Comparison between Endoscopic Septoplasty and Conventional Septoplasty - A Prospective Study

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ABSTRACT

Introduction: Nasal obstruction caused by the deviated nasal septum (DNS) is the one of the common problem in ENT setup. The aim of present study is to compare the outcomes of endoscopic and conventional septoplasty in management of deviated nasal septum.

Material and methods: Present study was a prospective randomized, conducted in Department of E.N.T. of a tertiary care teaching hospital, Banda, U.P. over a period of one year. Fifty cases of symptomatic deviated nasal septum undergoing either conventional septoplasty or endoscopic endoplasty were studied for 3 months to compare the outcomes of both techniques. All patients were followed up in OPD post-operatively after 7, 14, 28 and 90 days. They were assessed for both subjective improvement of pre-operative symptoms and objective assessment of complications like synechiae formation, persistence of DNS etc. Chi- square test was done for statistical analysis.

Results: Maximum cases (52.0%) belonged to the age group 31-45 years followed by age group 16-30 years (24.0%) and male (56.0%) outnumbered female patients (44.0%). Most common pre-operative symptom was the nasal obstruction (94.0%) followed by postnasal drip (54%) and headache (52%). Blood loss during endoscopic septoplasty was less in comparison of conventional septoplasty.

Conclusions: Both conventional and endoscopic techniques of septoplasty were very effective in relieving the symptoms, but ES showed lesser complication than conventional septoplasty. Endoscopic septoplasty had showed better results in comparison of conventional method due to better illumination & magnification and due to accurate pathology identification..

Keywords: Deviated Nasal Septum, Conventional Septoplasty, Endoscopic Septoplasty, Nasal Obstruction

INTRODUCTION

Deviated nasal septum (DNS) is a condition in which top of the cartilaginous ridge deviated to the right or left in place of central position. DNS can cause obstruction of nasal passage in affected nostril which in turn result in sinusitis (due to poor sinuses drainage), dysponea, epistaxis, sleeping disorders etc.[1,2]

Generally symptomatic deviation demands surgical correction unlike asymptomatic deviated nasal septum. Over the decades, various surgical procedures starting from radical septal resection to mucosal preservation and subsequent preservation of septal framework were developed.

In conventional nasal septal surgery, there is unnecessary manipulation of the septal anatomy. In conventional surgery, there is poor illumination and less accessibility resulting in exposure by a large incision. While endoscopic septoplasty results in targeted approach to the septal anatomic deformity which in turn causes limited septal mucosal flap dissection and removal of a small bony/cartilaginous deformity. It has better illumination and magnification in comparison of conventional septoplasty which results in reduction of dissection area and less morbidity in patients.

Application of endoscopy in surgical correction of deviated nasal septum was initially used by Lanza DC et al.[3] Park DH et al.[4] and Giles WC et al.[5] evaluated the role of endoscopic septoplasty in comparison of conventional nasal septoplasty. The aim of present study is to compare the outcomes of endoscopic and conventional septoplasty in management of deviated nasal septum.

MATERIAL AND METHODS

Present study was a prospective randomized, conducted in Department of E.N.T. of a tertiary care teaching hospital, Banda, U.P. over a period of one year (January 2019 to December 2019). Fifty cases of symptomatic deviated nasal septum (refractory to conservative medical treatment) of either sex in age group of 16 to 60 years were included in the study. Subjects with nasal mass, nasal polyp and allergic rhinitis were excluded from the study.

Detailed clinical history was taken to find out 5 major symptoms i.e. nasal obstruction, epistaxis, headache, hyposmia and postnasal drip. Radiological examination and nasal endoscopic examination was conducted to find out nasal pathology like deviated nasal septum, chronic sinusitis etc. Patients were divided into two groups (one conventional septoplasty group and other endoscopic septoplasty group, each having 25 patients) based upon received surgical procedure by simple randomization with single blinding method.

Intra-operative parameters like duration of surgery and blood loss during surgery were noted. Post-operative treatment was given and patients were discharged after 48 hours following pack removal. All patients were followed up in OPD post-

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operatively after 7, 14, 28 and 90 days. They were assessed for both subjective improvement of pre-operative symptoms and objective assessment of complications like synechiae formation, persistence of DNS etc. Chi- square test was done for statistical analysis and p value less than 0.05 was considered statistically significant.

RESULTS

Table 1 shows clinic-demographic profile of cases included in present study. In this study, maximum cases (52.0%) belonged to the age group 31-45 years followed by age group 16-30 years (24.0%) and male (56.0%) outnumbered female patients (44.0%). In this study, most common pre-operative symptom was the nasal obstruction (94.0%) followed by postnasal drip (54%) and headache (52%).

Table 2 compares the duration of surgery and volume of blood loss during surgery in both groups. Mean time (in min) taken by conventional septoplasty was 31.32±5.72 while mean time (in min) in endoscopic septoplasty was 23.98.32±4.19. It shows that time taken by endoscopic septoplasty is much lower than conventional septoplasty. Average blood loss (in ml) during endoscopic septoplasty was 55.67±12.84 while blood loss in the conventional septoplasty was 88.46±22.18. It shows that blood loss during conventional septoplasty was higher in comparison of endoscopic septoplasty.

Table 3 shows the post operative subjective and objective assessment in both groups after 3 months. There was improvement in all symptoms after surgery in both groups. Improvement in nasal obstruction was 95.65%, in headache (83.3%), in hyposmia (84.6%), in epistaxis (77.8%) and in postnasal drip (78.57.3%) in endoscopic septoplasty (ES) group while in conventional septoplasty group, improvement of nasal obstruction was (70.83%), in epistaxis (70.0%), in headache (57.1%), in hyposmia (72.7%) and in post nasal drip (46.15%). Above table shows that improvement in symptoms was more in endoscopic septoplasty group in comparison of conventional septoplasty group.

In present study, after 3 month post surgery follow up,

S.No.	Variables	Conventional septoplasty group (n=25)	Endoscopic septoplasty group (n=25)	Total
1	Age group in years			
	16-30 years	4 (16.0%)	8 (32.0%)	12 (24.0%)
	31-45 years	12 (48.0%)	14 (56.0%)	26 (52.0%)
	46-60 years	9 (36.0%)	3(12.0%)	12 (24.0%)
2	Gender			
	Male	14 (16.0%)	14 (16.0%)	28 (56.0%)
	Female	11 (16.0%)	11 (16.0%)	22(44.0%)
3	Pre-operative symptoms			
	Nasal obstruction	24 (96.0%)	23 (92.0%)	47 (94.0%)
	Epistaxis	10 (40.0%)	9 (36.0%)	19 (38.0%)
	Headache	14(56.0%)	12(48.0%)	26 (52.0%)
	Hyposmia	11(44.0%)	13 (52.0%)	24 (48.0%)
	Postnasal drip	13(52.0%)	14 (56.0%)	27 (54.0%)

Table-1: Clinico-demographic Profile of Cases in Present Study

Variables	Conventional septoplasty group	Endoscopic septoplasty group
	Mean± 2SD	Mean± 2SD
Duration of surgery (in minutes)	31.32±5.72	23.98.32±4.19
Volume of blood loss during surgery (in ml)	88.46±22.18	55.67±12.84

Table-2: Comparison of variables during surgery in both groups

Variables	Conventional septoplasty group	Endoscopic septoplasty group	Total
Post-operative subjective assessment (Relief)			
Nasal obstruction	17/24 (70.83%)	22/23 (95.65%)	39/47 (82.9%)
Epistaxis	7/10 (70.0%)	7/9 (77.8%)	14/19 (73.7%)
Headache	8/14(57.1%)	10/12(83.3%)	18/26 (69.2%)
Hyposmia	8/11(72.7%)	11/13 (84.6%)	21/24 (87.5%)
Postnasal drip	6/13(46.15%)	11/14 (78.57%)	17/27 (62.9%)
Post-operative objective assessment			
Synechiae formation	9 (36.0%)	2 (8.0%)	P= 0.028
Residual deviation	11 (44.0%)	2 (8.0%)	P= 0.047
Septal perforation	2 (8.0%)	0 (0.0%)	P= 0.476

Table-3: Post-operative subjective and objective assessment in both groups after 3 months

synechiae development was seen in 9 patients (36.0%) of conventional septoplasty group while it was developed only in 2 patients (8.0%) of endoscopic septoplasty group. Residual deviation was present in 11 (44.0%) patient of conventional groups whereas it was present in only 2 (8.0%) patient of endoscopic group. There was statistically significant difference was present in both groups. (p value <0.05)

DISCUSSION

Present study was conducted in 50 patients of symptomatic nasal septal deviation. They were divided into two groups, one conventional septoplasty group and another endoscopic septoplasty group.

In present study, maximum cases (52.0%) belonged to the age group 31-45 years followed by age group 16-30 years (24.0%) and male (56.0%) outnumbered female patients (44.0%). Similar results were also observed with the study done Mandal S et al.[1] In our study, most common pre-operative symptom was the nasal obstruction (94.0%) followed by postnasal drip (54%) and headache (52%). Findings of studies done by Gulati SP et al.[6] and Nayak DR et al. [7]are also quite similar to findings of present study. In both studies, nasal obstruction was most common complaint in study groups.

In present study, mean time (in min) taken by conventional septoplasty was 31.32±5.72 while mean time (in min) in endoscopic septoplasty was 23.98.32±4.19. It shows that time taken by endoscopic septoplasty is much lower than conventional septoplasty. Average blood loss (in ml) during endoscopic septoplasty was 55.67±12.84 while blood loss in the conventional septoplasty was 88.46±22.18. It shows that blood loss during conventional septoplasty was higher in comparison of endoscopic septoplasty. Study done by Aiyer RG et al.[8] also observed similar results i.e. majority of patient (82%) who underwent endoscopic septoplasty had minimal (<50ml) blood loss as compared to conventional septoplasty group (45%).

Improvement in nasal obstruction was 95.65%, in headache (83.3%), in hyposmia (84.6%), in epistaxis (77.8%) and in postnasal drip (78.57.3%) in endoscopic septoplasty (ES) group while in conventional septoplasty group, improvement of nasal obstruction was (70.83%), in epistaxis (70.0%), in headache (57.1%), in hyposmia (72.7%) and in post nasal drip (46.15%). It shows that improvement in symptoms was more in endoscopic septoplasty group in comparison of conventional septoplasty group. Studies done by various authors (Gulati SP et al.[6], Sindhwani R et al,[9] Harley DH et al.[10]) also observed that there was significant improvement in symptomatic relief in endoscopic septoplasty group in comparison of conventional septoplasty group.

In present study, after 3 month post surgery follow up, synechiae development was seen in 9 patients (36.0%) of conventional septoplasty group while it was developed only in 2 patients (8.0%) of endoscopic septoplasty group. Residual deviation was present in 11 (44.0%) patient of conventional groups whereas it was present in only 2 (8.0%) patient of endoscopic group. There was statistically significant difference was present in both groups. (p value <0.05)

Studies done by various authors (Mandal S et al.,[1] Park DH et al,[4] Nayak DR et al.[7]) also observed that there was more patient satisfaction and less complications in endoscopic septoplasty group in comparison of conventional septoplasty group. Prakash NS et al.[11] also found that statistically significant higher incidence of complication was observed in the conventional group (35%) as compare to the endoscopic group (15%).

CONCLUSION

In present study it was observed that both conventional and endoscopic techniques of septoplasty were very effective in relieving the symptoms, but ES showed lesser complication than conventional septoplasty. Endoscopic septoplasty had showed better results in comparison of conventional method due to better illumination & magnification and due to accurate pathology identification. However, endoscopy has its own limitation like frequent cleaning of tip, loss of binocular vision etc. Small sample size is the major limitation of present study. Therefore in future, there is need for similar studies to evaluate the role of endoscopic septoplasty in deviated nasal septum cases.

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