COMPARATIVE STUDY OF ENDOSCOPIC SEPTOPLASTY VERSUS CONVENTIONAL SEPTOPLASTY

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ABSTRACT

Background: Deviated nasal septum (DNS) is a very common condition which leads to nasal obstruction, headache, sinusitis, epistaxis and obstructive sleep apnea. Septoplasty is most frequent procedures carried out for DNS correction.

Objective: To compare the surgical outcome of corrected deviated nasal septum with endoscopic septoplasty and conventional septoplasty.

Method: It was a comparative study in which 60 patients with deviated nasal septum were randomly selected from ENT Department of Lahore General Hospital Lahore. Patients were divided into 2 groups like group A having 30 patients and group B another 30 patients. Group A patients underwent endoscopic septoplasty and Group B patients experienced conventional septoplasty.

Results: Among 30 patients who underwent endoscopic septoplasty, 70.0% were males and 60.0% were upto 30 years old while among 30 patients who underwent conventional septoplasty, 76.7% were males and 56.7% were upto 30 years old. Among patients treated with endoscopic septoplasty, 10.0% had nasal blockage, 6.7% postnasal drip, 16.7% headache and 16.7% patients had septal deviation after surgery. Likewise among patients treated with conventional septoplasty, 13.3% had nasal blockage, 10.0% postnasal drip, 26.7% headache and 23.3% patients had septal deviation after surgery.

Conclusion: Study concluded that endoscopic septoplasty is superior to conventional septoplasty and patients treated with endoscopic septoplasty had better outcome regarding nasal blockage, postnasal drip, headache and septal deviation.

Keywords: Endoscopic septoplasty, conventional septoplasty, nasal blockage, septal deviation, postnasal drip

INTRODUCTION

Nasal septum is considered a major structure for the nasal stability and functions.[1] The DNS is a most common reason of nasal obstruction.[2] Aside from the nasal blockage, a significantly DNS has been concerned regarding sinusitis, epistaxis, headaches and obstructive sleep apnea due to contact points with lateral nasal wall structures.[3,4] Among general population, almost 80% has DNS to some extent[5] and can be found in any gender as well as age group, with preponderance among males.[6] Nasal septal deviation is seen among 89 percent adults, 37 percent children and 19 percent newborns. Though various factors could lead to NSD formation while microfractures and trauma are the most frequent causes during birth which are possible to cause unevenness in nasal septum of children or newborns.[1]

Several methods have been explained for the correction of septal deviations since mid of nineteenth century. Numerous modifications have been made since its commencement.[7] Surgery has progressed on DNS from drastic septal cartilage removal to just minimal cartilage excision recognized as septoplasty. Currently, the notion of tissue maintenance provides enough support to nose and avert scaring as well.[8]

During 1947, first stated by Cottle, conventional septoplasty is one of the conservative surgical treatments wherein just deviated section is eliminated leaving at the back as much the cartilage and the bone as possible. The conventional septoplasty (CS) has enhanced morbidity caused by poor visualization, poor illumination, comparative inaccessibility, problem in the assessment of correct pathology, nasal packing requirement, resection, needless manipulation and septal framework overexposure decreasing the possibility of revision surgery.[9] For the correction of septal malformations endoscopic method was firstly described during 1991 by Stammberger and Lanza et al.[10] Lanza et al. explained a comprehensive

endoscopic technique during 1993 for isolated septal spurs treatment.[11]

Endoscopic septoplasty (ES) is a rapid developing idea and getting popularity due to its potentially unimportant objective and subjective morbidity and hence is a possible option to CS. It is an invasive method that assists in correcting septal malformations under the endoscopic vision. Distinct septal pathologies for example isolated deflection, perforations, contact points and spurs can be dealt in directed manner. Also the lateral wall structures such as middle and inferior turbinate can endoscopically be treated to relieve contact areas causing a functionally progressed airway. Hence, it is not just helpful to treat symptomatic nasal blockage but also to improve intra-operative surgical access to middle meatus, like an initial step to the endoscopic dacrocystorhinostomy as well as endoscopic sinus surgical treatments. In addition, endoscopic technique is quite helpful in revision septoplasty. During such cases, scarring due to prior septal operation obscures the normal tissue planes, causing enhanced mucosal tearing risk with resultant septal perforation. It is feasible with endoscope to see division of the collagenous fibres linking periostium and perichondrium to the underlying cartilage and bone during the surgical dissection.[12]

Endoscopic septoplasty was observed to be greatly useful in managing nasal polyposis as well as lateral wall deformities. Also, it is performed as earlier procedure in various intra-nasal surgical procedures required gap for instruments. The ES is one of the excellent tools for nasal cavities examination following the septoplasty during early and late postoperative periods.[13]

Among surgeons, septoplasty is most frequent surgery but difficult septum still present a significant surgical challenge.[14] The ES is very helpful option, with numerous advantages over CS, pre-, intra- and postoperatively.[15] Several researches have sought to show interest of the endoscopy but very few involved comparison with the conventional septoplasty.[16] Therefore present study aims to compare the outcomes of endoscopic and conventional septoplasty among patients.

MATERIAL AND METHODS

It was a comparative study in which 60 patients with deviated nasal septum were randomly selected from ENT Department of Lahore General Hospital Lahore. Patients were divided into 2 groups like group A having 30 patients and group B another 30 patients. Group A patients underwent endoscopic septoplasty and Group B patients experienced conventional septoplasty. All the patients with deviated nasal septum of both genders with nasal blockage, nasal discharge, headache, loss of smell, postnasal drip, pharyngitis and septal deviation were included in the study while those patients who had history of nasal allergy and fracture nose with gross external nasal deformity were excluded from study. Data was collected through proforma which was entered into computer software SPSS (Statistical Package for the Social Sciences) version 22.0. Frequencies and percentages were calculated and data was presented in tables and figures. Confidentiality of data was ensured and proper consent was obtained before data collection.

RESULTS

Table-1 demonstrates that among 30 patients who underwent endoscopic septoplasty, 21 (70.0%) were males and 9 (30.0%) were female patients.

Likewise among 30 patients who underwent conventional septoplasty, 23 (76.7%) were males and 7 (23.3%) were female patients.

Table further indicates that among patients who experienced endoscopic septoplasty, 18 (60.0%) were upto 30 years old, 7 (23.3%) were 31-40 years old and 5 (16.7%) were 41-45 years old. The mean age of patients was 29.7 ± 3.9 years.

Among patients who were treated with conventional septoplasty, 17 (56.7%) were upto 30 years old, 11 (36.7%) were 31-40 years old and only 2 (6.6%) patients were 41-45 years old. The mean age of patients was 31.2 ± 2.7 years.

Table-2 shows the sign and symptoms among patients and found that out of 30 patients who experienced endoscopic septoplasty, all (100.0%) had nasal blockage, 7 (23.3%) nasal discharge, 26 (86.7%) headache, 24 (80.0%) loss of smell, 30 (100.0%) postnasal drip, 28 (93.3%) pharyngitis and 30 (100.0%) patients had septal deviation.

Among 30 patients who experienced conventional septoplasty, 30 (100.0%) had nasal blockage, 9 (30.0%) nasal discharge, 28 (93.3%) headache, 27 (90.0%) loss of smell, 30 (100.0%) postnasal drip, 29 (96.7%) pharyngitis and 30 (100.0%) patients had septal deviation.

Table-3 indicates that among 30 patients who experienced endoscopic septoplasty, only 3 (10.0%) had nasal blockage, 2 (6.7%) postnasal drip, 5 (16.7%) headache and 5 (16.7%) patients had septal deviation after surgery.

Among 30 patients who were treated with conventional septoplasty, 4 (13.3%) had nasal blockage, 3 (10.0%) postnasal drip, 8 (26.7%) headache and 7 (23.3%) patients had septal deviation after surgery.

Table-1: Patients' profile

	Endoscopic Septoplasty		Conventional Septoplasty	
	No.	**%age**	**No.**	**%age**
Sex				
Male	21	70.0	23	76.7
Female	9	30.0	7	23.3
Total	30	100.0	30	100.0
Age				
Upto 30 years	18	60	17	56.7
31-40 years	7	23.3	11	36.7
41-45 years	5	16.7	2	6.6
Total	30	100.0	30	100.0
Mean±SD	29.7 ± 3.9		31.2 ± 2.7	

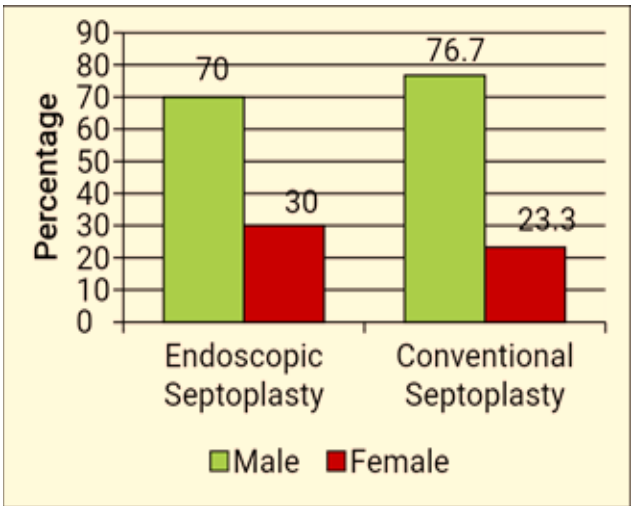

Figure-1: Gender of patients

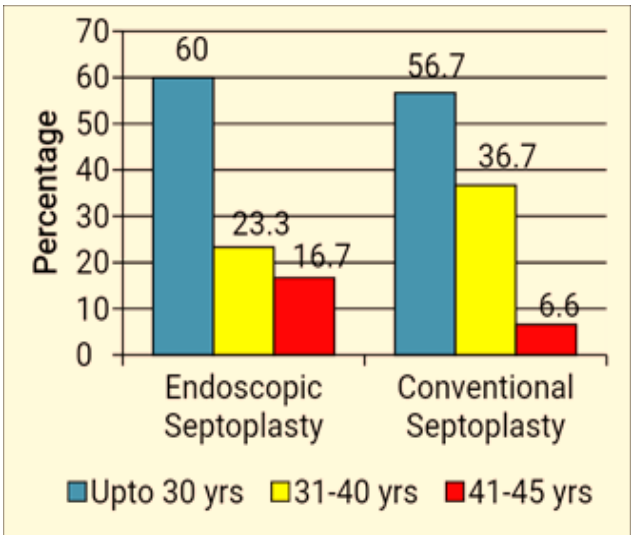

Figure-2: Age of patients

Table-2: Sign and symptoms

	Endoscopic Septoplasty		Conventional Septoplasty	
	Yes	**No**	**Yes**	**No**
Nasal blockage	30 (100.0%)	0 (0.0%)	30 (100.0%)	0 (0.0%)
Nasal discharge	7 (23.3%)	23 (76.7%)	9 (30.0%)	21 (70.0%)
Headache	26 (86.7%)	4 (13.3%)	28 (93.3%)	2 (6.7%)
Loss of smell	24 (80.0%)	6 (20.0%)	27 (90.0%)	3 (10.0%)
Postnasal drip	30 (100.0%)	0 (0.0%)	30 (100.0%)	0 (0.0%)
Pharyngitis	28 (93.3%)	2 (6.7%)	29 (96.7%)	1 (3.3%)
Septal deviation	30 (100.0%)	0 (0.0%)	30 (100.0%)	0 (0.0%)

Table-3: Surgical outcomes

	Endoscopic Septoplasty		Conventional Septoplasty	
	Yes	**No**	**Yes**	**No**
Nasal blockage	3 (10.0%)	27 (90.0%)	4 (13.3)	26 (86.7%)
Postnasal drip	2 (6.7%)	28 (93.3%)	3 (10.0%)	27 (90.0%)
Headache	5 (16.7%)	25 (83.3%)	8 (26.7%)	22 (73.3%)
Septal deviation*	5 (16.7%)	25 (83.3%)	7 (23.3%)	23 (76.7%)

DISCUSSION

Deviated nasal septum is most common condition that leads to nasal obstruction, sinusitis, epistaxis, loss of smell and headache. Septoplasty is a most frequent procedure performed to correct the deviated nasal septum. Current study was conducted to compare the outcomes of endoscopic and conventional septoplasty among patients. To obtain accurate results 60 patients were included in the study and divided into two equal groups (endoscopic septoplasty group and conventional septoplasty group). Study revealed that among patients treated with endoscopic septoplasty, 70.0% were males and 30.0% were females while among patients treated with conventional septoplasty, 76.7% were males and 23.3% were females showing that in both groups male patients were in majority. The findings of our study are comparable with a study carried out by Uz and Eskiizmir (2018) who also confirmed that males were in majority as 62.9% patients treated with endoscopic septoplasty and 55.6% patients treated with conventional septoplasty were males.[1]

The findings of study demonstrated that in endoscopic septoplasty group, most of the patients (60.0%) were upto 30 years old, 23.3% were 31-40 years old and 16.7% patients were more than 40 years old. Likewise in conventional septoplasty group, more than half (56.7%) of patients were upto 30 years old, 36.7% were 31-40 years old and 6.6% patients were more than 40 years old. Similar results were also provided by a study performed by Suraneni and coworkers (2018) who reported that in endoscopic group majority of patients (74.0%) were upto 30 years old and 26.0% were 31-40 years old while in conventional group major proportion (84.0%) of patients were also upto 30 years old, 12.0% were 31-40 years old and 4.0% patients were more than 40 years old.[13]

As far as sign and symptoms are concerned, study indicated that among patients who underwent endoscopic septoplasty, all (100.0%) had nasal blockage, postnasal drip and septal deviation, followed by pharyngitis (93.3%), headache (86.7%), loss of smell (80.0%) and nasal discharge (23.3%). Similarly among patients who underwent conventional septoplasty, 100.0% had nasal blockage, postnasal drip and septal deviation, followed by pharyngitis (96.7%), headache (93.3%), loss of smell (90.0%) and nasal discharge (30.0%). A study undertaken by Suraneni and coworkers (2018) indicated that all (100.0%) patients in endoscopic group had nasal blockage, followed by headache (56.0%), postnasal drip (16.0%), nasal discharge (14.0%) and loss of smell (6.0%). In conventional group, also 100.0% patients had nasal blockage, followed by headache (44.0%), loss of smell (16.0%), postnasal drip (6.0%) and nasal discharge (6.0%).[13]

When the surgical outcomes were compared among both groups' patients, study indicated that endoscopic septoplasty is superior to conventional septoplasty. Among patients who underwent endoscopic septoplasty, only 10.0% had nasal blockage, 6.7% postnasal drip, 16.7% headache and 16.7% septal deviation while among patients who were treated with conventional septoplasty, 13.3% had nasal blockage, 10.0% postnasal drip, 26.7% headache and 23.3% had septal deviation after surgery. The results of our study exhibited better scenario than the study performed by Jain and teammates (2011) who asserted that among patient treated with endoscopic septoplasty 96.0%, 40.0% and 54.0% had nasal blockage, postnasal drip and headache while 38.0%, 18.0% and 50.0% patient treated with conventional septoplasty had nasal blockage, postnasal drip and headache, respectively.[4] Another study carried out by Iqbal and fellow (2013) demonstrated that patients who experienced endoscopic septoplasty, 95.5% had nasal obstruction, 40.0% postnasal drip and 59.1% headache while among patients who underwent conventional septoplasty, 63.6% had nasal obstruction, 20.0% postnasal drip and 50.0% patients had headache.[8]

CONCLUSION

Endoscopic septoplasty improves septal deviation visualization, particularly in inferior and posterior area, reduces operative time and offer better anatomic result with less residual deviation and synechia. It also reduces residual pain and hospital stay. Study concluded that both techniques showed better outcomes but endoscopic septoplasty is superior to conventional septoplasty and patients treated with endoscopic septoplasty had better outcome regarding nasal blockage, postnasal drip, headache and septal deviation. Further studies are needed on large scale to compare the outcomes of both techniques to boost the quality of life among patients.

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