

Endoscopic Septoplasty: A Prospective Analysis

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To cite this article

Mirza Aneesa Afzal Beg, Sajad Majid Qazi, Irfan Iqbal. Endoscopic Septoplasty: A Prospective Analysis. *Open Science Journal of Clinical Medicine*. Vol. 3, No. 6, 2015, pp. 212-219.

Abstract

Background: The advent of endoscopes has revolutionized rhinology. Endoscopic Septoplasty is a fast developing concept and gaining popularity because of its potentially insignificant subjective and objective morbidity. **Objectives:** This study was aimed to analyze patients undergoing Septoplasty defining its indication, procedure, benefits and follow up. **Methods:** From March 2011 to May 2012, 40 patients underwent Endoscopic Septoplasty at the postgraduate Deptt. of ENT, S.M.H.S hospital, Srinagar Kashmir. Patients who presented with signs and symptoms attributed to posterior septal deviation, septal spurs and limited septal deviation directly opposite the surgical area for endoscopic sinus surgery and endoscopic Dacrocystorhinostomy were selected. **Results:** Nasal obstruction was the most common presenting symptom recorded in 39 (97.2%) patients. Endoscopic Septoplasty alone or with Turbinoplasty was done in 22 (55%) patients. In rest 18 patients, endoscopic Septoplasty was done with FESS in 9 (22.50%), with DCR in 5 (12.50%), with decompression/marsupialization of Sinonasal Mucocele in 3 (7.50%) and with CSF leak repair in 1 (2.50%) patients. Preoperative nasal endoscopy revealed broad based septal deformity in 12 (45%) patients, isolated spur in 10 (35%) patients and combined septal deformity in 18 (20%) patients. Majority of patients (n=38, 95%) were discharged within 48 hours. On analysis of septal deviation angles, on NCCT PNS, preoperative and postoperative mean \pm S.D angle was 141 ± 11.89 and 167 ± 7.36 with p value < 0.0001 . On subjective analysis of nasal obstruction symptom evaluation (NOSE) score of patients at baseline, at postoperative 3 and 6 months follow up mean \pm S.D was 61.88 ± 11.53 , 9.50 ± 5.75 and 8.75 ± 3.86 . **Conclusion:** Endoscopic Septoplasty is an effective technique that can be performed safely alone or in combination with endoscopic sinus surgery with minimal additional morbidity. The endoscopic approach to Septoplasty facilitates accurate identification of pathology due to better illumination, improved accessibility to remote areas and magnification.

Keywords

Septoplasty, Endoscope, Mucocele

1. Introduction

The advent of endoscopes has revolutionized rhinology and has widened the horizons of rhinology. Endoscopic Septoplasty is a fast developing concept and gaining popularity because of its potentially insignificant subjective and objective morbidity and is thus a viable alternative to traditional headlight Septoplasty. Endoscopic Septoplasty is a minimally invasive technique that helps us to correct septal deformities under endoscopic vision. [1] Discrete septal pathologies such as isolated deflection, spurs, perforations and contact points can be addressed in a directed fashion. [2] The lateral wall structures like the inferior & middle turbinate can also be treated endoscopically with an intention

to relieve the contact areas leading to a functionally improved airway.[3] Thus it is not only useful for treating symptomatic nasal obstruction but also for improving intraoperative surgical access to the middle meatus, as a preliminary step to endoscopic dacrocystorhinostomy and endoscopic sinus surgeries. The endoscopic approach is also quite useful during revision Septoplasty. In these cases, scarring from previous septal surgery obscures normal tissue planes, resulting in increased risk of mucosal tearing with resulting septal perforation. With the endoscope, it is possible to see the separation of collagenous fibres connecting the perichondrium and periostium to underlying bone and cartilage during surgical dissection.⁴In addition, Endoscopic Septoplasty is an excellent teaching tool when used in conjugation with video monitors. The endoscopic approach

makes it possible for many people to simultaneously observe the procedure on a monitor, making the approach useful in teaching setting. [5]

2. Objective

This prospective study was aimed to analyze patients undergoing Endoscopic Septoplasty defining its indications, specific endoscopic procedure for specific septal deformity, to record preoperative and postoperative symptomatic improvement rates by NOSE (Nasal Obstruction Symptom Evaluation) scale and Nasal Symptom Score, to analyze change in health status of patients after Endoscopic Septoplasty using Glasgow Benefit Inventory Questionnaire and 5 point Likert Scale and to analyze advantages and limitations of Endoscopic Septoplasty.

3. Material & Methods

From March 2011 to May 2012, 40 patients underwent Endoscopic Septoplasty at the Postgraduate Department of Otorhinolaryngology and Head and Neck Surgery, SMHS Hospital an associated hospital of Government Medical College, Srinagar Kashmir. Patients who presented with signs and symptoms attributed to posterior septal deviation, septal spurs and limited septal deviation directly opposite the surgical area for endoscopic sinus surgery and endoscopic dacryocystorhinostomy were admitted.

Patients with anterior septal dislocations, impacted septal deviations and gross external nasal deformity were excluded from the study.

A detailed and comprehensive evaluation of each patient was made as per the proforma of the study design which included Baseline NOSE score, Pre-operative Nasal Symptom score, Nasal endoscopy and nectct scan of nose and PNS (axial and coronal cuts). fig 01.

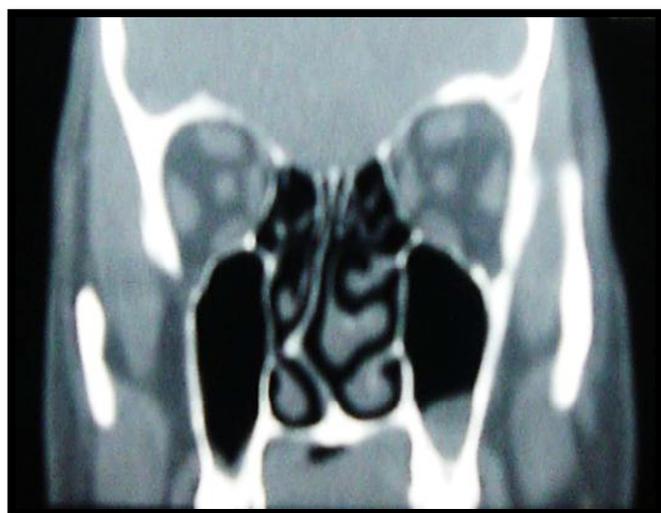


Fig. 1. Nectpns.

All the patients were followed up for a minimal period of 6 months to record post-operative symptomatic improvement

rates by Clinical examination, NOSE (Nasal Obstruction Symptom Evaluation) scale, Post-operative nasal symptom score, 5 point Likert scale, Glasgow Benefit Inventory Questionnaire, Nasal endoscopic evaluation and CT scan (Nose and PNS). The most deviated part of the septum was marked among the slices in coronal plane. Deviation angle was constituted by delineating a line from most deviated point of septum to crista galli and drawing another line to horizontal plate of the maxillary or palatine bone. The results of our study were analyzed on SPSS Software using Paired 't' test" and "Mann Whitney 'U' test" to compare the Quantitative and Qualitative data respectively.

4. Technique for Endoscopic Septoplasty

Before the procedure, the nasal mucosa was decongested with topical Oxymetazoline. The nasal cavity was examined using a 0° endoscope. The type of septal deviation was noted specifically. In patients operated under G/A 1:1,00,000 units of N. saline adrenaline solution whereas in patients operated under L/A, 2% xylocaine with adrenaline (1:1,00,000) was injected along both sides of the septum in a subperichondrial plane. Appropriate incision/incisions were made and a Freer's suction elevator was then used to develop a submucoperichondrial plane along the septum. Further dissection in a posterior direction was performed using the same suction elevator. A submucoperichondrial plane was then developed on the opposite side of the septum. Once the deviated septal cartilage and bone was isolated from the mucosa, the turbinectomy scissors and Ballenger knife was used to incise the septum in an anterior to posterior manner. The Lucs forceps were then used to remove all deviated portions of the bone and cartilage in a twisting motion. Wherever needed fish tail gouge was used to remove deviations along the floor. The endoscope was used throughout the procedure, and was placed between the mucosal flaps or within the nasal cavity to ensure correction of all septal deformities. The mucosal flaps were reapproximated and no suture was given for apposition of flaps. Post-operatively nasal packing and septal silastic splints were used. The specific adjunctive Endoscopic Procedure wherever indicated was carried out.

5. Results

In our study of 40 patients, majority of patients i.e. 29 (72.50%) were aged between 11-30 years with mean age of presentation as 28.45 ± 10.45 and male female ratio of 1.1:1.38 (95%) patients were primary cases and 2 (5%) patients were revision cases. Nasal obstruction (n=39,97.50%) was the most common presenting symptom, followed by frontal headache (n=20,50%), nasal discharge (n=16,40%), hyposmia (n=10,25%), facial pain (n=8,20%), sneezing (n=6,15%), epiphora (n=5,12.50%), postnasal drip (n=3,7.50%), epistaxis (n=2,5%) and snoring (n=1,2.50%).

Nasal airway obstruction (n=38,95%) was the most common symptom indication for procedure which included 21 (52.5%) cases of DNS/DNS with Turbinate Hypertrophy, 9 (22.5%) cases of Sinonasal Polyposis, 3 (7.5%) cases of Facial/Medial canthal swelling (Sinonasal Mucocele), 5 (12.5%) cases of Epiphora (Chronic Dacrocystitis) followed by facial pain (n=1,2.5%) and CSF leak repair (n=1,2.5%)(Table 1). Pre-operative Nasal endoscopy and NCCT PNS revealed broad based septal deformity in 12 (45%) patients, isolated spur in 10 (35%) patients and combined septal deformity (Broad based and Spur) in 18 (20%) patients, Hypertrophied Inferior turbinate in 11(27.50%) patients, Concha bullosa in 5 (12.50%) patients, Paradoxical Middle turbinate in 8 (20%) patients, Sinonasal polyposis in 9 (22.50%) patients, Sino Nasal mucocele in 3 (7.5%) patients and Everted Hypertrophied Uncinate in 2 (5%) patients, Agger nasi cells in 4 (10%) patients, Haller cells in (7.50%) patients and Onodi cells in 2 (5%) patients. Out of 40 patients, 34 (85%) cases were done under General Anaesthesia and 6 (15%) cases were done under Local Anaesthesia. Vertical incision anterior to deviation was used in 18(45%) and curvilinear incision anterior to deviation was used in 18 (45%) cases. Other incisions used were hemitransfixation incision in 4 (10%) and horizontal T shaped in 3 (7.50%) patients (Graph 2). In 3 patients more than 1 incision was used. Endoscopic Septoplastyalone / with Turbinoplasty was done in 22 (55%) patients. In rest of 18 patients Endoscopic Septoplasty was done to gain access to surgical area for FESS in 9 (22.50%) patients, for DCR in 5 (12.50%) patients, for Decompression and Marsupialisation of Sino Nasal Mucocele in 3 (7.50%) patients and for CSF leak repair in 1 (2.50%) patient (Table 2). Patient of CSF leak repair was operated for inverted papilloma by lateral rhinotomy and on the first postoperative day, patient developed CSF leak for which Endoscopic Septoplasty was done to provide adequate space for instrumentation for CSF leak repair. In 29 (72.50%) patients no intraoperative mucosal micro lacerations were seen, in 8 (20%) patients unilateral mucosal micro lacerations occurred but suturing was not required while in other 3 (7.5%) patients mucosal micro lacerations occurred bilaterally for which suturing was required (Table 5). No suture was given for apposition of septal flaps after completion of endoscopic Septoplasty in 37 (92.5%) patients (Table 3). In all 40 (100%) patients Intranasal Silastic septal splints were kept along both sides of septum for apposition of septal flaps. Maximum number of patients i.e. 38 (95%) patients were discharged within 48

hours (Table 4). Post-operative bleeding was recorded in 1 (2.50%) patient, post-operative septal perforation in 1 (2.5%) patient and transient dental pain in 1 (2.5%) patient. In 2 (5%) patients, synechiae were seen in post-operative follow up which were subsequently released (Table 6). On Statistical analysis of septal deviation angles on NCCT Nose and PNS, preoperative and postoperative mean±SD angle was 141.83±11.89 and 167±7.36 respectively with p<0.0001 which is highly significant (Table 7). More angle value means a straighter septum and the value of 180° means entirely straight septum. On Statistical analysis of Nasal Obstruction Symptom Evaluation (NOSE) score of patients at baseline and at Post-operative 3 and 6 month follow-up mean±SD was 61.63±11.46, 9.50±5.75 and 8.75±3.86 respectively with p<0.0001 for pre-operative and 3 month post-operative follow up which is highly significant and p>0.05 for 3 and 6 month follow up and hence insignificant (Table 8). On Statistical analysis of Nasal Symptom score of patients at baseline and at Post-operative 3 and 6 month follow-up mean±SD was -2.38±5.63, 10.05±2.62 and 10.48±2.28 respectively with p<0.0001 for pre-operative and 3 month postoperative follow up which is highly significant and p>0.05 for 3 and 6 month follow up and hence insignificant (Table 9). As all the p values calculated for baseline and 3 month postoperative were below 0.01 i.e. (P<0.01), a statistically highly significant improvement was achieved in patients, meaning that there was a very significant improvement in symptoms of all patients after surgical intervention at 3 months and this improvement was unchanged at 6 months. On asking the patients in our study to indicate the subjective change in nasal obstruction following surgery using 5 point Likert scale, the results were as followed, At 3 month follow up, 24 (60%) patients indicated that their symptom was better and 14 (35%) indicated that it was much better. Only 2 (5%) patients reported that nasal obstruction was same as that before surgery. At 6 month follow up, 22 (55%) patients indicated that their symptom was better and 16 (40%) indicated that it was much better and only in 2 (5%) patients nasal obstruction was same as that before surgery (Graph 3). On Statistical analysis of Glasgow Benefit Inventory (GBI) Scores of all patients (n=40) at 3 months follow-up, the mean±SD was 57.78±22.2. On Statistical analysis of Glasgow Benefit Inventory (GBI) Scores of all patients (n=40) at 6 months follow-up, the mean±SD was 61.39±20.92 (Table 10). Above results show that the health status of patients undergoing surgery improved overall and according to each of the subscale used.

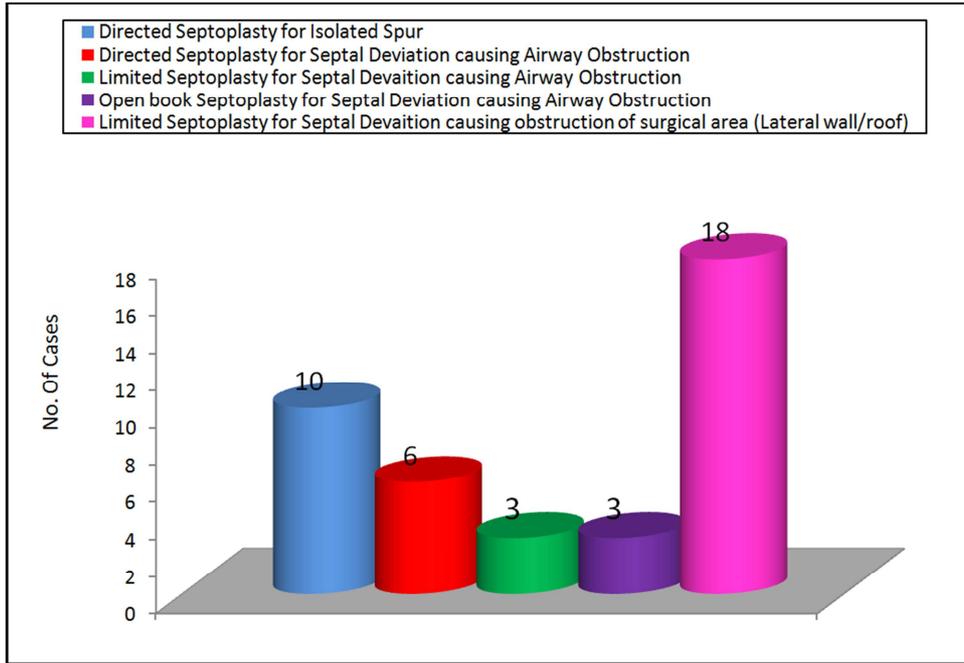
Table 1. Symptom Indications for Endoscopic Septoplasty (n=40).

Symptom Indication	No. of cases	Percentage (%)	
Nasal Airway obstruction	DNS/DNS with Turbinate Hypertrophy	21	52.5
	Sinonasal Polyposis	9	22.5
	Facial/Medial canthal swelling (Sino Nasal Mucocele)	3	7.5
	Epiphora(Chronic Dacrocystitis)	5	12.5
Facial pain	1	2.5	
CSF rhinorrhoea	1	2.5	

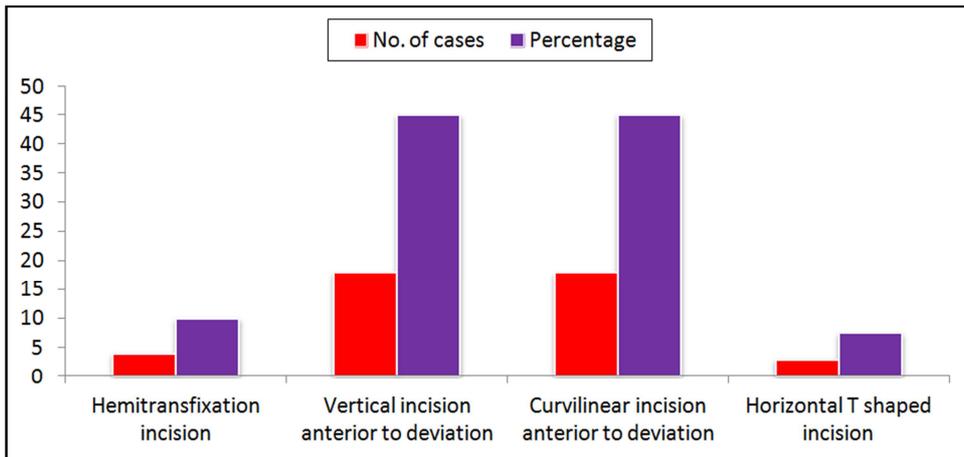
Table 2. Endoscopic Procedure(s) Performed (n=40).

Endoscopic procedure	No of cases	Percentage (%)
Endoscopic Septoplasty Alone	9	22.50
Endoscopic Septoplasty With Turbinoplasty	13	32.50
Endoscopic SP with FESS	9	22.50
Endoscopic SP with DCR	5	12.50
Endoscopic SP with Decompression/marsupialization of Sino nasal mucocele	3	7.50
Endoscopic SP with CSF leak repair	1	2.50
Total	40	100.00

FESS: FUNCTIONAL NASAL ENDOSCOPIC SURGERY;
DCR: DACROCYSTORRHINOSTOMY; CSF - CEREBROSPINAL LEAK



Graph 1. Showing Specific Septal Deformity and Specific Endoscopic Septoplasty Performed.



Graph 2. Showing surgical incisions used.

Table 3. Apposition of Septal Flaps after Correction of Deviation (n=40).

Apposition of Septal flaps	No. of cases	Percentage (%)
No Suture	37	92.50
Suture given	3	7.50
Total	40	100.00

Table 4. Post-Operative Hospital Stay (n=40).

Hospital stay	No. of cases	Percentage (%)
<48 hours	38	95.00
>48 hours	2	5.00
Total	40	100.00

Table 5. Intra Operative Complications (n=40).

Complications	No. of cases	Percentage (%)
Mucosal micro lacerations with suturing required (Bilateral)	3	7.50
Mucosal micro lacerations without suturing required (Unilateral)	8	20.00
No Mucosal microlacerations	29	72.50
Total	40	100.00

Table 6. Post-Operative Complications of Endoscopic Septoplasty (n=40).

Complications	No. of cases	Percentage (%)
Post op bleeding	1	2.50
Post op septal perforation	1	2.50
Septal hematoma	0	0.00
Synechiae	2	5.00
Transient Dental pain	1	2.50
Orbital injuries	0	0.00
CSF leak	0	0.00

Table 7. Deviation Angles of Patients (n=40) on NCCT Nose & PNS of Patients at Baseline & Post-Operative 3 month.

Patient No.	Baseline	3 month
Mean+SD(n=40)	141.83+11.89	167.33+7.36
95% Confidence Intervals	138.02-145.63	164.97-169.68
Min	110	150
Med	140	166
Max	165	180

Table 8. Nasal Obstruction Symptom Evaluation (NOSE) Score of patients (n=40) at Baseline and at Post-Operative 3 month & 6 month Follow-Up.

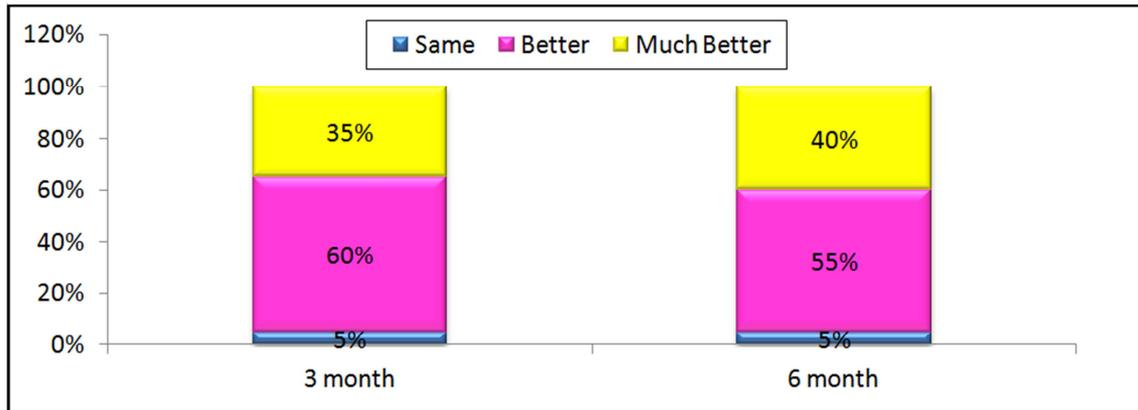
Patient No.	Baseline	3 month	6 month
Mean+SD	61.63+11.46	9.50+5.75	8.75+5.86
S.E.M	1.81	0.91	0.93
95% Confidence Intervals	57.96-65.29	7.66-11.34	6.88-10.62
Min	40	0	0
Med	60	10	5
Max	80	20	20

Table 9. Nasal Symptom Scale of Patients (n=40) at Baseline & at Post-Operative 3 month & 6 month Follow-Up.

	Baseline	3 month	6 month
Mean+SD	-2.38+ 5.37	10.05+2.62	10.58+2.34
S.E.M	0.85	0.41	0.37
95% Confidence Intervals	-4.09- -0.56	9.21-10.89	9.83-11.32
Min	-10	6	7
Med	-1	10	10
Max	8	16	16

Table 10. Glasgow Benefit Inventory (GBI) Scores of Patients (n=40) at 3 & 6 month Follow Up.

	Total Score (3 month)	Total Score(6 month)
Mean+SD	57.78+22.20	61.39+20.92
95% C.I	50.68-60.88	54.70-68.08
Max	83.33	94.44
Med	63.89	63.89
Min	5.56	5.56



Graph 3. Showing subjective change in nasal obstruction of patients following surgery using 5 point Likert Scale at 3 & 6 months Follow-up.

Table 11. Advantages and Limitations of Endoscopic Septoplasty.

	Advantages	Limitations
Endoscopic Directed Septoplasty	✓	✗
Endoscopic Limited Septoplasty	✓	✗
Endoscopic Revision Septoplasty	✓	✗
To gain access to surgical area on lateral wall/roof	✓	✗
Less Intra-operative complications	✓	✗
Suture less surgery	✓	✗
Decreased Hospital Stay	✓	✗
Less Post-operative complications	✓	✗
Teaching tool	✓	✗
One hand procedure	✗	✓
Surgical Expertise	✗	✓
Expensive Instrumentation	✗	✓

6. Discussion

Endoscopic Septoplasty is a Directed Septoplasty that is an effective technique that can be performed safely alone or in combination with Endoscopic Sinus Surgery/Endoscopic Dacryocystorhinostomy with minimal additional morbidity. The endoscopic approach is quite useful during revision Septoplasty. The endoscopic approach to Septoplasty facilitates accurate identification of the pathology due to better illumination, improved accessibility to remote areas and magnification. It allows enhanced visualization of the nasal pathology including septal deviation with more focused flap dissection and resection of the offending cartilage and bone and is thus a viable alternative to traditional headlight Septoplasty. It is associated with less intra-operative and post-operative complications with decreased hospital stay. In addition, Endoscopic Septoplasty is an excellent teaching tool when used in conjunction with video monitors. In our study of 40 patients, Nasal airway obstruction (n=38,95%) was the most common symptom indication for procedure. Chung BJ (2007) [6] reported in his retrospective study of 116 patients of Endoscopic Septoplasty that indication for Endoscopic Septoplasty was nasal airway obstruction in 75 (64.6%) patients. Matteo Trimarchi et al (2012) [7] described in their clinical experience in 218 consecutive patients who underwent endoscopic back-and-

forth Septoplasty (EBFS) that the indication for EBFS in their series was nasal airway obstruction (NAO) in all patients. In our study, Pre-operative Nasal endoscopy revealed broad based septal deformity with posterior deviations in 12 (45%) patients, isolated spur in 10 (35%) patients and combined septal deformity (Broad based and Spur) in 18 (20%) patients. Peter H. Hwang et al. (1999) [4] in a retrospective review of 111 Endoscopic Septoplasty reported that 51 (46%) of the deviations were broadly based deflections whereas 39 (35%) of the septal deformities were spurs and in 21 (19%) patients more than 1 type of septal deformity was encountered. Sufian Nawaiseh, Nemer Al-Khtoum (2010) [8] in their study of 60 patients who underwent Endoscopic Septoplasty that nasal endoscopic evaluation located nasal septum deviations in the following order: 29 of the deviations as broadly based deflections (48.3%), whereas 23 of the septal deformities as spurs (38.3%) and 8 (13.3%) as more than 1 type of septal deformity (13.3%). The observations concerning the type of septal deformity in our study are comparable to those observed by above authors. In our study of 40 patients, vertical incision anterior to deviation was used in 18 (45%) and curvilinear incision anterior to deviation which was innovated by operating surgeon was used in 18 (45%) cases. Other incisions used were hemitransfixation incision in 4 (10%) and horizontal T shaped (Open Book method) in 3 (7.50%) patients. In 3 patients more than 1 incision was

used. Out of 40 patients studied, in 33 (82.50%) patients incision were given on convex side while as in 7 (17.50%) patients incision were given on concave side. *Dory G Durr (2003)* [9] in a retrospective review of 47 patients have reported that vertical incision was given on the ipsilateral side of deviation in mid portion of the deviation for Endoscopic Septoplasty. *Aderito Desousa F, Livia Inciarte F, Howard Levine (2005)* [10] in their study of 2,730 cases of functional endoscopic nasal septal surgery using powered instrumentation have reported that a hemitransfixation incision was used for the procedure. *Nishi Gupta (2005)* [11] in a retrospective study of Endoscopic Septoplasty have reported that various kinds of incisions used for the procedure were caudal to the most deviated portion of the septum, on less deviated side of septum, at the spur inferiorly or ipsilateral incision placed parallel to the floor of nose on the apex of the spur. *Ranjan G Aiyer, Rahul Gupta, Jayman Raval (2009)* [1] in their prospective study of 19 cases observed that for doing surgery incision was made proximal to the most deviated portion of septum and at the spur inferiorly in cases of isolated spur under endoscopic vision. *S. P. Gulati et al (2009)* [12] in their study of 50 patients to assess the merits and demerits of Endoscopic Septoplasty have reported that an incision caudal to the deviation on the convex side was made roughly parallel yet cephalic to the classically described hemitransfixation incision and for septal spurs, an ipsilateral incision was given parallel to the floor of the nose on the apex of the spur. *N. Prepageran, O. R. Lingham (2010)* [13] in a retrospective review of 42 cases who underwent therapeutic Endoscopic Septoplasty with the Open Book method reported that Killians incision was placed anterior to the point of maximal deviation on convex side, raised flap was then divided horizontally along the horizontal axis of maximal deviation and flaps were opened like a book (Open Book method) Observations regarding the various types of incisions and side of incision used in our study are quite comparable to the observations made by above mentioned authors in their series though *the curvilinear incision used in our study is not reported by above authors because this type of incision was innovated by the operating surgeon and it was found that by making curvilinear incision anterior to deviation, flap elevation and access to posterior/broad based deviations was easy with minimal chances of microlacerations and flap tear.* In our study of 40 patients, Endoscopic Septoplasty Alone/with Turbinoplasty was done in 22 (55%) while in rest of 18 patients Endoscopic Septoplasty was done along with FESS in 9 (22.50%) patients, with DCR in 5 (12.50%) patients, with Decompression and Marsupialization of Sino Nasal Mucocele in 3 (7.50%) patients and with CSF leak repair in 1 (2.50%) patient. *Peter H. Hwang et al. (1999)* [4] in a retrospective review of 111 patients, 108 (80%) were performed in conjunction with endoscopic sinus surgery and in 3 (2%) cases Endoscopic Septoplasty was performed alone as the primary procedure. *Mahlon et al. (1999)* [14] in a retrospective review of 100 patients between June 1994 and December 1997 observed that Endoscopic Septoplasty was

performed in 81 (81%) patients, functional endoscopic sinus surgery was performed in 43 (43%) patients, bilateral inferior turbinoplasty was carried out in 85 (85%) patients, unilateral inferior turbinoplasty in 15 (15%) patients and partial middle turbinoplasty in 20 (20%) patients. *Mao Chang Su, Jung Liang Chiang, Rong San Jiang (2004)* [15] reviewed study of 233 consecutive patients who underwent endoscopic sinus surgery and among them Endoscopic Septoplasty was performed concomitantly in 81 (34.8%) cases. *Nishi Gupta (2005)* [16] in a retrospective study of patients who underwent Endoscopic Septoplasty from March 1998 to March 2000 found that 20 (41%) out of 48 were performed in conjunction with endoscopic dacrocystorhinostomy and in 8 (16%) cases Endoscopic Septoplasty was performed alone as a primary procedure. *Leena Jain et al (2011)* [17] in their comparative study of conventional and Endoscopic Septoplasty reported that out of 50 Endoscopic Septoplasty, 20 (40%) underwent this in conjunction with functional endoscopic sinus surgery and 7 (14%) with endoscopic DCR. No suture was given for apposition of septal flaps after completion of Endoscopic Septoplasty in 37 (92.50%) patients while as suture was required only in 3 (7.50%) patients. In all 40 (100%) patients Intranasal Silastic septal splints were kept along both sides of septum for apposition of septal flaps. These septal splints were removed after 7 days. *Dory G Durr (2003)* [9] in a retrospective review of 47 patients of Endoscopic Septoplasty have reported that at the end of procedure flap was gently draped in its original site and no suture was used. *Aderito Desousa F, Livia Inciarte F, Howard Levine (2005)* [10] in their review of 2,730 cases of functional endoscopic nasal septal surgery have reported that Splints were used to support the nasal septum and the mucosa and these Silicone septal splints were removed 4 to 7 days after surgery. Maximum number of patients i.e. 38 (95%) patients were discharged within 48 hours in our study. *M Gupta, G Motwani (2005)* [18] in a comparative study of endoscopic aided Septoplasty and traditional Septoplasty reported that most of the patients were discharged within 48 h of surgery following pack removal and only 1 (4%) patient of Endoscopic Septoplasty required longer stay. In our study of 40 patients, post-operative bleeding was recorded in 1 (2.50%) patient, post-operative septal perforation in 1 (2.5%) patient and transient post-operative dental pain in 1 (2.5%) patient. In 2 (5%) patients, synechiae were seen in post-operative follow up which were subsequently released. *Dipak Ranjan Nayak et al (2002)* [3] in a prospective update study of the efficacy of Endoscope aided Septo-turbinoplasty (EAS) reported that 18 (3.75%) cases had postoperative minimal nasal bleeding and 17 (3.54%) patients developed synechiae between the septum and the lateral nasal wall.

7. Conclusion

Endoscopic control during Septoplasty is a big step toward obtaining better results in bony and cartilage resection with extreme precision under monitor control and magnification.

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