

Compare Conventional Septoplasty Method With Endoscopic Septoplasty

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Abstract

Aim: The present study is taken up to compare the two techniques i.e. conventional and endoscopic septoplasty.

Materials and Methods: The present study was conducted to compare the conventional and endoscopic septoplasty. They were divided into two groups; one group undergoing conventional septoplasty and the other endoscopic septoplasty by random selection and following 50 patients preoperatively and postoperatively.

Results: The common symptoms were headache and nasal discharge. Headache was present in 10 patients (20%) of which 6 cases (12%) were in conventional septoplasty group and 4 cases (8%) in endoscopic septoplasty group. Nasal discharge was present in 12 patients (24%), of these 4 patients (8%) were in the group of conventional septoplasty and 8 (16%) were in the endoscopic septoplasty group. Deviated nasal septum was the most common finding and was present in all the 50 patients . The right sided septal deviation was present in 15 cases (30%) in conventional septoplasty group and in 12 cases(24%) in endoscopic septoplasty group, whereas the left sided deviation was present in 10 cases (20%) in conventional septoplasty group and 13 cases (26%) in endoscopic septoplasty group. Spur was the next common finding present in 8 cases (32%) in conventional septoplasty group and 4 cases (16%) in endoscopic septoplasty group. Nasal discharge in middle meatus was seen in 1 case (4%) in conventional septoplasty group and 5 cases(20%) in endoscopic septoplasty group. Hypertrophied middle turbinate was seen in 3 cases (12%) in conventional septoplasty group and 2 case (8%) in endoscopic septoplasty group with total 5 cases (20%), whereas hypertrophied inferior turbinate was seen in 7 cases (28%) in conventional septoplasty group and 6 cases (24%) in endoscopic septoplasty group.

Conclusion: Endoscopic septoplasty is a major event and good evolutionary step in the history of septal surgery. Its role is special in dealing with posterior deviations, high deviated nasal septum, isolated spur, septal surgery in children and in revision surgery.

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I. Introduction

Nasal obstruction is one of the most common complaint that a otorhinolaryngologist faces in his day to day practice. Deviated nasal septum is one of the most common cause for the nasal obstruction. Deviated nasal septum not only causes breathing difficulties but also causes improper aeration of paranasal sinuses leading to infection of the same. It may also cause headache, drying of mucosa leading to crusting and epistaxis. It may cause blockage of eustachian tube leading to middle ear diseases, DNS might become symptomatic at any age.¹ Various surgeries have been proposed for the correction of deviated nasal septum. It has undergone several modifications since its inception. Initially sub mucosal resection of septum was proposed which was a radical surgery and was associated with several complications.² Later septoplasty was proposed as it was thought to be a better surgery compared to sub mucosal resection of septum since it had advantages of less resection of septum and less complications. With the introduction of endoscope into the field of otolaryngology, there were many efforts to use it for the correction of deviated nasal septum. It is more effective with minimal manipulation and other pathologies like nasal polyps and lateral wall abnormalities can be diagnosed and can be corrected. Hence the present study is taken up to compare the two techniques i.e. conventional and endoscopic septoplasty in the patients attending otorhinolaryngology department of Guntur medical college, Guntur over a period of about 2 years.

II. Materials And Methods

This study was a hospital based comparative prospective study. Patients presenting with symptomatic deviated nasal septum to otorhinolaryngology . The present study was conducted to compare the conventional and endoscopic septoplasty was carried out in the department of otorhinolaryngology, government general

hospital, Guntur. All patients attending the outpatient department of otorhinolaryngology government general hospital, Guntur with deviated nasal septum. 50 patients were included in the study. This is a simple randomization.

Data was collected by selecting the patients with deviated nasal septum willing for surgery. They were divided into two groups; one group undergoing conventional septoplasty and the other endoscopic septoplasty by random selection and following up the patients preoperatively and postoperatively.

Inclusion criteria:

patients with age more than 16 years, patients with symptomatic deviated nasal septum, patients with traumatic deviated nasal septum and patients suffering from complications of deviated nasal septum.

Exclusion criteria:

patients with age less than 16 years, with asymptomatic deviated nasal septum, with acute rhinitis or allergic rhinitis, patients who were above 65 years with diabetes and hypertension. Cases selected for the study were subjected to detailed history and clinical examination. They were assessed subjectively and objectively before the surgery. Cold spatula test was done followed by anterior rhinoscopy and details were noted. Deviation were classified as right or left or S shaped depending on the side of deviation. Depending on the involvement of cartilaginous or bony parts of septum they were classified into anterior or posterior or both. Caudal dislocation, spurs, buckling of septum were identified along with lateral wall pathologies. Posterior rhinoscopy was done in all patients to rule out other pathologies. Cases were investigated in routine manner and specific manner. Pre-operative preparation: Patients were prepared as follows; Xylocaine test dose was given with 0.1ml of 2% xylocaine injected intradermally on left forearm of patient in supine position. Mustaches were either shaved or trimmed properly so that they did not interfere with surgery. Informed written consent of patient was taken after explaining about the surgery, risks associated with it and postoperative care. All surgeries were done under local anesthesia. Nasal cavities were packed for about 10 min with ribbon gauze soaked in 4% xylocaine with adrenaline. Procedures used were conventional septoplasty and endoscopic septoplasty. Post-operative treatment: Patients were put on appropriate antibiotics atleast for a week, along with analgesics and decongestants. Nasal packs were removed 48 hours after conventional septoplasty. Normal saline douching (5-6 times daily) and decongestent nasal drops (3 times daily) were advised for a week. All the patients were discharged on second postoperative day with above mentioned advice. Patients were advised to follow up on seventh day for merocel removal and then monthly for six months. At each follow up visit, subjective and objective assessments were done. Subjective assessment was done by asking about nasal obstruction, headache, nasal discharge, hyposmia, postnasal discharge. Objective assessment was done by cold spatula test, persistent deformity, discharge in middle meatus. With above findings, the outcomes of surgery were measured.

III. Results:

The results of 25 cases of conventional septoplasty and 25 cases of endoscopic septoplasty were assessed. The present study was conducted in the department of otorhinolaryngology, Government General Hospital, Guntur between 1st February 2016 to 30th September 2017. 50 adults with symptomatic deviated nasal septum were selected and were randomized into two groups of 25 each. One group underwent conventional and the other underwent endoscopic septoplasty.

Table 1: Demographic distribution in the study.

Age Group (years)	Type of septoplasty		Total no. of cases	Percentage
	C.S.	E.S.		
16-20	5	6	11	22%
21-30	10	7	17	34%
31-40	5	7	12	24%
41-50	3	3	6	12%
51-60	2	2	4	8%
Total	25	25	50	100%
Sex Distribution				
Male	16	14	30	60%
Female	9	11	20	40%
Total	25	25	50	100%
Socio-Economic Status				
Low Income	18	16	34	68%
Middle Income	7	9	16	32%
High Income	0	0	0	0%
Total	25	25	50	100%

In that, 5 patients (20%) were in the age group of 16-20 years, 10 patients (40%) were in the age group of 21-30 years. There were 16 (64%) males and 9 (36%) females in the conventional septoplasty group with the ratio of 1.77:1. In the endoscopic septoplasty group, 14 (56%) males and 11 (44%) females with the ratio 1.27:1 were present.

Table 2: Symptoms and anterior rhinoscopy and diagnostic endoscopy findings.

Symptoms	Type of septoplasty		Total no. of cases	Percentage
	C.S.	E.S.		
Nasal Obstruction	25	25	50	100%
Headache	6	4	10	20%
Nasal Discharge	4	8	12	24%
PND	2	4	6	12%
Hyposmia	0	0	0	0%
Epistaxis	0	0	0	0%
Anterior rhinoscopy and diagnostic endoscopy findings				
DNS-RT	15	12	27	54%
DNS-LT	10	13	23	46%
Spur	8	4	12	24%
Hypertrophied-MT	3	2	5	10%
Hypertrophied-IT	7	6	13	26%
Discharge in middle meatus	1	5	6	12%

Table 2 shows that in our study, all the 50 patients (100%) had presented with nasal obstruction. The next common symptoms were headache and nasal discharge. Headache was present in 10 patients (20%) of which 6 cases (12%) were in conventional septoplasty group and 4 cases (8%) in endoscopic septoplasty group. Nasal discharge was present in 12 patients (24%), of these 4 patients (8%) were in the group of conventional septoplasty and 8 (16%) were in the endoscopic septoplasty group. Postnasal discharge was present in 6 patients (12%) divided into 2 cases (4%) in conventional septoplasty group and 4 cases (8%) in endoscopic septoplasty group. The least common symptoms in our study were hyposmia and epistaxis which were not present in either conventional or endoscopic group. All the patients were examined with thudicum nasal speculum and with 0° nasal endoscope (in endoscopic group). Deviated nasal septum was the most common finding and was present in all the 50 patients. The right sided septal deviation was present in 15 cases (30%) in conventional septoplasty group and in 12 cases (24%) in endoscopic septoplasty group, whereas the left sided deviation was present in 10 cases (20%) in conventional septoplasty group and 13 cases (26%) in endoscopic septoplasty group. Spur was the next common finding present in 8 cases (32%) in conventional septoplasty group and 4 cases (16%) in endoscopic septoplasty group. Nasal discharge in middle meatus was seen in 1 case (4%) in conventional septoplasty group and 5 cases (20%) in endoscopic septoplasty group. Hypertrophied middle turbinate was seen in 3 cases (12%) in conventional septoplasty group and 2 case (8%) in endoscopic septoplasty group with total 5 cases (20%), whereas hypertrophied inferior turbinate was seen in 7 cases (28%) in conventional septoplasty group and 6 cases (24%) in endoscopic septoplasty group.

Table 3: Radiological findings of nose and PNS, type of surgical intervention.

Findings	Type of septoplasty		Total no. of cases	Percentage
	C.S.	E.S.		
DNS	25	25	50	100%
Pathology of MT	3	2	5	10%
Hypertrophied IT	7	6	13	26%
Maxillary Sinus	2	4	6	12%
Frontal Sinus	1	2	3	6%
Ethmoid Sinus	0	3	3	6%
Sphenoidal Sinus	0	1	1	2%
Type of Surgical Intervention				
Septoplasty	25	25	50	100%
Partial Inferior Turbnectomy	4	6	10	20%
Polypectomy	0	1	1	2%
FESS/middle meatal anrostomy	0	3	3	6%
Endonasal DCR	0	1	1	2%
Submucosal Diathermy of IT	0	4	4	8%

Table 3 shows that Preoperative X-ray (water's view or Cald well view) or CT scan of paranasal sinuses was done in all the 50 patients and reported as follows The radiological investigations showed septal deviation in all 50 cases (100%) of which 25 (50%) were in conventional septoplasty group and 25 (100%) in endoscopic septoplasty group. The middle turbinate pathology was seen in total of 5 (10%) cases of which 3(6%)

were in conventional septoplasty group and 2 (4%) in endoscopic septoplasty group. Hypertrophied inferior turbinate was seen in 13 cases (26%), of which 7 (14%) were in conventional septoplasty group and 6 (12%) in endoscopic septoplasty group. Maxillary sinus pathology was seen in total 6 cases (12%), of which 2 (4%) underwent conventional septoplasty and 4(8%) underwent endoscopic septoplasty. Frontal sinus haziness was seen in total 3 cases (6%) of which 1 (2%) was in conventional septoplasty group and 2(4%) in endoscopic septoplasty group. Ethmoidal sinus haziness was present in 3 cases (6%) all in endoscopic septoplasty group. Sphenoidal pathology was seen in only 1 case (2%) which belongs to endoscopic septoplasty group.

Table 4: Post-operative symptomatology and post-operative findings.

Symptom	Pre-op/post-op (%)		Total no. of cases	Percentage
	C.S.	E.S.		
Nasal Block	25/5 (80%)	25/2 (92%)	50/7	86%
Nasal Discharge	4/1 (75%)	8/0 (100%)	12/1	91.66%
Headache	6/2(66.6%)	4/1 (75%)	10/3	70%
PND	2/0 (100%)	4/0(100%)	6/0	100%
Hyposmia	0/0	---	---	---
Findings	Pre-op/post-op (%)		Benefit	Percentage
	C.S.	E.S.		
Cold spatula test	25/5	25/2	43/50	86%
Septal Deformities	25/5	25/2	43/50	86%
Hypertrophy of middle turbinate	3/0	2/0	5/5	100%
Hypertrophy of inferior turbinate	7/0	6/0	13/13	100%
Discharge in middle Meatus	1/0	5/0	6/6	100%

Table 4 shows post operatively patients were reviewed on 3rd,7th and 14th day and then monthly for 3-6 months. During each visit, patients were asked about benefits from their symptoms and were tabulated as follows. Out of 50 patients, 43 patients (86%) were relieved of the symptom of nasal block. Nasal discharge was complained by 1 patient in conventional septoplasty group. Cold spatula test showed good and equal misting in 43/50 patients (86%). Persistent septal deviation was seen in 5 cases of conventional septoplasty group and 2 cases of endoscopic group. None of the patients in conventional septoplasty group or endoscopic septoplasty group had hypertrophy of turbinates,so as the postoperative persistent discharge in the middle meatus.

Table 5: Complications.

Complications	Type of septoplasty		Total no. of cases	Percentage
	C.S.	E.S.		
Haemorrhage	4(16%)	2 (8%)	6	12%
Mucosal Tear	6(24%)	4 (16%)	10	20%
Synechie	2(8%)	1 (4%)	3	6%
External Deformities	0(0%)	0(0%)	0	0%
Others	0(0%)	0(0%)	0	0%

Table 5 shows in this study, 4 patients (16%) in conventional septoplasty group had intraoperative or postoperative excessive bleeding whereas 2 patient (8%) in endoscopic septoplasty group had this complication. Mucosal tear occurred in 6 patients (24%) under conventional group and in 4 patients (16%) under endoscopic group. Synechia was seen in 2 patients (8%) in conventional septoplasty group and 1 patient (4%) in endoscopic septoplasty group developed synechia. Complications like septal haematoma, abscess, perforation were not seen in both the conventional and endoscopic septoplasty groups. External deformities like saddling of the nose, supratip depression, drooping of the nose or columellar retraction were also not seen in both conventional and endoscopic septoplasty group.

IV. Discussion:

The present study was conducted from 1st february 2016 to 30th september 2017 and 50 patients with symptomatic deviated nasal septum attending the otorhinolaryngology department of guntur government general hospital,Guntur were included in the study.

4.1 Age distribution: Some of the earliest work was undertaken by Hayton (1948), who used the Killian's operations and ended up with external deformities in significant number of children indicating that, septal surgery performed during childhood carries with it the external deformities directly due to surgery and an additional problem of interference with subsequent growth of the nose. This view has been challenged by Cottle(1957), Jennes (1964) and Huizing (1979). Amongst the adults, the age does not have any influence on the septal surgery. In the present study, all the 50 cases were adults with the age varying between 16 years and 60

years and in our study children were excluded. In the group who underwent conventional septoplasty, 5 patients (20%) were in the age group of 11-20 years, 10 patients (40%) were in the age group of 21-30 years, 5 patients (20%) were in the age group of 31-40 years, 3 patients (12%) were in the 41-50 years group and 2 patients (8%) were in the age group 51-60 years. Amongst the endoscopic septoplasty group, 6 patients (24%) were in the age group of 11-20 years, 7 patients (28%) were in the age group of 21-30 years, 7 patients (28%) were in the age group of 31-40 years, 3 patients (12%) in the age group of 41-50 years and 2 patients (8%) in the age group of 51-60. Thus maximum number of patients were in the 3rd decade of life. The average age of the patients in conventional septoplasty group was 26.60 years and in endoscopic septoplasty group was 28.40 years with an overall mean age of 27.50 years. Thus the results of our study were not significantly different from existing literature.

Sex Distribution:

As per the available literature neither the incidence of symptomatic deviated nasal septum nor the outcome of surgery have any difference in male and female. **Mohammad IA, Nabl-ur Rahman** (2003) conducted a descriptive study on 200 patients to assess the complications of septoplasty and submucosal resection of septum, in which 162 patients (81%) were males and 38 patients (19%) were females with a ratio of 4.26:1. In many other studies, male patients were more common than female patients. This can be attributed to more exposure to trauma in males or random assignment of patients³. In the present study, the male to female ratio was 1.5:1 with 30 males and 20 females. In the conventional septoplasty group the ratio was 1.77:1 with 16 males and 9 females. In the endoscopic septoplasty group the ratio was 1.27:1 with 14 males and 11 females. This was in concordance with the study of **Rao et al** (2005)⁴. Similar to the existing literature, our study had more male patients compared to female patients.

Socio-Economic Status:

Raksatch DM, in 1951 stated that in his study of 87 patients, 41 patients belonged to middle class and rest 46 patients belonged to higher socio economic status and told that neither the incidence of septal deviation nor the outcome of septoplasty has any significance with socio economic status. In the present study, 50 adult patients were selected randomly into two groups. 34 patients (68%) were belonging to lower class of which 18 (36%) were in conventional septoplasty group and 16 patients (32%) in endoscopic septoplasty group. In another 16 patients (32%), of which 7 (14%) were in conventional septoplasty group and 9 patients (18%) in endoscopic septoplasty group belonged to middle class. The present study suggests that the incidence of deviated nasal septum has no significant relation to economic status of the patients as suggested by previous studies.

Symptomatology: A study conducted by **Dipak Ranjan Nayak R Balakrishnan, K Deepak Murthy** (1998) on 60 patients. 47 patients (78.3%) had complaint of nasal obstruction. Headache was present in 46 patients (76.66%), rhinorrhoea in 27 patients (45%), post nasal discharge was present in 35 patients (58.33%) and hyposmia in 5 patients (8.33%)⁵. In another study conducted by **Gulati et al** (2009)⁶ showed that nasal obstruction was complained by 92% patients, Headache by 58% patients, catarrh in 50% patients and post nasal discharge in 30% (39). In the present study, all the 50 patients had nasal obstruction as a chief complaint. 12 patients (24%) complained of nasal discharge, headache was complained by 10 patients (20%), 6 patients (12%) complained of postnasal drip. Hyposmia and epistaxis was not complained by any of the patients. So in the present study nasal obstruction was the commonest symptom in patients with deviated nasal septum and hyposmia and epistaxis were the least common symptoms as suggested by previous studies. **Anterior rhinoscopic and nasal endoscopic findings:** All the patients underwent anterior rhinoscopy and or nasal endoscopic examination in our study. In a prospective study of the efficacy of endoscope aided septoturboplasty (EAS) on 480 patients by **Nayak D R, Balakrishnan R, Murthy KD** (2002) anterior deviation of the septum was seen in 427 patients and posterior deviation was seen in 154 patients. Spur was seen in 176 patients and hypertrophied inferior turbinates were seen in 372 patients. Nayak et al (2002) reported that several lateral nasal wall pathologies are associated with deviated septum, commonest and consistent being the inferior turbinate hypertrophy (75%) followed by concha bullosa, paradoxical middle turbinate, mucosal disease, over pneumatized bulla, polypoidal middle turbinate and uncinata process abnormality⁷. In the current study, deviated nasal septum was seen in all the 50 patients, of which 15 patients had septal deviation to right side and 10 patients had septal deviation to left side in conventional septoplasty group and in endoscopic septoplasty group, 12 patients had septal deviation to right side and 13 patients to left side. Spur was seen in 8 patients in conventional septoplasty group and in 4 patients in endoscopic septoplasty group. Discharge in middle meatus was seen in 1 patient in conventional septoplasty group and in 5 patients in endoscopic septoplasty group, hypertrophied middle turbinate was seen in 3 patients in conventional septoplasty group and 2 patient in endoscopic septoplasty group and hypertrophied inferior turbinate was present in 7 patients in conventional septoplasty group and in 6 patients in endoscopic septoplasty group. **Radiological findings of nose and paranasal sinuses:** While plain radiographs are inferior to computed tomography, it is inappropriate to scan all

patients in case of deviated nasal septum. The role of plain sinus X- ray has been the subject of considerable discussion as false positive and false negative results can occur, especially in infants and children (**Mc Alister, Lusk and Muntz**, 1989). Other than haziness and hypo/aplasia of the sinuses not much of the information is obtained. Zinreich (1987) have popularised a protocol for CT scan using sections taken in the coronal plane with „wide window“ settings to show optimally the fine bone detail (2000-4000HU). **Egali E, Dernirci L**(2004) did a prospective study in 23 patients to evaluate the inferior turbinate in patients with deviated nasal septum using CT scan and concluded that findings support the decision to excise inferior turbinates at the time of septoplasty because of significant bony and mucosal expansion⁸. In this study, 2 patients had maxillary sinus haziness, 1 patient had involvement of frontal sinus and 7 patients had hypertrophied inferior turbinate in conventional septoplasty group. In endoscopic septoplasty group, 4 patients had maxillary sinus involvement, 2 patients with frontal sinus pathology, 3 patients had ethmoidal sinus haziness and 1 patient had sphenoid sinus involvement. In the same group, deviated nasal septum was seen in all 25 patients, hypertrophied middle turbinate in 2 patients and hypertrophied inferior turbinate in 6 patients. Thus the current study matched the expected findings in case of deviated nasal septum with or without sinus involvement when compared to existing literature. **Type of operative intervention:** Surgical intervention is the mainstay of treatment in the correction of deviated nasal septum, described as septoplasty. **Fjermedal O, Saunte C, Pedersen J**,(1988) made a study on 478 patients to compare nasal septal operations, septoplasty and sub mucous resection of septum and found that the septoplasty was associated with lesser complications and more satisfactory results compared to sub mucous resection of septum. **Sindwani R, Wright ED** (2003) evaluated the role of endoscopic septoplasty in the treatment of atypical facial pain and the results showed 7 out of 13 (54%) were completely cured, 5 (38.5%) were significantly improved and the conclusion was that endoscopic septoplasty was a useful approach for dealing with some deviated nasal septum with facial pain⁹. **Hwang PH, McLaughlin RB, Lanza DC, Kennedy DW**(1990) told that endoscopic septoplasty is an attractive alternative to traditional headlight approach to septoplasty¹⁰. Park et al conducted a study on 44 patients to compare the endoscopic-assisted correction of deviated nose with that of classical septorhinoplasty. Of the 44 patients, 16 underwent endoscopic-assisted septoplasty and the rest underwent classical septorhinoplasty. The patients' satisfaction was 87.5 and 71.4%, and complications were 0 and 14.3% for endoscopic and classical approaches respectively. In a study conducted by Dipak Ranjan Nayak et al on 60 patients, 30 patients underwent endoscopic septoplasty and rest underwent conventional septoplasty; significant improvement was seen in patients who underwent endoscopic septoplasty. Sousa et al conducted a study to show powered endoscopic nasal septum surgery is an easy, effective, and quick alternative to traditional headlight approaches to septoplasty. In the present study of 50 patients with symptomatic DNS treated with conventional and endoscopic septoplasty, endoscopic septoplasty was found to have better results as compared with conventional septoplasty. **Egeli E, Dernircil L (2004)**⁸ Conducted a study in 23 patients with deviated nasal septum and compensatory hypertrophy of the inferior turbinate in the contralateral nasal cavity were examined by computed tomography. Their study uncovers the dimensions and composition of the inferior turbinate with compensatory hypertrophy in patients with nasal septum deviation. The findings support the decision to excise the inferior turbinate bone at the time of septoplasty, because of the significant bony and mucosal expansion. **Post-operative Evaluation:** **Park DH, Kim TM, Han DG, Ahn KY**(1998) conducted a study to compare the endoscope assisted correction of deviated nose to classical septorhinoplasty on 44 patients of which 16 patients underwent endoscope assisted septoplasty and 28 patients underwent classical method. The patients satisfaction was 87.5% and 71.4% and complications were 0% and 14.3%. in endoscope assisted correction of deviated nose and classical septorhinoplasty respectively¹¹. **Kamami YV, Pandraud L, Bougara A**(2000) studied the Laser –assisted outpatient septoplasty in 703 patients and the conclusion was Laser assisted septoplasty requires 5 minutes for surgery and useful in chronic nasal obstruction with anterior deviation of septum. Advantages were, less invasiveness, decreased morbidity and faster return to work¹². In the present study the patients were examined on 3rd, 7th and 14th day and then monthly for 3-6 months. During each visit, the patients were assessed subjectively and objectively. The following were the results noted on their last visit. **Eiji Yanagisawa, John Joe** (1997) conducted a study of comparison between traditional septoplasty and endoscopic aided septoplasty in posterior nasal septal deviations. It was carried over 50 patients and they were followed up for a minimum period of 3 months postoperatively. Their study clearly showed more number of patients being relieved of presenting complaints in endoscopic group but it was not significant statistically (P value for nasal obstruction = 0.15, P value for nasal discharge = 0.27).¹³ Gulati et al. (2009)⁶ observed significant improvement in patients with nasal obstruction and headache in endoscopic group as compared to conventional group. In the present study more number of patients were relieved from these symptoms in endoscopic septoplasty as compared to conventional group. This is in agreement with the observations of Gulati et al:(2009), Sathyaki et al : 2014.¹⁴ It may be noted that clinically endoscopic septoplasty is giving better improvement in symptom relief in comparison to conventional septoplasty, but it has no statistical significance. (p value >0.05). The objective assessment was done by noting the condition of septum and persistent pathology on lateral wall. 20 out of 25 patients (80%) in conventional septoplasty group and 23 out of 25 patient (92%) in

endoscopic septoplasty had no deformities of septum like deviation or spur. 5 patients(20%) in conventional septoplasty and 2 patients (8%) in endoscopic septoplasty had persistent septal deviation which needs revision septoplasty. Other deformities like inferior turbinate hypertrophy was not seen in 7 out of 7 patients (100%) in conventional septoplasty, 6 out of 6 patients (100%) in endoscopic septoplasty group. None of the patient had discharge in middle meatus, post operatively in both the groups (100%). The results were matchable to the existing literature. In the present study Significantly higher rate of persistence of deviated nasal septum were found with conventional septoplasty as compared to endoscopic septoplasty similar to that of Talluri kk et al (2014).¹⁵ It was noted that clinically endoscopic septoplasty relieved of nasal obstruction was more compared to conventional septoplasty but not statically significant. P value was 0.22 (P value greater than >0.05). In a study done by **Park DH et al** (1998), complications were seen in 14.3% of patients in classical septoplasty compared to 0% in endoscopic assisted correction of deviation of nose .Park et al. (1998) observed that the synechiae were formed in significantly less number in patients of endoscopic septoplasty group as compared to conventional group; similar results were found in the present study.¹¹

V. Conclusion

Endoscopic septoplasty is a major event and good evolutionary step in the history of septal surgery. Its role is special in dealing with posterior deviations, high deviated nasal septum, isolated spur, septal surgery in children and in revision surgery. Anterior deviation, caudal dislocation and anterior nasal spine require conventional septoplasty, but even then it requires large incision, poor illumination and often creation of tunnels on both the sides. The best functional and anatomical results are obtained when the entire deformity of the nasal septum is corrected without compromising the resilience and stability of the cartilaginous septum, which cannot be obtained by conventional septoplasty. In addition to the above, the endoscopic septoplasty helps in documentation and is a efficient teaching tool.

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