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Comparing the outcome of septoplasty and septoplasty with turbinectomy in patients with deviated nasal septum

Nayanna Karodpati, Mayur Ingale*, Sharad Rawat, Vinayak Kuradagi

Department of ENT, Dr D Y Patil Medical College, DPU, Pune, Maharashtra, India

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***Correspondence:**
Dr. Mayur Ingale,
E-mail: dr.mayuringale@gmail.com

ABSTRACT

Background: Deviated nasal septum is a bodily disorder results in nasal obstruction. Many surgical procedures are available in correcting the disorder. The present study aimed to compare the surgical outcome of septoplasty alone and septoplasty with turbinectomy in patients with deviated nasal septum.
Methods: This prospective study was done on 50 patients attending to the department of ENT of Dr. D. Y. Patil Medical College and Hospital, DPU with complaints of nasal obstruction due to inferior turbinate hypertrophy with deviated nasal septum. The severity of nasal obstruction was assessed by NOSE (nasal obstruction symptom evaluation) scale. Of them, 25 patients were managed with septoplasty alone and other 25 patients with septoplasty and turbinectomy. The outcome of both the procedures was assessed statistically by using NOSE scale.
Results: Postoperative symptom improvement was seen in the both groups following surgery ($p<0.05$). When the NOSE scores are compared between two groups, statistically significant improvement in the symptoms (NOSE score) was seen in the group of patients treated with septoplasty and turbinectomy compared to septoplasty alone ($p<0.05$).
Conclusions: This study re-iterates both septoplasty and concurrent turbinectomy are established mode of treatment in deviated nasal septum along with hypertrophy of inferior turbinates when the preoperative and postoperative symptoms are compared. However, the symptomatic outcomes and diagnostic nasal endoscopic findings are significantly better in patients who underwent septoplasty with concurrent resection of the inferior turbinate.

Keywords: Nasal obstruction, Septoplasty, Septoplasty with turbinectomy, NOSE score

INTRODUCTION

Nasal obstruction is one of the prime complaints in the practice of oto-rhino-laryngology. Inferior turbinate hypertrophy and deviated nasal septum have been the most common causes of nasal obstruction.[1] Various procedures are available in assessing the severity of nasal obstruction. The popularly known method was employing NOSE (nasal obstruction symptom evaluation) scale for evaluating the severity of nasal symptoms. In this scale questionarre consisting of 5 symptoms are available (nasal blockage or obstruction, nasal congestion or stuffiness, trouble in sleeping, unable to get enough air through nose during exercise or exertion, trouble breathing through my nose) which gives better assessment of severity of the patient's condition and quality of life.[2]

Septoplasty is a common procedure which is done when there is a deviation of the nasal septum which is leading to nasal obstruction in the patient. Sometimes there is only a simple deviation which does not cause any symptoms. In such cases surgical correction is not needed but when the deviation starts causing obstruction, the surgical correction is a necessity. Sometimes along with the deviated septum patients may witness the turbinate

hypertrophy which needs to surgical management to achieve complete relief. Inferior turbinate hypertrophy is commonly carried out and it can be done with the help of various techniques which increases the nasal cavity and provides more room for the airflow. Mainotorhinolaryngologists perform septoplasty with or without turbinectomy surgeries and the necessity depends on clinical evidences. The current study compares the efficacy or outcome of the two procedures septoplasty combined with turbinectomy and septoplasty alone**.**

METHODS

This prospective study was done between July 2016 to September 2018 at Dr. D. Y. Patil Medical College and Hospital, DPU. During this period, 50 patients aged 18 to 50 years with deviated nasal septum with inferior turbinate hypertrophy were enrolled in the study. Patients below the age of 18 years and patients above the age of 50 years, patients with previous septal surgery, Patients of deviated nasal septum with allergic rhinitis, pregnant women, and patients with chronic sinonasal problem-nasal polyp, sino nasal tumour were excluded from the study.

Among 50 patients, 25 were subjected to septoplasty alone and rest 25 was subjected to septoplasty combined with turbinectomy in a randomised method. The NOSE scale was used preoperatively and postoperatively to evaluate the symptomatic relief to the patient.

After getting approval from institutional ethics committee, the participants of the study were informed about the purpose and details of the study and a written informed consent was taken prior to the participation in the study. A detailed clinical examination of the nasal cavity including examination anterior and posterior rhinoscopy was done. This was followed by nasal endoscopy in each patient with a 0° and 30° endoscope. Nasal decongestant spray was used wherever it was necessary and 4% xylocaine was used for topical anesthesia. All the patients underwent X-ray paranasal sinuses. Routine blood and urine investigations were conducted on every patient and pre anaesthetic fitness was taken. Procedure will be conducted under local anaesthesia.

Study procedure

Xylocaine (2%) with adrenaline infiltrated on the septum and when turbinectomy is planned, it's given on inferior turbinate also. Freer's incision taken, muco-perichondrial and muco-periosteal flaps elevated. Deviated part of cartilage removed. Deviated part of the bony septum also removed. In patients with septoplasty combined with turbinectomy, turbinectomy is done using the standard methods. Bilateral nasal cavity packed with ointment soaked anterior nasal packs. Pack removed after 48 hours. Postoperatively IV antibiotics, analgesics and anti histaminics were given to the patients. Patient was asked to follow up after 1 week and 4 weeks.

Statistical analysis

Data was analysed using SPSS (version 17) software. Results are expressed as Mean±SD for continuous data. Unpaired t test was used for intergroup comparisons of means of two groups. Categorical data was analysed by chi-square test. A P value of 0.05 or less was considered as statistical significance.

RESULTS

A total of 50 patients attending to the department of ENT, Dr. D. Y. Patil Medical College and Hospital, DPU with complaints of nasal blockage due to inferior turbinate hypertrophy with deviated nasal septum were included in the study. After getting consent from the patients, 25 patients underwent septoplasty and other 25 patients were operated septoplasty combined with turbinectomy.

Preoperative analyses of NOSE score showed a high value in all the patients of both groups. Significant improvement of NOSE scores was seen in both the groups postoperatively (Table 1 and 2).

But when NOSE scores are compared between the two groups pre and postoperatively, patients who underwent septoplasty combined with turbinectomy had significantly lower NOSE score when compared to the group of patients who underwent septoplasty alone (Table 3).

Table 1: Pre-operative vs. postoperative NOSE score comparison in septoplasty patients.

NOSE score	Preoperative	Postoperative	P value	Inference
Nasal blockage or obstruction	3.4±0.65	2.6±0.5	<0.05	Significant
Nasal congestion or stuffiness	3±0.57	2.08±0.49	<0.05	Significant
Trouble sleeping	3.2±0.64	2.48±0.509	<0.05	Significant
Unable to get enough air through my nose during exercise or exertion	2.72±0.61	1.96±0.454	<0.05	Significant
Trouble breathing through my nose	2.72±0.61	2.04±0.35	<0.05	Significant
Total score	15.04±1.83	11.16±1.1	<0.05	Significant

Table 2: Preoperative vs. postoperative score in septoplasty and turbinectomy patients.

NOSE score	Pre-operative	Postoperative	P value	Inference
Nasal blockage or obstruction	3.68±0.47	1.68±0.47	<0.05	Significant
Nasal congestion or stuffiness	3.24±0.43	1.56±0.506	<0.05	Significant
Trouble sleeping	3.24±0.59	1.76±0.435	<0.05	Significant
Unable to get enough air through my nose during exercise or exertion	2.92±0.64	1.56±0.506	<0.05	Significant
Trouble breathing through my nose	3.16±0.55	2.04±0.454	<0.05	Significant
Total score	16.24±1.39	8.6±1.19	<0.05	Significant

Table 3: Postoperative NOSE score comparison between two groups.

NOSE score	Septoplasty	Septoplasty + turbinectomy	P value	Inference
Nasal blockage or obstruction	2.6±0.5	1.68±0.47	<0.05	Significant
Nasal congestion or stuffiness	2.08±0.49	1.56±0.506	<0.05	Significant
Trouble sleeping	2.48±0.509	1.76±0.435	<0.05	Significant
Unable to get enough air through my nose during exercise or exertion	1.96±0.454	1.56±0.506	<0.05	Significant
Trouble breathing through my nose	2.04±0.35	2.04±0.454	>0.05	Non-significant
Total score	11.16±1.1	8.6±1.19	<0.05	Significant

Table 4: Postoperative diagnostic nasal endoscopy findings in patients who underwent septoplasty and septoplasty with turbinectomy.

Diagnostic findings	Septoplasty	Septoplasty with turbinectomy
Adequate space on both side	0	25
Inadequate space on both sides	10	0
Inadequate on left side	6	0
Inadequate on right side	9	0

A diagnostic nasal endoscopic was done in the patients at follow up in postoperative patients. The adequacy of the nasal cavity was visualized. In patients who underwent septoplasty with turbinectomy, all patients had adequate cavity on both the sides. However, this differed in patients who underwent septoplasty alone (Table 4).

DISCUSSION

The study was started with the aim of comparing the outcome of septoplasty and septoplasty combined with turbinectomy in the patients with symptomatic deviated nasal septum. The study population chosen was scrutinized with proper implementation of the inclusion criteria. The patients who developed upper respiratory tract infections and sinusitis after enrolling into the study or during the process of preparation for anaesthetic fitness were excluded from the study. The patients who had allergic symptoms and vasomotor rhinitis and related symptomatology were excluded from the study. Also patients with confounding factors altering the healing like those who are diabetic, hypertensive or coronary artery disease patients taking aspirin were excluded from the study. Randomised pattern was followed for selection of the patients for both the procedures.

In our study it was observed that patients had significant symptomatic improvement after undergoing septoplasty. From the findings of the study, it can be safely predicted that septoplasty is an effective modality in alleviating symptoms like nasal obstruction, trouble sleeping, difficult breathing through the nose and nasal stuffiness. The study by Konstantinidis et al evaluated that after septoplasty patients experienced considerable improvement symptomatically.[4]

In a study conducted by Bandos et al, it was observed that patients undergoing septoplasty with turbinectomy had considerable improvement post operatively with marked reduction in nasal obstruction. It was observed that inferior turbinectomy is beneficial in relieving the symptoms owing to reduction in mucosal surface of inferior turbinate.[5] In another similar study conducted by Neumann et al it was concluded that nasal septum surgeries with turbinoplasty is more effective approach for alleviating symptoms of the patients.[6] Another study by Egeli et al also advocates septoplasty with turbinectomy as an effective modality of treatment.[7] In our study it was observed that patients undergoing septoplasty with turbinectomy had marked improvement symptomatically and we can assume that it's a safe

modality of treatment for symptomatic deviated nasal septum.

In a comparative study done Dinesh Kumar et al on efficacy of septoplasty vis-à-vis septoplasty with turbinectomy it was observed that in septoplasty with turbinectomy is a more effective modality in treatment of symptomatic deviated nasal septum.[3] He also deduced that the number of postoperative complications were less in the group which underwent septoplasty with turbinectomy than the group which was operated by septoplasty alone. In the other similar study by Stolzel et al, it was observed that septoplasty with turbinectomy is more effective in relieving the symptoms.[8] There was a significant subjective and objective improvement in patients following the surgery. In our study it was observed that septoplasty with turbinectomy is more effective in treatment of symptomatic deviated nasal septum. Patients who underwent septoplasty with turbinectomy have a statistically and clinically significant reduction in symptoms of nasal blockage, nasal congestion, trouble sleeping and breathing through the nose at any given time.

The findings of the study, were further confirmed on diagnostic nasal endoscopy wherein all patient who underwent septoplasty with turbinectomy had adequate nasal space in the nasal cavity on both sides as compared to septoplasty alone wherein none of the patients had adequate nasal room in both the cavity both sides, 60% patients had adequate nasal space only on one side and 40% patients had inadequate space. It would be at the discretion of treating surgeon to decide whether to proceed with septoplasty alone or a combination of septoplasty with turbinectomy. It has to be kept in mind that both surgeries are effective in dealing with symptomatic complaints the patient faces but turbinectomy provides an adequate nasal room in the cavity bilaterally. The other studies also corroborated with improvements in symptoms subsequent to correction of deviated nasal septum when compared to our study.[10-13]

In brief, the choice of surgical technique should be taken into consideration, in addition to the local anatomy and nasal physiology. Breathing well through the nose requires adequate air space and nasal sensation [48-49]. In our study it was seen that septoplasty with turbinectomy is more effective in treatment of symptomatic deviated nasal septum. Patients who underwent septoplasty with turbinectomy have a statistically and clinically significant reduction in symptoms of nasal blockage, nasal congestion, trouble sleeping and breathing through the nose at any given time.

CONCLUSION

The findings of the study concluded that septoplasty combined with turbinectomy has more efficacy when compared to septoplasty alone in the selected cases having symptomatic deviated nasal septum with inferior turbinate hypertrophy.

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