

# Effect Of Septoplasty In Patients With Allergic Rhinitis: A Prospective Study

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## Abstract

**Introduction:** Septal deviation and turbinate hypertrophy are among the most common structural causes of symptomatic nasal obstruction in adult patients. Not surprisingly, given the high incidence of nasal septal deviation, septoplasty is one of the most frequently performed procedures by otolaryngologists annually. **Objective:** Examine outcomes of septoplasty with allergic rhinitis patients and analyse the improvement in symptoms of Allergic rhinitis. **Setting:** Department of Otorhinolaryngology, in Combined Military Hospital, Rangpur and *Border Guard Hospital*, Bangladesh. **Subjects and Methods:** The study was conducted in Department of Otorhinolaryngology, Combined Military Hospital, Rangpur and *Border Guard Hospital*, Bangladesh during the period of January 2018 to February 2020. 48 patients enrolled in the study during this time period. **Results:** NOSE scores improved significantly in both groups at 3 and 6 months postoperatively. Results were sustained from 3 to 6 months: Out of 48 patients who underwent septoplasty, 39 patients had symptomatic relief from the allergic rhinitis. There is improvement in NOSE score and visual analogue score. 9 patients did not get relieved after the surgery. **Conclusion:** In conclusion, this is the first research about the potential effect of septoplasty on the clinical course of allergic rhinitis. Further large population-based studies with histopathological examination are needed to elucidate the mechanisms underlying these effects.

**Keywords—***Septal Deviation, Allergic Rhinitis, Septoplasty.*

## I Introduction

Septal deviation and turbinate hypertrophy are among the most common structural causes of

symptomatic nasal obstruction in adult patients. Not surprisingly, given the high incidence of nasal septal deviation, septoplasty is one of the most frequently performed procedures by otolaryngologists annually [1]. Correction of the septal deformity has been shown to have a significant benefit on disease-specific (nasal obstruction) quality of life [2]. As a separate (often comorbid) condition, allergic rhinitis is one of the more common causes of reversible, in many patients, both nasal septal deviation and allergic rhinitis can contribute to the continuum of symptoms of nasal obstruction and/or nasal congestion [3]. Yet there is little research into the outcomes of septal surgery on patients with comorbid allergic rhinitis. It has been suggested that surgeons “proceed with caution” in patients with concomitant allergic rhinitis and nasal septal deviation as the “allergic rhinitis patients are more likely to be less satisfied after septoplasty” as compared to the nonallergic patient [4]. Treatment of AR is a much more complex issue, including medication, avoidance of the causative allergen, desensitization and the use of a variety of surgical techniques, which mainly aim at the reduction of the size of the inferior turbinates. When allergic rhinitis and nasal septum deviation coexist, the patient may undergo septoplasty combined with some form of volume reduction of the inferior turbinates. When deciding on the best therapeutic strategy for patients with nasal pathology one must have a tool for the assessment of subjective symptoms. The Nasal Obstruction Symptom Evaluation (NOSE) Scale is a disease-specific quality of life instrument for use in nasal obstruction, developed.

## II Materials and Methods

The study was conducted in Otorhinolaryngology Dept. in Combined Military Hospital, Rangpur and *Border Guard Hospital*, Bangladesh during the period

of January 2018 to February 2020. 48 patients enrolled in the study during this time period. Patients with nasal septal deviation were chosen based on their complaint about difficulty in nasal breathing and diagnosis of NSD was made based solely on rhinoscopic findings. AR subjects were included regardless of recent local medication use, but patients receiving systemic steroids were excluded from the study. Patients undergoing other simultaneous surgical procedures, such as inferior turbinate reduction or rhinoplasty were also excluded. All subjects were interviewed the day before surgery, and an informed consent was obtained. Septoplasty was performed under either local or general anesthesia. During interview, demographic data were recorded and patients were asked to complete the Nasal Obstruction Symptom Evaluation scale (NOSE) (Table 1), which is a validated, disease-specific quality of life instrument for use in nasal obstruction (7). According to this scale, patients were asked to evaluate the severity of their nasal congestion, their difficulty in nasal breathing, their difficulty in breathing during their sleep and their difficulty in breathing overall. The severity of their symptoms was recorded based on a scale from 0 to 4, 0 standing for absence of the symptom and 4 for severe problem. Possible scores ranged from 0 to 20 and higher scores implied a greater subjective degree of obstruction (5 questions, each rated on a 5-point Likert scale). Patients completed the NOSE questionnaire on the day before and approximately 4 weeks after the septoplasty procedure.

The NOSE scale-

1. Nasal congestion or stuffiness
2. Nasal blockage or obstruction
3. Trouble breathing through nose
4. Trouble sleeping
5. Unable to get enough air through my nose during exercise or exertion

**III Results**

NOSE scores improved significantly in both groups at 3 and 6 months postoperatively. Results were sustained from 3 to 6 months: Out of 48 patients who underwent septoplasty, 39 patients had symptomatic relief from the allergic rhinitis. There is improvement in NOSE score and visual analogue score. 9 patients did not get relieved after the surgery. Result is shown in form of table and charts.

Table 1: Age of the patients: Most of the patients belong to middle age group (N=48)

Age group	No. of patients	%
18-25 yrs	24	50
25-30 yrs	12	25
30-35yrs	8	17
35-40 yrs	4	8

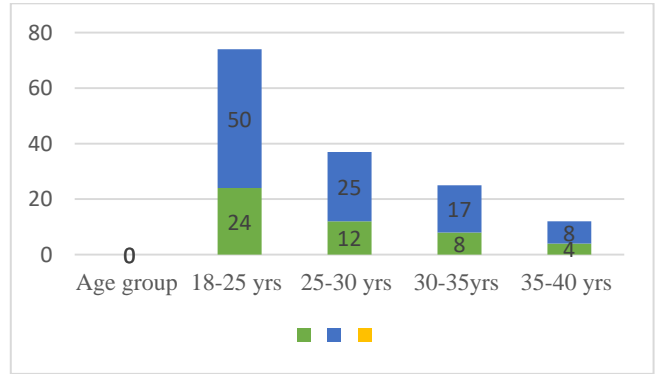


Figure-1: Age of the patients: Most of the patients belong to middle age group.

Table 2: Sex of the patients: 39 out of 48 are males (N=48)

Sex	No. of patients	%
Male	39	81
Female	9	19

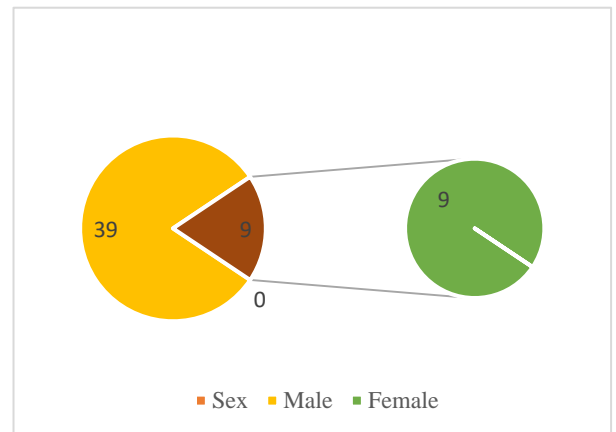


Figure-2: Sex of the patients: 39 out of 48 are males.

Table 3: Type of DNS present: Most of the patients had anterior S shaped DNS (N=48)

DNS	No. of patients	%
S shape	34	71
C shape	8	16
Posterior deviation	6	13

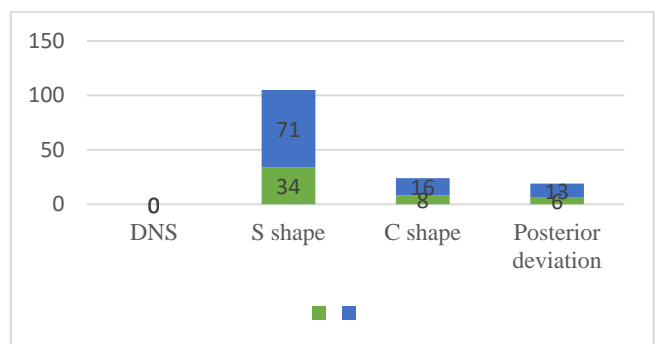


Figure-3: Type of DNS present: Most of the patients had anterior S shaped DNS.

Table 4: Visual analogue scale all patients showed significant improvement of the VAS score for all nasal

Symptoms	No. of patients	P<.001
Nasal obstruction	48	
Rhinnorhea	46	
Sneezing	48	
Itching	48	

Table 5: History of smoking and asthma: 34 patients (70%) out of 48 have the history of smoking and 10 patients (20%) have previous episode of asthma.

History of patients	Present	Absent
Smoking	34	14
Asthma	10	38

Almost 100% of the patients were given oral and topical steroids for a period of one month before surgery.

Table 6: NOSE score before and after surgery To evaluate nasal obstruction outcomes, patients completed the Nasal Obstruction Symptom Evaluation (NOSE) scale-a validated disease-specific outcome instrument for the measurement of nasal obstruction at a month of 3 and 6 post operatively. NOSE score post operatively are statistically significant.

NOSE score	Average score	p value
Baseline	24	.68
3 months	16	.29
6 months	14	.37

Out of 48 patients who underwent septoplasty, 39 patients had symptomatic relief from the allergic rhinitis. There is improvement in NOSE score and visual analogue score. 9 patients did not get relieved after the surgery.

#### IV Discussion

Faced with patients presenting with complaints of a "blocked" nose, otolaryngologists typically consider both structural (fixed) causes of obstruction and inflammatory (reversible) causes of congestion. The deviated septum and/or turbinate hypertrophy are among the more common causes of the former, while allergic rhinitis is one of the more common causes of the latter. The symptom of nasal obstruction is not attributable to the anatomic or allergic component alone. In this aspect, further study with another group composed of patients with nonallergic rhinitis with hypertrophic turbinate could draw another meaningful conclusion. One pitfall of our study is that we evaluated only the subjective symptom scores and quality of life reported by the patients. In fact, patients who had septoplasty might suffer from recall bias and a halo effect, reporting more favorable results because they underwent a more involved surgical procedure and Want to feel better, especially when compared with a group with a single turbinate reduction procedure. Therefore, measuring the change of the nasal cavity volume and dimensions after nasal provocation with provocative antigen could

symptoms of nasal obstruction, rhinorrhea, itching, and sneezing (t test,  $P < 0.001$  for all). better prove the procedures' effects. Those previous studies were all about the effect of allergic rhinitis on septoplasty. But there is still no study about the reverse, in other words, the effect of septoplasty on allergic rhinitis. We have observed that patients with septal deviation and allergic rhinitis reported improvement of their allergic symptoms after septoplasty in our hospital. So we aimed to evaluate the effect of septoplasty on the clinical course of allergic rhinitis by comparing (1) the change of symptoms using the Visual Analogue Scale (VAS), (2) the change of the medication score, and (3) the improvement of life quality using a questionnaire in patients who have undergone septoplasty. Our primary study hypothesis was that septoplasty would improve the subjective allergy-related quality-of-life scores in patients with allergic rhinitis [5]. Treatment of Nasal septal deviation is surgical with high success rate, in terms of patient satisfaction, particularly if the deformity is localized in the caudal septal end or the valve area [6]. Treatment of AR is a much more complex issue, including medication, avoidance of the causative allergen, desensitization and the use of a variety of surgical techniques, which mainly aim at the reduction of the size of the inferior turbinates [7]. When allergic rhinitis and nasal septum deviation coexist, the patient may undergo septoplasty combined with some form of volume reduction of the inferior turbinates [8]. When deciding on the best therapeutic strategy for patients with nasal pathology one must have a tool for the assessment of subjective symptoms. The Nasal Obstruction Symptom Evaluation (NOSE) Scale is a disease specific quality of life instrument for use in nasal obstruction [9]. The co-existence of NSD and AR often present a therapeutic challenge for the physician. The aim of this study is to assess the outcome of septoplasty using self-assessment and objective measures and to examine the extent to which this outcome is affected by allergic rhinitis status [10].

#### V Conclusion

In conclusion, this is the first research about the potential effect of septoplasty on the clinical course of allergic rhinitis. Further large population-based studies with histopathological examination are needed to elucidate the mechanisms underlying these effects.

#### References:

1. Hilberg O, Grymer LF, Pedersen OF, Elbrønd O. Turbinate hypertrophy: evaluation of the nasal cavity by acoustic rhinometry. Arch Otolaryngol Head Neck Surg. 1990; 116: 283-289.
2. Grymer LF, Illum P, Hilberg O. Septoplasty and compensatory inferior turbinate hypertrophy: a randomized study evaluated by acoustic rhinometry. J Laryngol Otol. 1993; 107:413-417.
3. Jun BC, Kim SW, Kim SW, Cho JH, Park YJ, Yoon HR, et al. Is turbinate surgery necessary when

performing a septoplasty? *Eur Arch Otorhinolaryngol.* 2009; 266:975980.

4. Baiardini I, Pasquali M, Giardini A. Rhinasthma: a new specific QoL questionnaire for patients with rhinitis and asthma. *Allergy.* 2003; 58:289-294.

5. Stewart MG, Smith TL, Weaver EM. Outcomes after nasal septoplasty: results from the Nasal Obstruction Septoplasty Effectiveness (NOSE) study. *Otolaryngol Head Neck Surg.* 2004; 130:283-290.

6. Clark J, Schall R. Assessment of combined symptom and medication scores for rhinoconjunctivitis immunotherapy clinical trials. *Allergy.* 2007; 62:1023-1028.

7. Karatzanis AD, Fragiadakis G, Moshandrea J, Zenk J, Iro H, Velegrakis GA, et al. Septoplasty outcome in patients with and without allergic rhinitis. *Rhinology.* 2009; 47:444-449.

8. Schoenwetter WF. Allergic rhinitis: epidemiology and natural history. *Allergy Asthma Proc.* 2000; 21:1-6.

9. Lundback B. Epidemiology of rhinitis and asthma. *Clin Exp Allergy.* 1998; 28(2):3-10.

10. Manoukian PD, Wyatt JR, Leopold DA. Recent trends in utilization of procedures in otolaryngology-head and neck surgery. *Laryngoscope.* 1997; 107:472-477.