most frequent among the nasal symptoms affecting the human population. Refinement in the diagnosis and treatment of nasal obstruction is possible with the use of the endoscope. Apart from the abnormalities of lateral nasal wall nasal endoscopy can precisely diagnose the pathological abnormalities of the nasal septum. The objectives of the study were to observe the advantage of using an endoscope intra operatively in patients of deviated nasal septum undergoing conventional septal surgery and to assess the relief of nasal symptoms in patients of deviated nasal septum by conventional septal surgery with an endoscope. Conventional Septoplasty or Sub mucous resection of nasal septum was performed in all the patients to relieve the nasal symptoms. During performing conventional septal surgery zero degree 4 mm endoscope was used intra operatively to observe for remnants of septal deviation or any associated diseases of lateral wall of the nose after an initial conventional septal surgery. In conclusion, the relief of symptoms in the deviated nasal septum was better when an endoscope is used intra operatively in patients of deviated nasal septum undergoing conventional septal surgery. There was a significant relief in nasal symptoms in patients of deviated nasal septum treated by conventional septal surgery with an endoscope.

**Keywords:** Deviated Nasal septum, Septoplasty, Endoscopy.

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## **INTRODUCTION**

Nasal obstruction is one of the most frequent among the nasal symptoms affecting the human population. A variety of etiologies are observed in nasal obstruction but a deviated nasal septum is one among the most common etiologies of nasal obstruction. Deviated nasal septum apart from producing nasal obstruction also may be causative for Epistaxis, sinusitis, obstructive sleep apnea and headaches attributable to contact points with structures of the lateral nasal wall [1].

Present day evaluation of septal deviation depends on physical examination and imaging. Refinement in the diagnosis and treatment of nasal obstruction is possible with the use of the endoscope. Apart from the abnormalities of lateral nasal wall nasal endoscopy can precisely diagnose the pathological abnormalities of the nasal septum [2].

Surgical correction of deviated nasal septum has been performed by a variety of techniques of which sub mucous resection and septoplasty procedures of surgical correction of nasal septum play a prime role in

management of patients of nasal obstruction. After the invention of nasal endoscopes tremendous changes have evolved in the field of septal surgery. Now a day's endoscopes are being used in performing septal surgery so as to allow access in performing endoscopic sinus surgery where it was termed as performing endoscopic septoplasty [3].

Over the last two decades, the applications for endoscopy in the field of Rhinology have evolved beyond functional endoscopic sinus surgery. However the use of an endoscope or the procedure of performing an endoscopic septoplasty for the relief of nasal obstruction has its own limitations particularly in gross deviations and also posterior deviations of nasal septum and the use of an endoscope in relief of nasal symptoms is always debatable.

In the present study we tried to observe the role of an endoscope in conventional septal surgery and the relief of nasal obstruction in conventional septal surgery with the use of an endoscope.

### Objectives

- To observe the advantage of using an endoscope intra operatively in patients of deviated nasal septum undergoing conventional septal surgery.
- To assess the relief of nasal symptoms in patients of deviated nasal septum by conventional septal surgery with an endoscope.

### METHODOLOGY

#### Study Population

Study group of 80 patients of deviated nasal septum who presented in Department of Otolaryngology, Narayana Medical College and Hospital, Chinthareddypalem, Nellore during March 2012 to February 2014 were considered.

#### Inclusion Criteria

All the patients of nasal obstruction with Deviated nasal septum were considered into study.

#### Exclusion Criteria

Patients of nasal obstruction with symptoms of allergy, sinonasal polyps, and adenoid hypertrophy were excluded.

### MATERIALS AND METHODS

Initially patients with deviated nasal septum were selected for the study. An informed consent was obtained from all the patients included in the study. All the patients were evaluated pre operatively with a clinical questionnaire. Detailed history regarding the nasal symptoms of nasal obstruction, headache, post nasal drip, sneezes and rhinorrhea was obtained. Diagnostic nasal endoscopy was performed to confirm the exact nature and site of the disease. CT scan para nasal sinus was performed in all the patients.

All the patients were surgically treated by performing conventional septal surgery. Conventional Septoplasty or Sub mucous resection of nasal septum was performed in all the patients to relieve the nasal symptoms. Depending on the access to the site of deviation, the nature of surgery was planned. Additional surgical procedures were performed in the patients as and when required to relieve the nasal symptoms. All these surgeries were performed by a single surgeon who had adequate experience in diagnosing and treating diseases of nose and para nasal sinuses.

During performing conventional septal surgery Patients were randomly divided into two groups. In patients of group 1 conventional septal surgery alone was performed. In patients of group 2, zero degree 4 mm endoscope was used intra operatively to observe for remnants of septal deviation or any associated diseases of lateral wall of the nose after an initial conventional septal surgery. Additional surgical procedures were performed if required in this group of patients to relieve the residual disease of the nose. In our study an

endoscope was not used in performing a septal surgery but used only to observe the remnants of disease of nasal septum or associated diseases in the lateral wall of the nose.

### Main Outcome measures

Patients were evaluated with a clinical questionnaire post operatively at the end of 3 months. A clinical questionnaire in relief from nasal symptoms of headache, nose block, post nasal drip, sneezes and rhinorrhea was obtained from all the patients and the results were documented.

### RESULTS

A total number of 80 patients underwent septal surgery over a period of two years, of these there were 49males and 31 females with most of the patients in the age group of 21 to 30 years.

Pre operative assessment of patients in group 1 revealed that nose block was present in 40(100.0%) patients, headache in 37(92.5%) patients. Post nasal drip was observed in 27(67.5%), sneezes were observed in 31(77.5%) and rhinorrhea was observed in 29(72.5%) of the patients. These results were documented in table 1.

Pre operative assessment in patients of group 2 revealed nose block in 40(100.0%) patients, followed by headache in 34(85.0%) patients. Post nasal drip was observed in 35(87.5%), sneezes were observed in 25(62.5%) and rhinorrhea was observed in 30(75.0%) of the patients. These results were documented in table 1.

Post operatively in group 1 a relief in nose block was observed in 35(87.50%) patients, headache in 29(78.37%) patients. Post nasal drip was improved in 23(85.18%), sneezes were improved in 22(70.97%) and rhinorrhea was improved in 20(68.97%) of the patients. These results were represented in table 2.

Post operatively in group 2 nose block improved in 38(95.00%) patients, headache in 30(88.23%) patients. Post nasal drip improved in 27(74.28%), sneezes were improved in 21(84.00%) and rhinorrhea improved in 26(86.67%) of the patients. These results were documented in table 2.

Diagnostic nasal endoscopy reveals Septal spur in 26(32.5%) patients with septal spur touching the inferior turbinate in 21(26.25%) and septal spur compressing the inferior turbinate in 5(6.25%) of patients. Anterior deviations were observed in 9(11.25%) of patients. Posterior deviations were seen in 32(40.0%) of patients. Caudal tip dislocation was observed in 13(16.25%) of patients. These results were documented in table 3.

Intra operative use of an endoscope revealed in patients of group2 that the middle turbinate was polypoidal in 1(2.5%) of patients, thick cheesy secretions following septal correction was observed intra operatively in 4(10.0%) of patients and nasal polyps were seen emerging from the middle meatus in 1(2.5%) of patients. Accessory ostium was observed in 2(5.0%) of the patients. These results were documented in table 4.

In our study Septoplasty was performed in 34 patients. Sub mucous resection of nasal septum was performed in 46 patients. Depending on the access to the site of deviation, the nature of surgery was planned. Most of the posterior high deviations and tip dislocations were conveniently corrected by sub mucous resection. Septal spur and anterior deviations were corrected by Septoplasty.

**Table 1: Pre-operative Assessment of nasal symptoms**

Symptom	Pre op	Group 1	Group 2
Nose block	80(100.0%)	40(100.0%)	40(100.0%)
Headache	71(88.75%)	37(92.5%)	34(85.0%)
Post nasal drip	62(77.5%)	27(67.5%)	35(87.5%)
Sneezes	56(70.0%)	31(77.5%)	25(62.5%)
Rhinorrhea	59(73.75%)	29(72.5%)	30(75.0%)

**Table 2: Post-operative relief of nasal symptoms**

Symptom	Post op	Group 1	Group 2
Nose block	73(91.25%)	35(87.5%)	38(95.00%)
Headache	59(83.09%)	29(78.37%)	30(88.23%)
Post nasal drip	49(79.03%)	23(85.18%)	27(74.28%)
Sneezes	43(76.78%)	22(70.97%)	21(84.00%)
Rhinorrhea	46(77.97%)	20(68.97%)	26(86.67%)

**Table 3: Types of septal deviations**

Deviation	Number	%
Septal spur touching inferior turbinate	21	26.25
Septal spur compressing inferior turbinate	5	6.25
Anterior deviations	9	11.25
Posterior high deviations	32	40.0
Caudal tip dislocation	13	16.25

**Table 4: Types of septal deformity and their relief**

Septal deformity	Number of patients	%
Polypoidal middle turbinate	1	2.5
Thick cheesy secretions	4	10.0
Nasal polyps	1	2.5
Accessory ostium	2	5.0

**DISCUSSION**

In the present study we observed that the most common age group affected was of younger age from 2nd & 3<sup>rd</sup> decades. This was in concordance with the study of L Jain *et al.* [4].

In our study a relief in nasal obstruction was obtained in 87.5% of patients undergoing conventional septal surgery where the relief had improved to 95.00% with the use of an endoscope. In a study by Gupta and Motwani [5] who observed a relief of nasal symptoms with the use of an endoscope during conventional septal surgery, it was observed that there was a considerable relief of nasal obstruction and discharge where 84% of patients had relief with conventional septoplasty. The findings in this study were similar to our study.

Use of an endoscope during the performance of the conventional septoplasty to assess the result of the procedure and correction of the defect not visualized by the naked eye is advantageous especially in relief of symptoms of nasal obstruction and headache [3]. Sometimes the hidden disease overlapped by an over grown nasal septum can be corrected by the use of an endoscope during intra operative period. This procedure differs from endoscopic septoplasty where in the entire surgical procedure is performed in terms of conventional septoplasty except an endoscope is used in last phase of surgery once the accessible septal deformity is corrected.

Though many recent techniques of surgical correction of nasal septum are being followed there is a very prime place for the conventional septoplasty in management of patients of deviated nasal septum. In

1963 Cottle described the concept of conventional septoplasty [6]. He mentioned that the technique of conventional septoplasty involves a proper access to the nasal septum with removal of the pathology and remodeling after proper stabilization [4]. Available literature suggests that Endoscopic septoplasty is primarily performed as an access to the disease of the lateral wall of the nose. It is not always performed for relieving nasal obstruction. Endoscopic septoplasty by itself is advantageous in pediatric patients, in revision surgeries and cases with previous septal perforation and also in cases with isolated septal spurs where minimally invasive surgical procedure has to be performed [7].

Use of an endoscope during septoplasty or otherwise endoscope assisted septoplasty appears beneficial in patients with deviated nasal septum. In our study we observed that when an endoscope was used in conventional septal surgery Polypoidal middle turbinate, thick cheesy secretions, accessory Ostia, small polyps in the area of osteomeatal complex hidden beyond a grossly deviated nasal septum in 2.5 to 10.0% of patients. These hidden disease conditions of the lateral wall of the nose and nasal septum can be conveniently corrected with the use of an endoscope avoiding another surgery. In a study by Younis *et al.*, they reported 20% of patients had intraoperative findings more extensive than that shown on CT scan [8]. In other studies regarding the relief of symptoms of nasal symptoms it was reported that simultaneous surgical procedures in the nose using an endoscope either in the form of resection of middle turbinate or others improves relief of nasal symptoms [9].

In our study we observed that using an endoscope it was easy to observe for the complex deformities in deviated nasal septum which involve the posterior high deviations, septal spur present in posterior region need to be corrected by conventional approach so as to give better results. When the results in relief of nasal symptoms in both the groups of patients were analyzed with a student t test a p value of 0.03518 was observed which infers that there was a significant improvement of nasal symptoms with the use of an endoscope in septal surgery. In a study by McGarry [10] it was reported that the use of endoscope allowed visualization and direct treatment of previously undiagnosed posterior areas of the nose.

Sautter and Smith [11] in their study observed that the use of an Endoscope 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 another study by Lanza *et al.* [12] they opined that the use of an endoscope by the ENT surgeon during septal surgery precisely allows to localize deviations, spurs and to remove them under direct vision, thus minimizing surgical trauma and is beneficial over conventional septal surgery.

## CONCLUSION

- The relief of symptoms in the deviated nasal septum was better when an endoscope is used intra operatively in patients of deviated nasal septum undergoing conventional septal surgery.
- There was a significant relief in nasal symptoms in patients of deviated nasal septum treated by conventional septal surgery with an endoscope.

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