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ORIGINAL ARTICLE

To compare the outcomes of endoscopic septoplasty and conventional septoplasty for deviated nasal septum in terms of symptomatic improvement and post-operative complications.

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ABSTRACT… Objective: To compare the outcomes of endoscopic septoplasty and conventional septoplasty for deviated nasal septum in terms of symptomatic improvement and post-operative complications. **Study Design:** Randomized Controlled Trial (RCT). **Setting:** Department of ENT Unit 2, Sir Ganga Ram Hospital, Lahore. **Period:** January 15, 2025 and July 14, 2025. **Methods:** A 60-case sample size, 30 cases in 2 groups was included. In group A, patients underwent surgery by endoscopic method under general anesthesia by using a 0-degree endoscope. In group B, patients underwent surgery by conventional method with illumination by headlight, nasal speculum and frees dissector after surgery, nasal cavity was packed with nasal pack soaked with bismuth iodoform paraffin paste. On weekly basis, for 4 weeks, all the patients were monitored in ENT opd. **Results:** 4th week follow up: in endoscopic group the nasal obstruction was found in 1(3.3%) patient and in conventional group it was found in 7(23.3%) patients (p-value=0.023). Endoscopic group the nasal discharge was found in 3(10.0%) patients and in conventional group was found in 10(33.3%) patients (p-value=0.028). In endoscopic group the persistent septal deviation was found in 7(23.3%) patients and in conventional group it was found in 15(50.0%) patients (p-value=0.032). **Conclusion:** This study concluded that endoscopic septoplasty is significantly more effective compared to conventional septoplasty for deviated nasal septum for outcomes in terms of symptomatic improvement and complications after surgery.

Key words: Conventional Septoplasty, Endoscopic Septoplasty, Nasal Septum, Nasal Endoscopy.

INTRODUCTION

There are several causes of occlusal and craniofacial asymmetries, which are frequently observed in the population. Deviated nasal septal growth is a major contributor to skeletal and dental asymmetry.[1] Septoplasty is generally done by using conventional method using headlight. But, recently, the endoscopic method has been introduced as alternative method for septoplasty technique.[2] Endoscopic septoplasty hence reduces surgery time and perioperative complications, but the results in terms of functional improvement were same as with conventional septoplasty.[3] Recent advances in endoscopic techniques have made improvements which are attributable to improved accessibility, improved visualization less need for needless manipulation and improved scope for revision surgery if needed later.[4,5] In a study it has been stated that the nasal obstruction as corrected in 95.5% cases with endoscopic method while in 63.6% cases with conventional method, while persistent septal deviation was noted in 2.73% cases with endoscopic method and in 20.9% cases with conventional septoplasty ($p<0.05$). Adhesion formation has not been seen in endoscopic method and 10% cases in conventional method.[6] Whereas study supported these results and reported that the nasal obstruction as corrected in 96% cases with endoscopic method while in 88% cases with conventional method, nasal discharge was corrected in 100% cases with endoscopic method and 100% in conventional method while residual septal deviation was noted

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in 0% cases with endoscopic method and in 0% cases with conventional septoplasty.[7] The purpose of this research is to compare the results of endoscopic septoplasty versus conventional septoplasty for deviated nasal septum. Literature showed conflicting results regarding the efficacy of endoscopic septoplasty against conventional method. The results of this study will help us to get us the updated results which will be helpful to implement them in local setting.

METHODS

After taking approval from Institutional Ethics Review Committee of Fatima Jinnah Medical University (No.349-synopsis/ENT/ERC Dated: 12.06.25), 60 patients fulfilling the inclusion criteria i.e patients of age group 17-40 years of both genders presenting with deviated nasal septum were enrolled in ENT 2 Sir Ganga Ram Hospital Lahore for the study trial between January 15, 2025 and July 14, 2025 and the patients with history of fracture of nasal bones, gross external nasal deformity or positive history of nasal allergy, vasomotor rhinitis, coagulopathy were not included. Written informed consent was acquired. Details on demographics (name, age, sex, presenting complaint, and symptoms), detailed clinical examination and findings were recorded. Then patients were categorized into two equal groups (1:1 allocation) by using random block technique. In group A, patients underwent surgery by endoscopic septoplasty under general anesthesia with the help of the 0 degree endoscope. In group B, patients underwent conventional septoplasty. Weekly, patients were evaluated for nasal obstruction, nasal discharge and any postoperative persistent septal deviation, septal hematoma and septal abscess in outdoor patient department of ENT with the help of head light and nasal endoscope for 4 weeks. All this data was recorded in proforma. A 60-case sample size, 30 cases in each group was computed using a 95% confidence level, 80% test power, and taking expected percentage of correction of nasal obstruction i.e. 85% with endoscopic septoplasty and 55% with conventional septoplasty for management of deviated nasal septum.

$$n=(Z\alpha/2+Z\beta)^2 * (p1(1-p1) + p2(1-p2))(p1-p2)^2$$

Where
$Z_{a/2}$ = Critical value of normal distribution = 1.96 for 95%
Z_b = Power of test of normal distribution = 0.84 for 85% power of test
P_1 = Group 1 expected proportion = 0.85
P_2 = Group 2 expected proportion = 0.55

SPSS version 25 was used to analyze the collected data. Quantitative factors such as age and illness duration were presented as mean and standard deviation. Qualitative variables like gender and outcome (nasal obstruction, nasal discharge and persistent septal deviation) were presented as frequency and percentage. Chi-square test was used to compare both groups (as outcome variables are categorical in nature). P-value≤0.05 was taken as significant. Data was stratified for age, gender and duration of symptoms. Post- stratification, both groups were compared for outcome by using chi- square test in each stratum. P-value≤0.05 was taken as significant.

RESULTS

The patients were 28.75±7.058 years old on average and the Patients in group A were 26.77±7.07 years old on average, while those in group B were 30.73±6.57 years old on average. This disparity between the two groups was noteworthy, p-value = 0.028. There were 27 (45%) female patients and 33 (55%) male patients in our study. The ratio of males to females was 1.2:1. Figure-1

Male patients made up 19 (63.3%) of group A and 14 (46.7%) of group B. Similarly, there were 11 (36.7%) female patients in group A and 16 (53.3%) female patients in group B. In both groups, this difference was negligible. For example, p-value = 0.194. Table-I

Nasal obstruction was found in 15 (50%) of the patients in group A and 10 (33.3%) of the patients in group B at the 1st week follow-up (p-value=0.190). Four patients (13.3%) in group A and seven patients (23.3%) in group

B had nasal obstruction at the 2nd week follow-up (p-value=0.317). Three patients (10.0%) in group A and six patients (20.0%) in group B had nasal obstruction at the three-week follow-up (p-value=0.472).

At 4th week follow up, in group A the nasal obstruction was found in 1(3.3%) patients and was found in 7(23.3%) patients in group B (p-value=0.023). Table-II

Nasal discharge was found in 14 (46.7%) of patients in group A and 13 (43.3%) of patients in group B at the 1st-week follow-up (p-value=0.795). Eleven patients (39.3%) in group A and thirteen patients (43.3%) in group B had nasal discharge at the two-week follow-up (p-value=0.317). Four patients (13.3%) in group A and eleven patients (36.7%) in group B had nasal discharge at the three-week mark (p-value=0.037). Three patients (10.0%) in group A and ten patients (33.3%) in group B had nasal discharge at the 4th week follow-up (p-value=0.028). Table-III

At 1st week follow up, in group A persistent septal deviation was identified in 10 (33.3%) patients while in group B it was found in 17(56.7%) patients (p-value=0.069). The persistent septal deviation was discovered in 7 (23.3%) of the patients in group A and 15 (50%) of the patients in group B at the 2-week follow-up (p-value=0.032). Six patients (20.0%) in group A and fourteen patients (46.7%) in group B had persistent septal deviation at the three-week follow-up (p-value=0.028). At the 4-week mark, 7 patients (23.3%) in group A and 15 patients (50.0%) in group B had persistent septal deviations (P-value=0.032). Table-IV

Septal hematoma was found in 08 (26.7%) of patients in group A and 07 (23.3%) of patients in group B at the 1st-week follow-up (p-value=0.766).
One (3.3%)patient in group A and two (6.7%) patients in group B had septal hem atoma at the 3rd-week follow-up (p-value=0.554). Table-V

Septal abscess was found in 06 (20%) and 07 (23.3%) of the patients in group A and group B, respectively, at 1st-week follow-up (p-value=0.754).

The septal abscess was discovered in 0 (0%), and 1 (3.3%) of the patients in group A and group B at the 2nd week follow-up (p-value=0.313).

One (3.3%)patient in group A and one (3.3%) patient in group B had a septal abscess at the 3rd week follow-up (p-value=>0.999).Table-IV

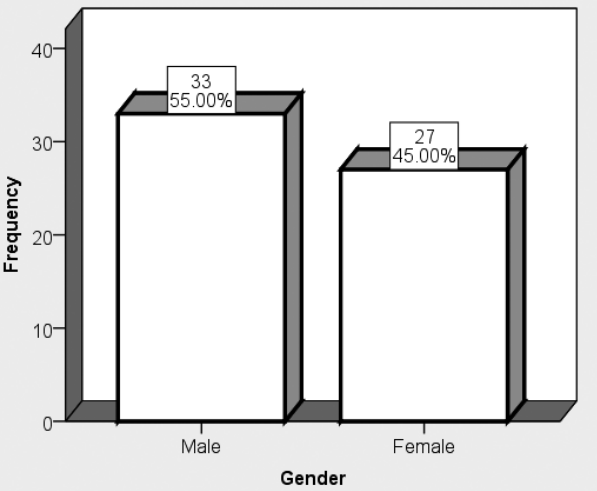

Figure-1

DISCUSSION

Nasal airway obstruction, whether snoring is present or not, is one of the most prevalent grievances observed by otolaryngologists on a daily basis. Nasal blockage is most commonly caused by a septal deviation.[19] Due to increase in number of septal surgery difficulties, a more conservative surgical procedure called septoplasty[20] was invented, and this technique has also been abandoned due to numerous post-operative issues.[7,8] The patients in our study had an average age was 26.77±7.07 years in endoscopic group while 30.73±6.57 years in conventional group. The male-to-female ratio was seen in our study was 1.2:1. In endoscopic group, 19(63.3%) were males and in conventional method, there were 14 (46.7%) males (p-value=0.194). In a study by Islam MA et al, the most prevalent affected group was younger people in their second and third decades.[9]

		Study Groups		Total	P-Value
		Endoscopic	Conventional		
Gender	Male	19 (63.3%)	14 (46.7%)	33 (55.0%)	0.194
	Female	11 (36.7%)	16 (53.3%)	27 (45.0%)	
Total		30 (100%)	30 (100%)	60 (100%)	

Table-I. Comparison of genders in both groups

Nasal Obstruction		Study Groups		Total	P-Value
		Endoscopic	Conventional		
Week 1	Yes	15 (50.0%)	10 (33.3%)	25 (41.7%)	0.190
	No	15 (50.0%)	20 (66.7%)	35 (58.3%)	
Week 2	Yes	4 (13.3%)	7 (23.3%)	11 (18.3%)	0.317
	No	26 (86.7%)	23 (76.7%)	49 (81.7%)	
Week 3	Yes	3 (10.0%)	6 (20.0%)	9 (15.0%)	0.472
	No	27 (90.0%)	24 (80.0%)	51 (85.0%)	
Week 4	Yes	1 (3.3%)	7 (23.3%)	8 (13.3%)	0.023
	No	29 (96.7%)	23 (76.7%)	52 (86.7%)	

Table-II. Comparison of nasal obstruction at 1 to 4th week follows up in both groups

Nasal Discharge		Study Groups		Total	P-Value
		Endoscopic	Conventional		
Week 1	Yes	14 (46.7%)	13 (43.3%)	27 (45.0%)	0.795
	No	16 (53.3%)	17 (56.7%)	33 (55.0%)	
Week 2	Yes	11 (39.3%)	13 (43.3%)	24 (41.4%)	0.754
	No	17 (60.7%)	17 (56.7%)	34 (58.6%)	
Week 3	Yes	4 (13.3%)	11 (36.7%)	15 (25.0%)	0.037
	No	26 (86.7%)	19 (63.3%)	45 (75.0%)	
Week 4	Yes	3 (10.0%)	10 (33.3%)	13 (21.7%)	0.028
	No	27 (90.0%)	20 (66.7%)	47 (78.3%)	

Table-III. Comparison of nasal discharge at 1 to 4th week follows up in both groups

Persistent Septal Deviation		Study Groups		Total	P-Value
		Endoscopic	Conventional		
Week 1	Yes	10 (33.3%)	17 (56.7%)	27 (45.0%)	0.069
	No	20 (66.7%)	13 (43.3%)	33 (55.0%)	
Week 2	Yes	7 (23.3%)	15 (50.0%)	22 (36.7%)	0.032
	No	23 (76.7%)	15 (50.0%)	38 (63.3%)	
Week 3	Yes	6 (20.0%)	14 (46.7%)	20 (33.3%)	0.028
	No	24 (80.0%)	16 (53.3%)	40 (66.7%)	
Week 4	Yes	7 (23.3%)	15 (50.0%)	22 (36.7%)	0.032
	No	23 (76.7%)	15 (50.0%)	38 (63.3%)	

Table-IV. Comparison of persistent septal deviation at 1 to 4th week follows up in both groups

Septal Hematoma		Study Groups		Total	P-Value
		Endoscopic	Conventional		
Week 1	Yes	8 (26.7%)	7 (23.3%)	15 (25.0%)	0.766
	No	22 (73.3%)	23 (76.7%)	45 (75.0%)	
Week 2	Yes	1 (3.3%)	1 (3.3%)	2 (3.3%)	>0.999
	No	29 (96.7%)	29 (96.7%)	58 (96.7%)	
Week 3	Yes	1 (3.3%)	2 (6.7%)	3 (5.0%)	0.554
	No	29 (96.7%)	28 (93.3%)	57 (95.0%)	
Week 4	Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.032
	No	30 (100%)	30 (100%)	60 (100%)	

Table-V. Comparison of septal hematoma at 1 to 4th week follows up in both groups

Septal Abscess		Study Groups		Total	P-Value
		Endoscopic	Conventional		
Week 1	Yes	6 (20.0%)	7 (23.3%)	13 (21.7%)	0.754
	No	24 (80.0%)	23 (76.7%)	47 (78.3%)	
Week 2	Yes	0 (0.0%)	1 (3.3%)	1 (1.7%)	0.313
	No	30 (100%)	29 (96.7%)	59 (98.3%)	
Week 3	Yes	1 (3.3%)	1 (3.3%)	2 (3.3%)	>0.999
	No	29 (96.7%)	29 (96.7%)	58 (96.7%)	
Week 4	Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.032
	No	30 (100%)	30 (100%)	60 (100%)	

Table-VI. Comparison of septal abscess at 1 to 4th week follows up in both groups

The findings of our study agree with those of Rao et al. Overall, deviated nasal septum is more common in males, according to study.[10] Another study done by Park DH et al., in the conventional group, the mean age at presentation was 31.72 7.53 years, endoscopic group it was 28.47 8.79 years.[10] In this study at 4th week follow up: in endoscopic group the nasal obstruction was found in 1(3.3%) patient and in conventional group was found in 7(23.3%) patients (p-value=0.023). In endoscopic group the nasal discharge was found in 3(10.0%) patients and in conventional group 10(33.3%) patients (p-value=0.028). In endoscopic group the persistent septal deviation was found in 7(23.3%) patients and in conventional group was found in 15(50.0%) patients (p-value=0.032). Septal hematoma, septal abcess and septal adhesion both groups were equally effective. In the era of septal surgery, it has been observed that endoscopic septoplasty is better alternative to conventional septoplasty.[12] According to Harley et al., patients with nasal blockage and headache in the endoscopic group improved much more than those in the conventional group.[13] Endoscopic-assisted septoplasty group was found to be more effective in correcting nasal symptoms such as nasal blockage and headache in research by Nayak et al.[14] Endoscopic surgery, according to Pokharel et al., is an evolutionary step toward eliminating the issues associated with a deviated nasal septum. It is a less invasive, safe, and successful alternative to traditional septal surgery.[15,16]

CONCLUSION

This study concluded that endoscopic septoplasty is significantly more effective as compared to conventional septoplasty for deviated nasal septum for outcomes in terms of symptomatic improvement and complications after surgery.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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1	**Waqas Javaid:** Data collection, drafting, proof reading, approval for publication.
2	**Muhammad Usman Khalid Amin:** Study concept, design, critical revision, approval for publication.
3	**Saleha Safdar:** Study concept, design, critical revision, approval for publication.
4	**Muhammad Fawwad Khan:** Literature review, data analysis, study concept and design, critical revision.
5	**Ziaullah:** Review of manuscript, approval for publication.
6	**Azka Khalid:** Data entry, approval for publication.