



Septoplasty in patients with allergic rhinitis. On subjective basis

KEYWORDS

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ABSTRACT

Introduction: To assess the effect of allergic rhinitis on septoplasty outcome in terms of subjective measurements and to study whether patients with nasal septum deviation (NSD) and allergic rhinitis (AR) benefit from septoplasty to the same extent as patients who do not have allergic rhinitis.

Materials and method: A prospective study, was done in 50 patients undergoing septoplasty from June 2016 to January 2017, in government medical college Srinagar.

METHODS: Follow-up data were obtained from all subjects. All patients were assessed according to the severity of their symptoms based on a Nasal Obstruction Symptom Evaluation (NOSE) Scale prior to and following septoplasty. Patients were divided into two groups depending upon only nasal septal deviation was present or both NSD with allergic symptoms were present.

RESULTS: Following septoplasty, subjective improvement in breathing (decreased NOSE scores) was observed for both groups, the decrease being significantly more substantial in the NSD group.

CONCLUSION: Patients with allergic rhinitis and NSD are more likely to be less satisfied after septoplasty compared to patients without allergic rhinitis. Adequate medical management of allergic rhinitis should be the first priority for these cases.

INTRODUCTION:

Difficulty in nasal breathing is probably the most common complaint in rhinologic practice. Among the major causes are nasal septum deviation (NSD) and allergic rhinitis (AR). About 80% of the general population has a deviated nasal septum to some degree⁽¹⁾. On the other hand, allergic rhinitis is a form of allergy with high prevalence in Western societies⁽²⁾. Treatment of NSD 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^(3,4). 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. The Nasal Obstruction Symptom Evaluation (NOSE) Scale is a disease-specific quality of life instrument for use in nasal obstruction, developed by Stewart et al.⁽⁵⁾ 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 measures and to examine the extent to which this outcome is affected by allergic rhinitis status.

MATERIALS AND METHODS:

The study was conducted in Govt medical college Srinagar from June 2016 to January 2017. Total of 50 patients were studied 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 on rhinoscopic findings. Patients diagnosed with allergic rhinitis, had clinical findings of sneezing and itching in addition to elevated serum specific IgE against at least one of the tested allergens. 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. Informed consent was taken from all patients a day before surgery. Septoplasty was performed under either local or general anaesthesia. The specific IgE measurements, were considered to be elevated when greater than or equal to 0.5 IU/ml. During interview, demographic data were recorded, patients were asked about the allergic symptoms (sneezing and itching) 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⁽⁵⁾. 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. Patients completed the NOSE questionnaire on the day before and approximately 4 weeks after the septoplasty procedure. All patients underwent anterior rhinoscopy and nasal endoscopy using a 0 degree rigid Hopkins endoscope for a more detailed description and evaluation of the nasal anatomy. Recorded data included the side of maximum deviation (right/left), the severity of septal deviation (1: <25% obstruction, 2: 25-50% obstruction, 3: 50-75% obstruction, 4: >75% obstruction), the site of maximum deviation based on the five area division by Cottle, we classified nasal deviation as anterior, when maximum deviation was located at areas 1, 2, and 3 (naris, anterior nasal valve and nasal bones area, respectively), and posterior when it was located in areas 4 and 5 (anterior and posterior part of inferior nasal concha, respectively).

Table 1. NOSE SCALE:

	Not a problem	Very mild problem	Moderate problem	Fairly severe problem	Severe problem
Nasal congestion or stuffiness(A)	0	1	2	3	4
Nasal blockage or obstruction(B)	0	1	2	3	4
Trouble breathing through nose(C)	0	1	2	3	4
Trouble sleeping(D)	0	1	2	3	4
Unable to get enough air through my nose during exercise or exertion(E)	0	1	2	3	4

RESULTS

Among total of 50 patients, 20 were allergic rhinitis patients and 30 were non-allergic. 33 of the patients undergoing septoplasty were

male while 17 were female. Allergic and non-allergic rhinitis groups were not found to differ with regard to age, gender, NSD location (anterior/posterior), NSD side (left/right), or degree of NSD. In addition, the NOSE score did not differ significantly between groups. After decongestion, increased airflow was observed in both left and right nostrils. Follow-up was performed approximately 28 days after the procedure and consisted of the same testing as pre-operatively. Following septoplasty, a general decrease in NOSE scores was observed. Only one patient which belonged to AR group (2%) had an increased

NOSE score after septoplasty. Average decrease in NOSE score was greater in patients who did not have allergic rhinitis.

Table 2. NOSE Scale score 28 days after septoplasty

	Mean Pre op NOSE score		Mean post op NOSE score		P value	
	AR+	NSD	AR+	NSD	AR+	NSD
Nasal congestion or stuffiness (A)	2.5	2.4	1.9	1.13	>0.05	<0.05
Nasal blockage or obstruction (B)	2.8	2.5	2	1.3	>0.05	<0.05
Trouble breathing through nose (C)	2.6	2.5	1.8	1.1	>0.05	<0.05
Trouble sleeping (D)	2.1	2.0	1.4	1.2	>0.05	<0.05
Unable to get enough air through my nose during exercise or exertion (E)	2.4	2.4	1.7	1.4	>0.05	<0.05

Among 20 patients with allergic rhinitis, allergic symptoms persisted in 18 patients (90%), although mean post operative NOSE score shows improvement in all parameters in both groups but that improvement was not statistically significant ($p > 0.05$) in allergic rhinitis with NSD group. Whereas NOSE score improvement after 28 days post operative was statistically significant in only NSD group

DISCUSSION:

The most common complaint in rhinologic practice is difficulty in nasal breathing, and nasal septal deviation and allergic rhinitis are among the most common causes⁽¹⁾. Nasal septal deviations play a critical role in nasal obstruction symptoms, aesthetic appearance of the nose, increased nasal resistance, and sometimes snoring⁽¹¹⁾. Septal deviations play a crucial role in functional nasal breathing. In general, available diagnostic tools can be categorized as subjective, including patient history, the Nasal Obstruction Evaluation Scale (NOSE)⁽⁵⁾, questionnaires incorporating a visual analogue scale⁽⁶⁾, the Fairley nasal symptom score, the Nottingham health profile and the General health questionnaire^(7,8) and objective, such as rhinomanometry, acoustic rhinometry⁽⁹⁾, computed tomography and peak inspiratory nasal flow.⁽¹⁰⁾ In the present study, in order to assess subjective symptoms we employed the Nasal Obstruction Symptom Evaluation (NOSE) Scale, which is a disease-specific quality of life instrument for use in nasal obstruction, developed by Stewart et al.⁽⁵⁾ Its major advantage is that it is superior to history in evaluating the subjective symptoms in the most accurate possible way with regard to difficulty in breathing, whereas other scales, such as the Fairley nasal symptom score, are not equally reliable. Treatment of choice for NSD is septoplasty, although other surgical techniques, such as submucous resection, have been used with less favorable results⁽⁴⁾. Septoplasty is one of the most frequently performed surgical procedures in otorhinolaryngology and its selection relies largely on clinical judgment alone⁽¹⁷⁾. Allergic rhinitis (AR) is a heterogeneous disorder that despite its high prevalence is often undiagnosed. It is characterized by one or more symptoms including sneezing, itching, nasal congestion, and rhinorrhea. Many causative agents have been linked to AR including pollens, molds, dust mites,

and animal dander. Allergic rhinitis (AR) significantly reduces quality of life (QOL), interferes with both attendance and performance at school and work^(12,13) and results in substantial financial costs⁽¹⁴⁾. AR is common and affects over 20% of the population. The prevalence of AR has increased over the last three decades⁽¹⁵⁾. Subjects at most risk are those with atopy, with a family history of rhinitis, first-born children and immigrants⁽¹⁶⁾. AR is the predominant form in children, but accounts for about a third of rhinitis cases in adults. This study was done to assess the effect of allergic rhinitis on septoplasty outcome in terms of subjective measurements and to study whether patients with nasal septum deviation (NSD) and allergic rhinitis (AR) benefit from septoplasty to the same extent as patients who do not have allergic rhinitis. This study was done in 50 patients among which 20 patients had only nasal septal deviation while rest 30 patients had both nasal septal deviation and allergic rhinitis. Allergic rhinitis patients had one or more symptoms like sneezing, itching, nasal congestion, and rhinorrhea. None of these symptoms were present preoperatively in nasal septal deviation only group. All these patients underwent septoplasty. NOSE score was decreased in both the groups but it was decreased more in patients who did not have preoperative allergic rhinitis. Although mean post operative NOSE score shows improvement in all parameters in both groups but that improvement was not statistically significant ($p > 0.05$) in allergic rhinitis with NSD group. Whereas NOSE score improvement after 28 days post operative was statistically significant in only NSD group

Patients with allergic rhinitis were less satisfied as there was no improvement in allergic symptoms post operatively 90% of patients had no significant improvement in allergic symptoms.

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