

Comparison of post-operative outcomes and difficulties of endoscopic with conventional septoplasty with its advantages and complication: A comparative study at tertiary care center

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Abstract

Introduction: Multiplicities in techniques are performed by the surgeon with operating improvement of deviated nasal septum. Procedure of septoplasty and resection of sub-mucous are a primary approach for the treatment of patients suffering from nasal obstruction. This study was begun to take assessment of benefits and complications, whether occurring throughout septoplasty and to correlate post-operative outcomes or difficulties of it related to conventional septoplasty. **Materials and Methods:** Criteria were made to take people in study and they were- age more than 18 years, symptomatic DNS, nasal obstruction, chronic rhinosinusitis, patients with complications like epistaxis, headache, snoring. Procedure done was rigid endoscopy. On the both sides of deviation, 2% xylocaine with adrenaline was infiltrated. Then an incision was made on the convex side of deviation and distal to the deviation. The patients in between the 18-40 years of age group were considered and proper consent was taken. Two groups were randomly formed with 40 patients in each group. Group A underwent endoscopic septoplasty, the other group underwent conventional septoplasty. **Results:** During post-operative chart, up of frequency of indications reassured after surgery amongst the patients. Nasal obstacle was relieved in 40% of cases of (group I) and in 80% of (group II). However, headache was relieved in 30% of cases of conventional septoplasty and 70% of cases of endoscopic septoplasty. Dorsal digression has been seen in thirteen cases of conservative septoplasty group and four cases of endoscopic group. In 9 and 7 cases that experienced conventional septoplasty spur synechia were persisted for a long period respectively. **Conclusion:** It can be concluded from this study that the endoscopic Septoplasty is safer, effective and conservative approach with better results and has lesser postop complications as compared to the conventional group. It is recommended that this technique be considered as the procedure of choice in these patients.

Keywords: Endoscopic, Conventional, Septoplasty, Advantages, Complication

Introduction

Sinusitis, headache, and obstructive sleep apnea are the major concerns of deviated nasal septum and these symptoms are commonly related with the arrangements of lateral wall of nasal cavity structures [1].

Multiplicities in techniques are performing by the surgeon to do operating improvement of deviated nasal septum. Procedure of septoplasty and resection of sub-mucous, performing a prime leading role to treat the patients suffering from nasal obstruction. Remarkable modifications have progressed subsequently, the

origination of endoscope progressed in the subject of septal improvement operation. For the improvement on each side distortion of septal nasal mucosa, the additional incision can be done. Endoscopes are very helpful to intensification the exactitude of the operating procedure by their superior imaging and better magnification and visualization quality.

In the introduction of septal pathology, the assistance of endoscopy was inadequate but ample and displacement of chondro-vomer and chondro-ethmoidal articulation is not essential at all. In 1991 the endoscopic technique application was primarily described for the improvement of septal disfigurement

Manuscript received: 10th July 2019

Reviewed: 20th July 2019

Author Corrected: 26th July 2019

Accepted for Publication: 30th July 2019

[2]. Endoscopic septoplasty proven very helpful in evaluation of operating functional endoscopic sinus [3]. Anticipation of numerous surgical procedures have been made for the reparation of DNS since its commencement has gone through many conversions.

At the outset it was a radical operation to removal of sub-mucosa from septum and that was accompanying with various problem. With the least removal of septal mucosa and lesser amount of complications the procedure of septoplasty was advanced earlier. In the specialization of the attempts to use of endoscope, for the improvement of DNS directing the operating procedure in resection simply the differed area, crest of maxilla and spur.

Septoplasty through endoscopy mostly executed to achieve admittance to operating site as in incident of FESS (functional endoscopic sinus surgery) and it is not specially intended for get rid of nasal obstacle.

It has different advantages in cases with pediatric and subject with earlier septal puncture and also in subject with in accessible septal spurs. This study was begun to take assessment of benefits and complications, whether occur, through out septoplasty or correlate post-operative outcomes or difficulties of it related to conventional septoplasty.

The nasal endoscope allows precise pre operative identification of the septal pathology and its associated lateral nasal wall abnormalities and helps in better planning of Endoscope Aided Septal surgery (EAS). Discrete septal pathologies such as isolated deflections, spurs, perforations and contact points can be addressed in a directed fashion [4].

Materials and Methods

The present comparative study was conducted in the Department of ENT at Teerthankar Mahaveer Medical College and Research center, Moradabad Uttar Pradesh from March 2018 to April 2018. The study was done over 40 patients who were having same atic DNS

Results

Around forty subjects were recruited in present study in which 30 were males and 10 were females in both groups. All cases were examined concerning pain throughout surgical treatment or with post-operative time accordance to the scale of pain [5].

The mean value on behalf of awareness of pain was noted as 8.93. Pre-operatively for conventional and 4.9 for endoscopic group. Post-operatively the mean values for sensitivity with pain with pack were noted to be 9.34 for second group and 3.8 with endoscopic group. Association of grievances with post-operative duration is exposed in Figure 1, Table 1.

symptoms. The patients fall in 18-40 years of age group and proper consent was taken. Ethical approval was taken from institutional ethical committee. Two groups were randomly formed with 40 patients in each group. Group A underwent endoscopic septoplasty, the other group underwent conventional septoplasty.

Inclusion criteria- Criteria's were made to take people in study and they were- age more than 18 years, symptomatic DNS, nasal obstruction, chronic rhinosinusitis, patients with complications like epistaxis, headache, snoring.

Exclusion criteria- Exclusion criteria were- age below 18 and above 40 years of age, external deviation with DNS, patients having acute rhinitis or allergic rhinitis or vasomotor rhinitis

Phases of endoscopic septoplasty: Procedure done was rigid endoscopy. On the both sides of deviation, 2% xylocaine with adrenaline was infiltrated. Then an incision was made on the convex side of deviation and distal to the deviation. Mucoperichondrial / mucoperiosteal flaps were raised.

In case of cartilaginous deviation, cartilage was incised parallel to hemitransfixation, distal to deviation, posterior to incision, but in incident with osseous DNS, opening was through on the junction of bone and cartilage. Then by inserting the mucoperichondrial flap elevator, deviation was excised. Extra measures were taken to preserve the adequate cartilage. In endoscopic septoplasty, after duration of twenty four hours protective material was detached while with conventional septoplasty, packing was removed in 48 hours.

Follow up was done every 2nd, 4th, 8th week. Subsequently sixty days of surgical procedure, final assessment and the analysis of endoscopic was completed in all patients. For associating the outcomes of both sets Chi- square test was done for statistical evaluation.

Table-1: Comparison of complaints with pack in post-operative period

Sl. no.	Complaints	(Group I)	(Group II)	p- value
1.	Headache	18 (45%)	40 (100%)	p<0.01
2.	Watering eyes	16 (40%)	28 (70%)	p<0.01
3.	Face swelling	13 (33%)	19 (48%)	p<0.01

During post-operative chart up of frequency of indications reassured after surgery amongst our patients. Nasal obstacle was relieved in 40% of cases of (group I) and in 80% of (group II). However, headache was relieved in 30% of cases of conventional septoplasty and 70% of cases of endoscopic septoplasty show in Table 2 and figure 2.

Table-2:Rate of recurrence of signs relieved after surgical procedure between Group I and Group II.

Symptoms	(IGroup)	(IIGroup)	P Value
Nasal obstruction	40%	80%	0.0004*
Headache	30%	70%	0.34
Nasal discharge	50%	60%	0.45
Hyposmia	5%	30%	0.05*
Post-nasal drip	15%	65%	0.02*

* = Significant, ** = highly significant

The effectiveness was evaluated both individually and accurately. Evaluation of pre and post-operative symptomatology subjective estimation conceded out using visual analogue scale where as objective estimation was done via endoscopes. Intent calculation at latest report on visit over subjects which are study materials exposed to six cases of conservative group of septoplasty (Group I) and two cases of endoscopic septoplasty has constant ventral digression. Dorsal digression has been seen in thirteen cases conservative septoplasty group and four cases of endoscopic group. In 9 and 7 cases who experienced conventional septoplasty spur synchia were persist long, respectively. Dorsal digression spur, synchia in group II patients was significantly less persistence than group II, nor septal perforation neither saddle nose deformity was found in each group. In this study after operation no foremost difficulties have been found.

Some minor complications like hemorrhage found in single patients in another septal haematoma are seen (Table 3).

Table-3: Assessment of study at last follow-up visit of follow up

Calculations	IGroup	IIGroup	P Value
Ventral deviation	6 (12.5)	2 (7.8)	0.7 (NS)
Posterior deviation	13 (35)	4 (7.8)	0.008 (S)
Spur	9 (20)	2 (2.5)	0.01 (S)
Synechia	7 (15)	2(2.5)	0.06 (S)
Discharge in middle meatus	20 (45)	12 (35)	0.13 (NS)

S = Significant, NS = Non-significant

Discussion

For septoplasty, the technique of endoscopic septoplasty is a very fascinating substitute to proceed towards the conventional headlight. According to the research conducted by Durr et al [5], cases with dissatisfaction of nasal obstacle, rhinorrhea, hyposmia and pain were taken in 80% of patients. The mean value of recognition of pain was observed to be 1.88 in the endoscopic septoplasty, the cases of which were determined to be on the scale of 0-75%[6]. The mean value of

recognition of pain considered under health group with endoscopy septoplasty along with the conventional group, which is in accordance with observations obtained from the present study. In a study conducted by Sindhwani and Wright, 54% cases with dissatisfaction of facial pain and improvement of nasal obstacle, while 38% of patients observed benefits and lastly 8% of cases were not satisfied. In the study conducted, headache, epistaxis, obstructive sleep apnea

and the complex construction of nasal lateral wall was also observed [7]. In the present study, the latest report suggested that the intent calculation in regards to the visitation of subjects included in the study group resulted in six cases of conservative groups of septoplasty (Group 1) along with two cases of endoscopic septoplasty with ventral digression. Dorsal digression had been observed in 13 cases of septoplast groups and four cases of endoscopic groups. In groups with conventional septoplasty, occurrence of spur synechia persisted for a longer duration of time. The occurrence of spur synechia due to dorsal digression in group II patients was significantly less persistence in comparison to group II. Occurrence of septal perforation neither saddle nose deformity was observed in any group along with no post-operative difficulties.

Nasal obstruction is considered to be the most frequent among the various nasal symptoms affecting the human population, several complications are such as sinusitis, obstructive sleep apnea, epistaxis and frequent cases of headache conditions over the connection facts with arrangement of the nasal lateral wall structures [8]. In a study conducted by Nayak DR [9], in conventional septoplasty, the persistence of symptoms was higher in comparison to the endoscopic one. 75% of cases associated with DNS occur in parallel to lower turbinate hypotrophy pursued through mucosal disease, chonchobullosa and middle turbinate polypoidal.

Similar results were obtained by Park et al, who conducted a comparative study between endoscopic and classical septorhinoplasty on 44 patients in whom the patient satisfaction and complication percentage were 87.5% and 0% in endoscopic group and, 71.4% and 14.3% in classical septorhinoplasty group[10]. The results obtained from the present study were also similar to a study conducted by Rajguru et al, on 100 patients to compare the efficacy of endoscopic septoplasty with conventional septoplasty in which the complication rate was found to be less in the endoscopic septoplasty group[11].

Gray (1965), Pease (1969), Jazbi (1974) have extensively studied the factors responsible for deviated nasal septum in early childhood and they believed that prenatal traumatic factors may produce anterior septal dislocation and it becomes pronounced as age advances [12-14].

Hwang et al in their retrospective study reported hematoma in 0.9%, asymptomatic perforation in 0.9% and synechia formation in 4.5% patients[15]. Sufian Nawaiseh et al in Jordan, reported hemorrhage in one

(1.6%) and septal hematoma in one (1.6%) patient [16]. N Prepageran had no complication to report [17]. In the present study in similarity with study by Nayak et al and Gupta et al. complication rates were significantly more in traditional group[18].

It was noted that at approximate indicate existed in the present study, 81% patients suffering from turbinate inferior hypertrophy, pursued through bullosachoncha, 20% patients suffering from disease with mucosa, 18% patients with middle polypoid turbinate and 17% patients and 15% patients with middle paradoxical and deformity with uncinata process respectively.

The endoscopic perspective of septoplasty along with the proficiency of standard headlight provided a favorable outcome with better visualization, superior amplification or illumination, which is useful for the precise detection of the recognition of pathology.

Through the use of endoscopic septoplasty, a profound understanding of the association between the pathological aspect of nasal lateral wall and abnormality of septum is established. It is accomplished with fewer maneuvers, smaller incisions which are some of the practical ascendancy of endoscopic septoplasty. The outcome can be obtained with less injury of tissue, less resection of septum, which in turn helps the prevention of mucosal slash.

Conclusion

The debilities notably come up in the group of conventional septoplasty even though the objective outcome shows insignificant variation in the functional assessment of each group. Endoscopic septoplasty is accomplished with less maneuver and fewer incisions and these are the practical ascendancy of endoscopic septoplasty. Less injury of tissue, less resection of septum; therefore causing the mucosal slash to be prevented are the outcomes obtained. Only slight modification to nasal pathology can assess upraise to separate the deformities by only small flap through direct vision.

It can be concluded from this study that the endoscopic septoplasty is safer, effective and conservative approach with better results and has lesser postoperative complications as compared to conventional group. It is recommended that this technique be considered as the procedure of choice in such patients. The final outcome obtained with the facts of decrease in blood loss and trauma, increase in firmness since those areas of septum are not affected by distortion.

What the present study adds in the existing knowledge?

The present study puts stamp on the previous studies that the endoscopic septoplasty is safer, far more effective and conservative approach with better results and has lesser post operative complications as compared to the conventional group.

Funding: Nil, **Conflict of interest:** Nil

Permission from IRB: Yes

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How to cite this article?

Sudhakar K.V.K. Comparison of post-operative outcomes and difficulties of endoscopic with conventional septoplasty with its advantages and complication: A comparative study at tertiary care center. *Trop J Ophthalmol Otolaryngol.* 2019;4(3):239-243. doi:10.17511/joooo.2019.i03.10

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