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Impact of Septoplasty on Nasal Allergic Symptoms

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Abstract

The relation between deviated nasal septum and allergic rhinitis symptoms is not clear. Several studies tackled this point but still debatable. In our region no study evaluated the impact of septoplasty on these symptoms. Herein, we conducted this study to evaluate the relation between septoplasty and allergic rhinitis subjectively. Method: A cross-sectional study. We reviewed the records of patients who underwent septoplasty in our tertiary health care center, evaluated their preoperative symptoms and the indications of surgery. Then, we asked them about these symptoms' changes after surgery. Results: Out of 342 patients, 230 met our criteria and respond to us, 74.3% males, and 24.7% females. The majority are operated for nasal obstruction mainly (80.4%), and other nasal allergic symptoms were present in almost half of the cases (49.1%). In the follow up query, 83% of the cases reported improvement in nasal obstruction. Among those with preoperative symptoms, rhinorrhea, sneezing and itchiness, 64.6% reported an improvement in these symptoms, 33.6% have no change, and 1.8% have worsening of their symptoms. 10.4% cases noticed a new onset of nasal allergic symptoms started after the septoplasty procedure. Conclusion: Septoplasty alone seems to be a good choice in the management for allergic rhinitis patients if they have deviated septum. Though there is possible risk of developing a new onset of allergic symptoms, this occurs subjectively in minority of cases. Further prospective studies are recommended.

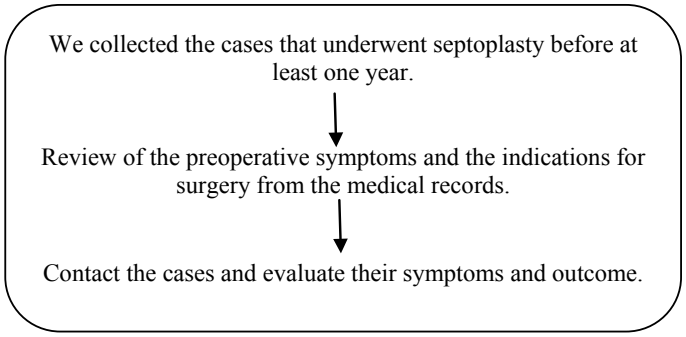
Keywords: Septoplasty; Allergic rhinitis; Outcome

Introduction

Nasal obstruction is a very common presenting symptom to otorhinolaryngology clinic. Persistent nasal obstruction may have anatomical or structural reasons such as deviation of the nasal septum or inferior turbinate hypertrophy, but chronic diseases such as Chronic rhinosinusitis (CRS) and Allergic rhinitis (AR) also cause nasal congestion and obstruction. In patients with nasal and sinus disease, nasal obstruction is the most common complaint. Deviation of the nasal septum is one of the most frequent causes of nasal obstruction, and nasal septoplasty is considered the definitive treatment for septal deviation is septoplasty. Septoplasty is the third most common surgery done by otorhinolaryngologist [1]. It is most commonly the procedure of choice for those patients with deviated nasal septum causing them nasal obstruction. Allergic rhinitis is defined as symptoms of sneezing, nasal pruritus, airflow obstruction, and mostly clear nasal discharge caused by IgE-mediated reactions against inhaled allergens [2]. We noticed that some of our cases with allergic rhinitis symptoms, in addition to deviated nasal septum, are improving from allergic rhinitis symptoms. On the other hand, few cases of those who underwent septoplasty started to complain of nasal allergic symptoms after being recovered from surgery, however they were not complaining of such symptoms preoperatively. Based on these observations we conducted this review of our patients and followed up their symptoms, to subjectively evaluate the relation between septoplasty and allergic rhinitis symptoms among our operated cases.

Patients and Methods

A cross-sectional study. After obtained the Institute research board approval, we reviewed the records of adult septoplasty patients in our tertiary health care center between November 2012 and October 2015. We documented their indication of surgery as well as preoperative symptoms including nasal obstruction, rhinorrhea, sneezing, itchiness and olfaction status. Then, we contacted them and obtained a verbal consent to participate in this study as it was phone follow up of the symptoms only. We asked them about these symptoms if they are improved, persisted or worsen, and we reported those who has newly developed these symptoms after surgery. We excluded pediatric, revision surgery, rhinoplasty cases, sinus surgery, tumor cases syndromic patients, those with incomplete records and those who does not respond to our call. The follow up of the nasal symptoms was based on their initial records which unfortunately does not include scale or an outcome tool. So, we followed up each symptom with a question of either of three answers: improved, same or worsen. Although it is not a proper scale but it is less likely to fall in the estimation bias of the scales which can be affected by the patient priorities of the symptoms. The follow up period was at least 12 months and does not exceeds 3 years. Data analyzed with Statistical Package for the Social Sciences (SPSS) v.22.



Results

Out of 342 patients, 209 met our criteria and respond to us, 74.6% males and 25.4% females. The mean age was 28.4 years (+8.8). The

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majority are operated for nasal obstruction mainly. 88.5%. The rest (11.5%) were having mainly other symptoms of allergic rhinitis with a non-obstructing deviation in 11.5%. Apart from nasal obstruction, 45.5% of our cases were complaining of nasal allergic symptoms in the form of rhinorrhea, sneezing and itchiness. In the follow up query, at least one year post-operatively, of those who were operated mainly for nasal obstructing deviation, 84.3% reported improved nasal breathing and no more obstruction. The rest of these cases reported either no improvement or worsening of the nasal obstruction post-operatively, 12.4% and 3.2% respectively (Table 1). On the other hand, for those who were not having obstructing septal deviation and operated mainly for other allergic rhinitis symptoms, 52.2% reported improved allergic rhinitis symptoms after septoplasty (Table 2). The rest of these cases have persistent allergic symptoms. Among all cases that were having allergic rhinitis symptoms pre-operatively in the form of rhinorrhea, sneezing and itchiness, 66.3% reported an improvement in these symptoms. The rest of these case reported either no improvement or even worsening of their symptoms post-operatively, 33.6% and 1.8% respectively. Among those who were not having allergic rhinitis symptoms pre-operatively, 13.2% cases noticed a new onset of nasal allergic symptoms started after the septoplasty procedure. There was no statistically significant impact of the age or the gender of the candidates on these results (Table 3).

Indication for surgery	Post-operative Nasal Airway		
	Improved	Same	Warsen
Nasal Obstruction	156_a	23_a	6_a
	84.30%	12.40%	3.20%
Allergic Rhinitis	19_a	4_a	1_a
	79.20%	16.70%	4.20%
As an Approach for FESS	11_a	4_a	0_a
	73.30%	26.70%	0.00%
As a Part of Rhinoplasty	5_a	1_a	0_a
	83.30%	16.70%	0.00%
Total	191	32	7
	83.00%	13.90%	3.00%

Table 1: Table showing the subjective outcome of septoplasty in relation to the operative indication.

Age of Patients	Post-operative Rhinitis Symptoms				Total
	NA	Improved	Same	Warsen	
Years <20	3_a	9_a	20_a	3_a	35
	8.60%	25.70%	57.10%	8.60%	100.00%
Years 20-40	25_a	50_a	76_a	11_a	162
	15.40%	30.90%	46.90%	6.80%	100.00%
Years >40	3_a	14_a	15_a	1_a	33
	9.10%	42.40%	45.50%	3.00%	100.00%
Total	31	73	111	15	230
	13.50%	31.70%	48.30%	6.50%	100.00%

Table 2: Table showing the age impact on the allergic rhinitis after septoplasty.

Age of Patients	Complications as New-onset Rhinitis Symptoms		Total
	Yes	No	
Years <20	2_a	33_a	35
	5.70%	94.30%	100.00%
Years 20-40	18_a	144_a	162
	11.10%	88.90%	100.00%
Years >40	4_a	29_a	33
	12.10%	87.90%	100.00%
Total	24	206	230
	10.40%	89.60%	100.00%

Table 3: Table showing the incidence of the new onset allergic rhinitis symptoms among different age groups.

Discussion

Deviated nasal septum is a common problem, incidental studies found up to half of population has this medical problem, however surgical management is required in minority of them [3,4]. The results of surgical outcome of septoplasty on different relevant symptoms still questioned [5]. The allergic rhinitis symptoms, though can be caused by deviated septum, are common associated symptoms, and there are overlaps between many sinonasal diagnoses symptoms wise. In our study, we found nasal obstruction which is the most common indication for septoplasty has a good outcome, although it is a very common symptom in allergic rhinitis patients even without deviated nasal septum. Other allergic rhinitis symptoms including rhinorrhea, sneezing and itchiness also benefit from septoplasty.

In the literature, Bugten et al. [6] studied the Quality of life (Qol) symptoms pre and post septoplasty and they found that septoplasty leads to a highly significant improvement in Qol and symptoms. The patients do not reach the same level of Qol as healthy controls. All symptoms are reported as mild on Visual analog scale (VAS) postoperatively. Allergic patients tend to report more nasal blockage and facial pressure postoperatively than other patients and a focus on medical treatment should be kept also postoperatively. Patients with obstructive sleep apnea report more trouble with snoring postoperatively and alterative treatment options for snoring may be considered in these patients [6]. Among our cases, although minority were operated for non-obstructing deviation associated allergic rhinitis symptoms, more than half of them have reported improvement of these symptoms in long-term follow up. Karatzanis et al. [7] studied the outcome of septoplasty in allergic rhinitis cases compared to cases without allergic rhinitis. They found that the surgeon should proceed with caution when managing patients with allergic rhinitis and nasal septum deviation. These patients are more likely to be less satisfied after septoplasty compared to patients without allergy. Adequate medical management of allergic rhinitis should be the first priority for these cases [7]. Strangely, in our study, although in minority, we found that there is risk of developing allergic rhinitis symptoms after undergoing septoplasty surgery in those who has no such symptoms before. Up to our knowledge, his finding is not mentioned before in the literature. With this finding, we open the door for researchers to study more the pathophysiology of allergic rhinitis and the effect of changes in nasal airflow, effect of septoplasty on nasal mucosa and mucociliary clearance, and the turbulence of airflow changes before and after septoplasty.

Gandomi et al. [8] studied outcomes of septoplasty in young adults. They evaluated 86 patients with septal deviation who were asked using an outcomes instrument (the Nasal Obstruction Symptom Evaluation scale) before and 3 and 6 months after septoplasty. They found that 89.5% of them having a subjective improvement in their nasal obstruction, which is more than the experience of most authors. There was a significant improvement in mean Nasal Obstruction Symptom Evaluation score at 3 months after septoplasty, and some symptom improvement continued to 6 months. In our cases, the improvement of nasal obstruction was slightly lower than this. Also, the improvement in the rhinorrhea, sneezing and itchiness occurred in two thirds of those who were having it pre operatively.

Conclusion

Septoplasty alone seems to be a good management choice for

allergic rhinitis patients when they have deviated septum. Though there is possible risk of developing a new onset of allergic symptoms, it occurred in minority of the cases. These finding opens the gate for more understanding of anatomical factors role in induction of allergic rhinitis symptoms or initiating them. Further prospective studies with a verified outcome tools are encouraged to confirm the indication of septoplasty for those with non-obstructing deviation associated with allergic rhinitis symptoms and to report the incidence of post-septoplasty new onset allergic rhinitis symptoms.

Conflict of Interest

Nil

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