

A Comparative Study of Conventional Septoplasty Verses Endoscopic Septoplasty

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ABSTRACT

Introduction: A deviated septum can be asymptomatic or can cause functional and cosmetic abnormality. Different studies have been proposed for correction of deviated septum but septoplasty has been the treatment of choice. Septoplasty is a more conservative surgery and endoscopic septoplasty has become increasingly popular over the last few decades.

Methods: The study was carried out to compare the postoperative results among patients of conventional and endoscopic septoplasty and to assess the efficacy of endoscopic septoplasty with other surgeries. The present study was conducted among 40 patients of deviated nasal septum admitted in the department of otolaryngology of Adesh Institute of Medical Sciences and Research, Bathinda. Patients were selected by simple random sampling and were divided into group A and B, with 20 patients in each group. Group A underwent conventional septoplasty and group B underwent endoscopic septoplasty.

Results: The male to female ratio in the present study was 3:1. Deviated nasal septum was commonly associated with inferior turbinate hypertrophy (45%) and concha bullosa (27.5%). Postoperatively, a significant relief from the symptoms of nasal obstruction (85%), nasal discharge (25%), headache (30%) and post nasal drip (55%) was observed in endoscopic

septoplasty. Complication rate was higher in conventional septoplasty. The endoscopic approach facilitates proper alignment by limited and precise resection of pathological areas.

Conclusion: Endoscopic Septoplasty provides precise resection of the pathological areas and better illumination with limited flap dissection and exposure.

Keywords: Endoscopic Septoplasty, Conventional, Deviated Nasal Septum, Endoscopic Sinus Surgery (ESS).

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INTRODUCTION

Deviated nasal septum is the most common cause of nasal obstruction. Apart from nasal obstruction, a severely deviated septum can cause epistaxis, headache, sinusitis attributable to contact with lateral nasal wall.¹ The detailed physical examination and imaging can diagnose septal deviation causing nasal obstruction.² Various surgical techniques have been implicated regarding the treatment of deviated septum but none have completely improved the nasal airway. An ideal correction of the septum should satisfy the following criteria³:

1. Relief from nasal obstruction;
2. Conservative procedure;
3. Should not compromise osteomeatal complex;
4. Must have scope for revision surgery, if required later.

The conventional surgeries for septal correction improve nasal airway but do not fulfill the above criteria. Various drawbacks regarding conventional surgeries include poor visualization, poor

illumination, difficulty in assessing exact pathology, need for nasal packing and over exposure & over manipulation of septal framework making revision surgeries difficult.⁴

The endoscopic septoplasty is a direct targeted approach to septal anatomic deformity, allowing minimally invasiveness.⁵ It allows limited septal flap dissection and removal of a small cartilaginous and/or bony deformity. Better illumination and visualization helps to increase the precision of the surgical procedure with limited exposure of the septal flap.⁶ It is an adjunct to functional endoscopic sinus surgery⁷ and is helpful in correction of posterior septal deformities⁸ and revision cases.⁹ Endoscopic surgery is an excellent teaching tool as the entire procedure can be viewed on the monitor.¹⁰

The present study was undertaken to assess the advantages and problems, if any, during endoscopic septoplasty and its comparison with conventional septoplasty.

MATERIALS AND METHODS

40 patients of deviated nasal septum were selected by computer generated random sampling technique, who were admitted in the Department of Otorhinolaryngology of Adesh Medical College and Hospital, Bathinda.

They were divided into group A and B, with 20 cases in each group.

Group A underwent conventional septoplasty and group B underwent endoscopic septoplasty. Out of 20 endoscopic septoplasty, 8 (40%) underwent in conjunction with functional endoscopic sinus surgery.

Steps for Endoscopic Septoplasty

The procedure was performed under local or general anaesthesia. The septum was injected with 1% xylocaine in 1:20,000 adrenaline on the convex side of the most deviated part of the septum using 0 degree rigid endoscope. A hemitransfixation incision was given. Submucoperichondrial flap was raised using a suction elevator under direct visualization with an endoscope,

underlying bone was exposed and the most deviated part was removed. The flap was repositioned back after suction clearance and edges of the incision were just made to lie closely without the need to suture. The nasal cavity was packed with merocele.

The conventional technique involves headlight illumination and visualization with nasal speculum.

RESULTS

In the present study, the male to female ratio was 3:1. The most common age group involved belonged to the 2nd and 3rd decade of life in both sexes. The most common complaint was nasal obstruction followed by nasal discharge, headache, post nasal drip, sneezing, bleeding and snoring (Table 1).

Among the prevalence of lateral nasal wall pathology associated with deviated nasal septum, the most common was inferior turbinate hypertrophy (45%), followed by concha bullosa (27.5%), paradoxical middle turbinate(15%), uncinata abnormality(7.5%). (Table 2)

Table 1: Distribution of subjects according to age and gender

Gender	10-20 years	21-30 years	31-40 years	41-50 years	Total
Male	4	5	17	4	30
Female	1	2	5	2	10
Total	5	7	22	6	40

Table 2: Prevalence of lateral nasal wall pathology in association with deviated nasal septum

Lateral Nasal wall pathology	No. of cases	%age
Inferior Turbinate Hypertrophy	18	45%
Concha Bullosa	11	27.5%
Paradoxical Middle Turbinate	6	15%
Uncinate Process Abnormality	3	7.5%

Table 3: Symptoms relieved postoperatively in Group A (N=20) and Group B subjects (N=20)

Symptom relieved	Conventional Septoplasty (Group A) N=20	%age	Endoscopic Septoplasty (Group B) N=20	%age
Nasal Obstruction	11	55%	17	85%
Headache	2	10%	6	30%
Nasal Discharge	3	15%	5	25%
Hyposmia	1	5%	3	15%
Postnasal Drip	4	20%	11	55%

Table 4: Complications following surgery

Complication	Conventional Septoplasty (Group A) N=20	%age	Endoscopic Septoplasty (Group B) N=20	%age
Bleeding	5	25%	1	5%
Septal Perforation	Nil	0%	Nil	0%
U/L flap tear	11	55%	5	25%
Septal Heamatoma	3	15%	Nil	0%
Residual Deviation	5	25%	1	5%

Postoperative follow up of the patients showed that 55% cases of group A and 85% cases of group B were relieved of nasal obstruction while headache was relieved in 10% cases of group A and 30% cases of group B. However, only 5% of cases in group A were relieved of hyposmia as compared to 15% of cases in group B. Symptoms of nasal discharge and post nasal drip were relieved in 15% and 20% of the cases of group A as compared to 25% and 55% in group B (Table 3).

Among the complications following surgery the most common was U/L flap tear, seen in 55% of the patients who underwent conventional septoplasty and 25% of patients done endoscopically. The incidence of bleeding and residual deviation was equal i.e. 5 patients each in Group A (Conventional Septoplasty) which was higher than that encountered in Group B (Endoscopic septoplasty) i.e 1 each. Septal hematoma was only seen in patients in whom septoplasty was done with conventional method (15%). The complication of septal perforation was not encountered in any of the groups (Table 4).

DISCUSSION

With the introduction of endoscopes into other branches of surgery, there have been attempts at its utilization in septal surgery. Endoscopic septoplasty is an attractive alternative to traditional headlight septoplasty. It is a conservative and precise approach towards deviated nasal septum correction and provides easy and accurate access in correcting the deviated part of the septum without causing much complication.

Many techniques had evolved before the 1900's but were short lived and soon fell out of favour. In 1900, submucosa resection was described and popularized by Freer (1902) and Killian (1904) separately. These too underwent modifications to evolve into the more conservative septoplasty notably by Metzen Baumb (1926), Galloway (1946) and Cottle in 1958. Cottle in 1958 described conventional septoplasty technique in 6 phases i.e. gaining access to septum, correction of pathology, removing pathology, shaping removed cartilage, reconstruction of the septum and stabilizing the septum. Later on in 1978, Lanza et al and Stammberger described the application of endoscopic techniques in the correction of septal deformities.

Current study was conducted to compare the outcomes of endoscopic and conventional septoplasty among patients. To obtain accurate results, 40 patients were included in the study and divided into two equal groups (endoscopic septoplasty group and conventional septoplasty group) by computer generated random sampling.

In the present study, we found male to female ratio was 3:1 with the most common affected group being 2nd and 3rd decades. Similar findings were seen in the study conducted by Gupta N, Bajwa F et al.^{11,12} in whom third decade was found to be the most common age group. Jain L et al and Rao JJ et al.^{13,14}, also concluded in their study that the most common age groups involved were in the 2nd and 3rd decades of life.

The most common lateral nasal wall pathology in our study was inferior turbinate hypertrophy (45%) followed by concha bullosa (27.5%) which was in accordance with the study conducted by Chilukuri A¹⁵ on 50 patients with 25 in each group.

Significant improvement was observed in patients with nasal obstruction and headache in endoscopic group as compared to conventional group. Similar findings were seen in the study

conducted by Sautter NB et al.¹⁶ and Doomra S et al.¹⁷ In our study higher rate of persistence of symptoms were found in conventional septoplasty as compared to endoscopic septoplasty. Most common complication found in our study was unilateral flap tear which was seen in 55% of patients undergoing conventional septoplasty. Similarly, Suraneni VR who conducted a study on 100 cases and found that complications were seen more in conventional septoplasty as compared to endoscopic septoplasty.¹⁸ Singh A also in a study of 44 patients undergoing conventional as well as endoscopic septoplasty found lower incidence of complications in patients undergoing endoscopic septoplasty as compared to conventional septoplasty.¹⁹ Also, Rambabu P et al in his study on 100 patients undergoing septoplasty found endoscopic septoplasty superior than conventional septoplasty with fewer complications in the earlier technique.²⁰

CONCLUSION

Endoscopic septoplasty enables accurate identification of the pathology due to better illumination and magnification. It facilitates precise resection of pathological areas with precise repair. It is associated with significant reduction in patient's morbidity in both preoperative and postoperative periods due to limited flap dissection, manipulation and resection of septal framework. However, it has certain limitations which include need for frequent cleaning of the tip, loss of binocular vision, inability to use both hands. Also complex deformities with caudal dislocations cannot be corrected by endoscopic approach.

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