



## STUDY OF COMPARATIVE MANAGEMENT OF DNS BY ENDOSCOPIC SEPTOPLASTY AND CONVENTIONAL SEPTOPLASTY

### ENT

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### ABSTRACT

**Background:** To determine improvement in symptoms and endoscopic finding in endoscopic Septoplasty when compared to conventional Septoplasty, To determine reduction in complication in endoscopic Septoplasty when compared to conventional Septoplasty. **Material and methods:** prospective comparative study 60 patients in age group between 10 years and 45 years, with nasal obstruction consulting department of ENT at NMCH, PATNA. Study duration of two years. Clinical examination evaluation were done for all patients. Procedure like Diagnostic nasal endoscopy were done for the patients, patients were randomized and they were taken for the procedure conventional or endoscopic septoplasty. **Conclusion:** Conventional septoplasty is practiced since ages. Endoscopic septoplasty has less amount of bleeding and postoperative complications when compared to conventional septoplasty. They also offer better visualization and Accessibility to posterior deviation and spurs leading to lesser incidence of remnant Disease.

### KEYWORDS

Conventional septoplasty, Endoscopic septoplasty, Deviated nasal septum.

### INTRODUCTION

Nasal obstruction is the most common complaint in rhinologic practice and a deviated nasal septum is the most common cause of nasal obstruction a significantly deviated nasal septum has been implicated in epistaxis, sinusitis, obstructive sleep apnea and headaches attributable to contact points with structures of the lateral nasal wall. Septoplasty is a surgical procedure that corrects a deformity of the nasal septum. The usual purpose is to improve the nasal breathing. When compared with standard head light technique, endoscopic septoplasty provides important advantages which include adequate visualization, room for instrumentation during functional endoscopic sinus surgery, access to paranasal sinuses and for other surgeries like trans-septal approach to the sphenoid sinus, visualization and stoppage of postnasal bleeds. But before introduction of functional endoscopic sinus surgery, majority of septoplasties were done for nasal airway obstruction. Endoscopic septoplasty is a fast developing concept and gaining popularity with an increasing trend toward endoscopic surgeries. Furthermore in complex deformities, better correction is possible with the help of an endoscope since we can clearly see the posterior deviations.<sup>1</sup> Whereas Patients undergoing traditional septoplasty require a longer stay due to bleeding or lip edema than those undergoing endoscopic septoplasty. Endoscope also aided limited resection and thus more conservation by guiding precise shaving of septal cartilage.<sup>2</sup>

### OBJECTIVES

To determine reduction in complication in endoscopic Septoplasty when compared to conventional Septoplasty. To determine reduction postoperative pain during hospital stay in endoscopic Septoplasty.

### Review of Literature

The nose is the first part of the upper respiratory tract, and is responsible for warming, humidifying, and, to some extent, filtering inspired air. It also houses the olfactory epithelium which contains olfactory receptor neurons responsible for detecting airborne odorant molecules. The nose may be subdivided into an external nose, which opens anteriorly onto the face through the nostrils or nares, and an internal chamber, divided sagittally by a septum into right and left cavities which open posteriorly into the nasopharynx through the posterior nasal apertures or choanae. The nasal cavities are housed in a supporting framework composed of bone and fibro-elastic cartilages, The shape of the external nose varies considerably between individuals. It is a pyramidal structure located in the midline of the mid face and attached to the facial skeleton. Its upper angle or root is continuous with the forehead, and its free tip forms the apex which projects anteriorly. The piriform aperture has sharp edges. It is

bounded below and laterally by the maxilla and above by the nasal bones. The lateral part of the inferior edge of the piriform aperture merges into its lateral wall, which is formed by the frontal process of the maxilla. It is bounded above by the nasal part of the frontal bone and superomedially by the lateral edge of the nasal bone. The major alar cartilage is a thin flexible plate. It lies below the upper lateral cartilage and curves acutely around the anterior part of its naris. The medial part, the narrow medial crus (septal process), is loosely connected by fibrous tissue to its contralateral counterpart and to the anteroinferior part of the septal cartilage. The intermediate crus forms the margin of the apex of the nostril. The lateral crus lies lateral to the naris and runs superolaterally away from the margin of the nasal ala. The medial wall of each nasal cavity is the nasal septum, a thin sheet of bone (posteriorly) and cartilage (anteriorly), that lies between the roof and floor of the cavity.<sup>3</sup> These are sharp angulation which may occur at the junction of the vomer below, with the septal cartilage and/or ethmoid bone above. With the septal cartilage and/or ethmoid bone above. These lesions are characterized by a more generalized bulge. 'C'- or 'S'- shaped 'deviations occur which can be either in the vertical or horizontal plane and they usually involve both the cartilage and the bone. Depending on the type of septal deformity, obstruction may be unilateral or bilateral. Respiratory currents pass through upper part of nasal cavity, therefore, high septal deviation cause nasal obstruction more than lower ones. Mucosa over the deviated part of septum is exposed to the drying effects of air currents leading to formation of crusts which when removed, causes bleeding. Bleeding may also occur from vessels over a septal spur. Written accounts describing correction of nasal septal deformities date back to the Beginning of medical literature in the Egyptian papyri. In 1929, Metzenbaum addressed the issue of the caudal septal Deviation. He used a vertical incision to mobilize the caudal strip of cartilage back to the Maxillary crest in the midline, where it was fixed with suture. Several years later, Peer recommended modifying this procedure when the caudal Segment was curved or fractured. In this situation, Peer advised to resect the caudal Segment and to graft a separate piece of septal cartilage in its place. In 1948, Cottle And Loring described conservative resections of deflected septal cartilage as well. Complications of significant cartilage resection and the SMR procedure, including large septal perforations and saddle nose deformity, were encountered, and a more conservative approach eventually gained popularity. One-percent lidocaine with 1:100,000 units of epinephrine is injected along both Sides of the septum in a subperichondrial plane. A Killian incision is made on the left Side of the caudal septum at the mucocutaneous junction. A Cottle elevator is then used to develop a submucoperichondrial plane along the left side of the septum, Endoscopic septoplasty is associated with significant reduction in patients morbidity in both

peroperative and postoperative period (with pack and after pack removal) due to limited extent of flap dissection, not using Killian nasal speculum which by pressure can cause peroperative discomfort, limited manipulation and resection of septal framework thus obviating the need for a tight pack and requiring packing for a lesser duration. Leena Jain et.al, conducted a comparative study between endoscopic septoplasty and conventional septoplasty, study was done in year 2008 to 2009. By using 100 patient they came to a conclusion that the endoscopic approach to septoplasty Ritesh Shelkar conducted a study of indication, complication and functional outcome in endoscopic septoplasty in 57 patients during the year 2011 – 2013, Endoscopic septoplasty is an effective technique that can be performed safely alone or in combination with endoscopic sinus surgery. It reduces the complication, hospital stay and has fast recovery of the patients postoperatively. Endoscopic septoplasty is a useful technique well suited to ESS. It provides optimal illumination and visualization of tissue planes, and allows the surgeon to more accurately assess nasal anatomy without the distortion of a nasal speculum.

**MATERIAL AND METHODS**

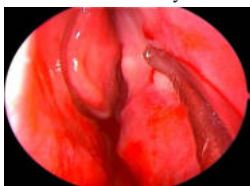
prospective comparative study 60 patients in age group between 10 years and 45 years, with nasal obstruction consulting department of ENT at Nalanda medical college and Hospital, PATNA Bihar. Study duration of two years. Clinical examination evaluation were done for all patients. Procedure like Diagnostic nasal endoscopy were done for the patients, patients were randomized and they were taken for the procedure conventional or endoscopic septoplasty. 60 patients were selected and randomly allotted into 2 groups consisting to 30 patients each.

**Inclusion Criteria**

All patients of age group between 10yr-45yr having symptoms like persistent nasal obstruction refractory to medical line of treatment.

**Exclusion Criteria**

Nasal obstruction secondary to allergic rhinitis, sinusitis other than deviated nasal septum will be excluded. Patient associated with co morbid condition like hypertension, diabetes mellitus and on medication for nasal obstruction, rhinitis medicamentosa, medication causing nasal congestion A group of sixty patient with deviated nasal septum refractory to medical treatment with long term nasal obstruction and headache were selected as per the inclusion criteria from outpatient department of Otorhinolaryngology. A well informed written consent was taken. Preoperative assessment was done, a detailed history was taken, patients were examined and preoperative findings were noted. Preoperative medication were given to the patients and they were taken for surgery. Patients were randomized into 2 groups by randomization, a total of 60 envelopes were taken consisting of 30 chits marked as endoscopic septoplasty and 30 marked as conventional septoplasty. After infiltration with 2% xylocaine with adrenaline into columella and septum under headlight, incision (hemitransfixion incision) was made at caudal border. The mucoperichondrial and periosteal flaps were elevated upto perpendicular plate of ethmoid. The osseocartilaginous junction was dislocated. A 0.5 cm of the anterior margin of perpendicular plate of ethmoid was removed with Luc's forceps. An inferior cartilaginous strip of 0.5 cm was removed if necessary.



The suction Freer elevator is used to retract the septal mucosa following endoscopic Septoplasty.

**RESULTS**

Age in years	No of patients		Total
	Conventional	Endoscopic	
10-20	17	12	29
21-30	8	16	24
31-40	4	1	5
41-50	1	0	1
51-60	0	1	1
<b>Total</b>	30	30	60

**Age Distribution**

It was observed that maximum number of patients was in the young age group between 10 to 20 yrs. with mean of 22.95 ± 8.07yrs

**Analysis of nasal symptoms**

There were 45 males and 15 females taken for study. Most common presentation among the patients were nasal obstruction (100%) , second most common presentation was headache (13.33%) , 5% of the patients presented with epistaxis , nasal discharge and allergy were seen in 3.33% of patients.

**Intraoperative / Immediate Postoperative Assessment**

Patients were assessed for bleeding perioperatively in both groups. In conventional septoplasty there was 71.33 ml of blood loss on an average and in endoscopic septoplasty 62.5 ml of blood loss was present. Time taken for surgery to be performed was also assessed, on average endoscopic septoplasty took longer time of 34.33 min, when compared to conventional septoplasty which took around 25.5 min on an average. Patients were asked regarding pain during immediate postoperative period as per pain scale. For conventional septoplasty average pain score was 6.93. Whereas for endoscopic septoplasty it was 3.3. On 1st week of post-operative follow up conventional septoplasty was found to have 9 cases with synechiae , 3 cases with persisting posterior deviation , 2 cases with spur, 1 case with hypertrophy of turbinate . Also 7 cases had discharge from middle meatus with 12 cases having no improvement in symptoms. On the other hand endoscopic follow up at 1st week were found to have 3 cases with residual anterior deviation deformity, 4 cases had persisting spur deformity, 7 cases had discharge from middle meatus and 6 cases showed no improvement in symptoms. Follow up at 3rd week revealed conventional septoplasty to have persisting posterior deviation in 3 cases along with spur in 2 cases. There was also synechiae in 9 cases and 1 cases hypertrophy of inferior turbinate and discharge from middle meatus, and 3 cases showed no improvement in symptoms. At 3rd week endoscopic septoplasty showed better results showing fewer complication like anterior deviation persisting in 3 cases, along with synechiae in 4 cases and 1 cases had discharge from middle meatus area. At 3rd week of follow up the synechiae were released in both conventional and endoscopic septoplasty. In conventional septoplasty there were 3 cases with persisting posterior deviation and 2 cases had spur, one case had hypertrophy of inferior turbinate and 2 cases showed no improvement in symptoms.

**DISCUSSION**

Various techniques have been described for the correction of different types of septal deviations in the past. The concept of SMR was popularized and refined by Killian [1904] and Freer [1902] separately in the early twentieth century. However an increasing incidence of complications of septal surgery led to the more conservative septoplasty. Metzenbaum [1929] described the swinging door technique for caudal dislocation and subluxation. Galloway [1946] removed the entire nasal cartilage and replaced<sup>9</sup> cartilaginous septum as described by Murakami [1982]. In our present study we noticed that nasal septal deviation more common in males than females and the most common affected groups were between 10 and 20 yrs. this is in concordance with Magdy. A. Salama. Most common complaints of our patients with septal deflections were nasal obstruction (100%), headache (13.33%), bleeding (5%), nasal discharge (3.33%), and allergy symptoms (3.33%). These were on par with the study done by Magady A Salama which showed that 90% of patients presented with nasal obstruction which was most common symptoms and second most symptoms was headache which was 40%. Bleeding was seen in 7 percent of patients<sup>9</sup> similar results were also seen in a study done by SS Sulgavi et al ,S.P.Gulati , Mohammed Abd Al Fattah Al Tawy , Dipak Ranjan Nayak et al, Manjunath Rao SV, MagadyA. Salama's study showed 22.5% of patients to have spur on anterior rhinoscopy, study conducted by Leena jain had 7 % of septal spur Intraoperative and immediate postoperative analysis was done and compared with other studies. Average time taken to perform conventional septoplasty was 25.5min which is found to be lower than endoscopic septoplasty which was 34 min .Ritesh shelkhar et al mentioned in his study that endoscopic septoplasty takes longer than convention septoplasty but average time taken is not mentioned. According to S.S.Sulgavi endoscopic septoplasty patient have comparatively lessor pain when compared to conventional septoplasty. Similarly according to the study conducted by Ranjan G Aiyer , patients undergoing endoscopic septoplasty have lessor amount of pain as compared to conventional method. Follow up of patients at 1 week, 3 weeks, 1 month and 3

months revealed that patients undergoing conventional septoplasty were found to have higher incidence of synechia formation that is 9 cases when compared to 4 cases in endoscopic septoplasty. Study conducted by Manjunath rao CV revealed 14% synechia formation in conventional group when compared to 4.67% in endoscopic group. Leela jain conducted similar study where there was synechia formation in 20% of patients in conventional septoplasty group. Magady A Salama's study revealed 15% synechia in conventional group and 2.5% in endoscopic group (2). Study conducted by SS Suligavi concludes that there are lesser incidence of synechia in endoscopic septoplasty (3%) than conventional septoplasty (10%). Also 2 (6.67%) cases in conventional septoplasty had persistence of spur and 1(3.33%) case had hypertrophy of inferior turbinate. However 7 (23.33%) cases of each groups had discharge from middle meatus at one week of follow up. A similar study done by Sandeep Kaushik revealed 12.5% of residual spur in conventional septoplasty group. Leena jain's study concluded that there was 13% of cases in conventional group having spur in post-operative follow up and 37% of cases had persisting pathology of turbinates, also discharge was present in middle meatus in 43% patients of conventional septoplasty group and 27% of patients in endoscopic group (3). Another study done by Magady A Salama concluded that there was higher incidence of persisting spur (20%) and discharge from middle meatus (45%) in conventional septoplasty. Conventional septoplasty group had more postoperative complications that is 3(10%) cases with posterior deviation, 2(6.67%) cases with persisting spurs and one case with hypertrophy of inferior turbinate. Also 2(6.67%) cases did not show any improvement in nasal obstruction symptom. This finding is on par with a study done by V.Krishna Chaitanya where 12.5 percent of patients in conventional septoplasty and 5 percent of conventional septoplasty did not have any reduction in symptoms, Another study conducted by Nipa dalal suggested that endoscopic septoplasty has fewer postoperative complication than conventional septoplasty.

## CONCLUSION

This study we can conclude that patients undergoing endoscopic septoplasty has better improvement in symptoms as compared to conventional septoplasty. Patients also has reduction in complication in endoscopic septoplasty group as compared to conventional group. Endoscopic septoplasty has significant advantage in post operative as when compared to conventional septoplasty.

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