

A COMPARISON OF THE EFFECTIVENESS OF TURBINOPLASTY VERSUS INTRANASAL CORTICOSTEROIDS IN THE MANAGEMENT OF PERENNIAL ALLERGIC RHINITIS

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ABSTRACT

Background: The inflammatory nasal mucosa disorder known as persistent allergic rhinitis (PAR) is induced by IgE. Prolonged exposure to allergens including molds, dust mites, pet dander, and environmental contaminants can trigger this condition. **Aim:** In order to evaluate the therapeutic efficacy of turbinoplasty in the treatment of PAR in contrast to intranasal corticosteroids. **Materials & Methods:** Sixty patients from a tertiary health care centre Department of Otorhinolaryngology participated in this study; all had a history of persistent allergic rhinitis. After the study's ethical review was complete, two groups were formed: one that had turbinoplasty and another that got the intranasal corticosteroid mometasone furoate nasal spray. **Result:** The Visual Analog Scale (VAS) and the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) showed that patients' levels of satisfaction increased dramatically immediately following turbinoplasty, indicating a major improvement in their quality of life. Symptom recurrence was significantly lower in the turbinoplasty group (6.7% vs. 36.7%) throughout the 6-month follow-up period compared to the corticosteroid group. There were few problems inside any of the groups. **Conclusion:** Because surgery has a minimal risk of complications, turbinoplasty offers continued relief and greater patient satisfaction. As a result, it is an excellent alternative for long-term therapy for patients with moderate to severe symptoms who are not responding to medication or who are looking for surgical resolution.

INTRODUCTION

An continuing exposure to allergens such as dust mites, fungus, pet dander, and environmental toxins can set off a disease known as perennial allergic rhinitis (PAR), which is characterized by a persistent inflammation of the nasal mucosa that is mediated by IgE. In addition to nasal discomfort, chronic symptoms include rhinorrhea, sneezing, and congestion. It could significantly reduce efficiency, mess with good sleep habits, and lower quality of life.

The prevalence of allergic rhinitis is increasing all over the world; for example, in India, the changing lifestyle and environmental choices have led to an increase in the demand for primary care and specialty services.^[1-3] Since PAR is recurring and often resistant, it is still a therapeutic challenge to find an effective therapy that can be administered over a long period of time.^[2] It is advised to start with intranasal corticosteroids as they have strong anti-inflammatory effects and are seen as the foundation of pharmacological treatment.^[1] One of

the best things about them is that they lessen stuffy nose, sneezing, and itching. However, in certain individuals, their total efficacy may be lowered due to limitations such as the demand for continuous administration, a delayed commencement of action, uneven patient compliance, and the return of symptoms which occurs after therapy has been discontinued.^[3,4]

Turbinoplasty, on the other hand, is a technique that gives a more evident physical remedy.^[5] This is because it reduces the size of enlarged inferior turbinates. Through the enhancement of airflow and, consequently, the reduction of mucosal contact sites, the purpose of this treatment is to ease nasal congestion and lessen allergic responses.^[6] individuals who are not responding to medicine or who have structural abnormalities that result in chronic symptoms are good candidates for turbinoplasty.^[1,2] As an alternative, turbinoplasty works well for these people. The long-term efficacy, patient satisfaction, and recurrence rates of these techniques in treating chronic allergic rhinitis are not well-studied, despite their popularity.^[3,5] By

comparing turbinoplasty to intranasal corticosteroids, this study aims to determine which therapeutic intervention is more effective in treating PAR in terms of symptom management, quality of life, recurrence, and patient-reported outcomes over a six-month follow-up period.

MATERIALS AND METHODS

Over a period of 12 months following ethical clearance from the Institutional Ethics Committee, this prospective, comparative, interventional study was carried out in the Department of Otorhinolaryngology of Silchar Medical College & Hospital. 60 patients were enrolled overall identified with PAR according to clinical history and diagnostic standards. Two equal groups were formed by random allocation of the patients: Group A (30) underwent turbinoplasty as their surgical treatment. Group B (n = 30) underwent intranasal corticosteroid treatment that is, 200 µg once daily mometasone furoate nasal spray.

The age range for inclusion is eighteen to fifty years old. PAR with a clinical diagnosis and symptoms that have persisted for at least six months. Not improving after taking frequent antihistamines for at least four weeks. Conditions of Exclusion: A deviated nasal septum that requires septoplasty, nasal polyps, or other anatomical abnormalities. An overview of previous nose surgeries. use of immunotherapy or steroids on a regular basis during the previous three months. immunodeficiency, asthma, or concomitant chronic sinusitis. Either ladies who are pregnant or nursing. Patients in Group A (Turbinoplasty) underwent inferior turbinoplasty using submucosal resection and trimming of the hypertrophied turbinate while under general or local anesthesia. Nasal packing was removed 24 hours later. For six months, mometasone furoate nasal spray (200 µg/day) was administered to patients in Group B (Corticosteroids).

The following details were taken note of: Congestion, sneezing, rhinorrhea, and itching of the nose were measured using a total nasal symptom score (TNSS) that varied from 0 to 3. For patient satisfaction, the visual analog scale (VAS) ranges from 0 (very dissatisfied) to 10 (very delighted). To measure the impact on everyday life, the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) is administered.

Complications and recurrence: evaluated six months after treatment. Follow-up Notes Schedule: Evaluations of the patients were conducted at baseline, one month, three months, and six months after the intervention. Endoscopic nose examinations and symptom assessments were part of each follow-up.

Statistical Analysis

For all of the statistical analyses, version 29 of SPSS was utilized. On the other hand, the mean and standard deviation (SD) represented continuous data,

while the frequencies and percentages denoted categorical variables. A statistically significant p-value is one that is equal to or greater than 0.05. The Shapiro-Wilk test was one of the tools that was utilized in order to evaluate the normality of the data distribution. For the purpose of comparisons, parametric testing was utilized because the data were dispersed in a consistent manner.

Using independent t-tests, the TNSS, VAS, RQLQ scores, and individual symptom scores were among the continuous variables that were compared between the two groups. These scores included nasal congestion, sneezing frequency, rhinorrhea, and nasal itching, among other symptoms.

RESULTS

60 patients with a diagnosis of perennial allergic rhinitis were split evenly into two groups: 30 patients in Group A had turbinoplasty, and 30 patients in Group B got intranasal corticosteroid treatment. The gender distribution (Group B: 15 men and 15 females; Group A: 16 males and 14 females) and age (mean age: 32.8 ± 6.7 years for Group B and 33.4 ± 7.1 years for Group A; $p = 0.737$) were similar for both groups.

Symptom Score Improvement

Prior to therapy, the two groups' Total Nasal Symptom Scores (TNSS) did not differ statistically significantly ($p = 0.484$), indicating that their baseline symptom severity was comparable.

However, with a p-value of 0.0001, Group A demonstrated a substantially higher drop in TNSS (4.1 ± 0.8) at the 1-month follow-up than Group B (5.6 ± 0.9). Indicating prolonged and better symptom management with turbinoplasty, this trend persisted for three months (Group A: 2.3 ± 0.7 vs. Group B: 4.8 ± 1.0 ; $p < 0.0001$) and six months (Group A: 1.5 ± 0.5 vs. Group B: 5.0 ± 1.2 ; $p < 0.0001$).

Individual Symptom Components

- Nasal obstruction significantly improved in the turbinoplasty group (0.9 ± 0.3) compared to the corticosteroid group (1.7 ± 0.5), with $p < 0.0001$.
- Sneezing frequency showed statistically significant reduction in the corticosteroid group ($p = 0.0017$), while turbinoplasty also showed improvement though to a lesser extent.
- Rhinorrhea was better controlled with corticosteroids ($p = 0.012$).
- Nasal itching did not differ significantly between the two groups ($p = 0.277$).

Patient Satisfaction and Quality of Life

The Visual Analog Scale satisfaction scores of patients who had turbinoplasty were substantially higher (VAS: 7.6 ± 0.8) than those on corticosteroids (5.0 ± 1.1), with a p-value of less than 0.0001. Similar to this, Group A's Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) ratings were substantially higher (1.1 ± 0.5) than Group B's (1.8 ± 0.6 ; $p < 0.0001$), suggesting that surgical intervention enhanced quality of life.

Recurrence and Complications

Only 6.7% (2 out of 30) of patients in the turbinoplasty group had a recurrence of symptoms at the 6-month follow-up, while 36.7% (11 out of 30) of patients in the corticosteroid group did. There was a statistically significant difference. There were little

complications in any group. 3.3% of patients in Group B reported mild mucosal irritation, whereas 10% of patients in Group A reported mild nasal crusting or dryness. There was no statistically significant difference.

Table 1: Comparison of Clinical Outcomes Between Turbinoplasty and Intranasal Corticosteroids

Arameters	Turbinoplasty (Group A: n=30)	Intranasal Corticosteroids (Group B: n=30)	P Value
Mean Age (years)	33.4 ± 7.1	32.8 ± 6.7	T=0.336; df=58; P= 0.737
Pre-treatment TNSS	8.9 ± 1.1	8.7 ± 1.1	T=0.704; df=58; P=0.484
TNSS at 1 month	4.1 ± 0.8	5.6 ± 0.9	T=6.822; df=58; P=0.0001
TNSS at 3 months	2.3 ± 0.7	4.8 ± 1.0	T=11.217; df=58; P<0.0001
TNSS at 6 months	1.5 ± 0.5	5.0 ± 1.2	T=14.748; df=58; P<0.0001
Nasal Obstruction Score	0.9 ± 0.3	1.7 ± 0.5	T=7.514; df=58; P<0.0001
Sneezing Frequency Score	1.4 ± 0.4	1.1 ± 0.3	T=3.286; df=58; P=0.0017
Rhinorrhea Score	1.5 ± 0.5	1.2 ± 0.4	T=2.566; df=58; P=0.012
Nasal Itching Score	1.2 ± 0.3	1.3 ± 0.4	T=1.095; df=58; P=0.277
Patient Satisfaction (VAS /10)	7.6 ± 0.8	5.0 ± 1.1	T=10.470; df=58; P=0.0001
RQLQ Score	1.1 ± 0.5	1.8 ± 0.6	T=4.909; df=58; P=0.0001

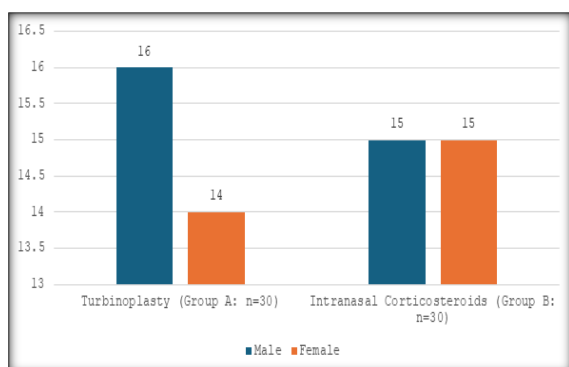


Figure 1: Gender distribution in both the groups of the study population

DISCUSSION

The persistent allergic rhinitis (PAR) therapeutic goal of this study is to determine the efficacy of turbinoplasty in conjunction with intranasal corticosteroids (INCS). Although both procedures successfully reduce allergic rhinitis symptoms, our research shows that turbinoplasty provides a more consistent and strong improvement, especially with regard to nasal congestion and overall patient happiness.

Statistically substantial decreases in Total Nasal Symptom Score (TNSS) were observed in the turbinoplasty group during all follow-up periods, especially in relation to nasal blockage. Lee et al,^[7] also discovered that surgically removing the inferior turbinate significantly improved nasal airflow and quality of life for medically refractory individuals with allergic rhinitis, therefore our results are consistent with theirs. In the aftermath of the procedure, effects persisted for a full year.

According to the findings of Scadding et al,^[8] who demonstrated that corticosteroids are useful in managing inflammatory responses and lowering mucosal edema, the INCS group saw considerable

early improvement, particularly in sneezing and rhinorrhea.^[8] This conclusion is similar with the findings of the INCS group. On the other hand, patients reported a greater incidence of return of symptoms after discontinuing their use of INCS medication, which highlights the limits of pharmacological therapies for chronic PAR.

On both the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) and the Visual Analog Scale (VAS), the group that had a turbinoplasty did better than the other group. These findings are supported by the findings of Lajdam et al,^[9] who indicated that patients who had surgery had higher quality-of-life indicators and less limits on their day-to-day activities compared to patients who received conservative therapy.

This is mostly due to the fact that the treatment of obstructive symptoms has been improved, and the requirement for daily medication has shrunk. Furthermore, Mori et al,^[10] found that patients who underwent turbinoplasty reported better levels of long-term compliance and greater levels of pleasure.

There were just a few adverse effects linked with turbinoplasty, such as some little bleeding or brief crusting that disappeared once conservative treatment was administered. This information is consistent with the findings of the study that was conducted by,^[11] which discovered that modern turbinate reduction procedures, such as submucosal excision or microdebrider-assisted turbinoplasty, are risk-free and linked with a low rate of morbidity.^[11]

The fact that the surgical group has a much reduced risk of recurrence lends credence to the idea that turbinoplasty provides morphological and physiological advantages that cannot be matched by pharmaceutical therapy alone. The results of a meta-analysis conducted by Zhang et al,^[12] indicate that surgery leads to a reduction in neural sensitivity and turbinate volume over an extended period of time, which contributes to the maintenance of consistent symptom management.^[12,13]

Turbinoplasty is a more obvious and long-lasting treatment option for patients who have persistent nasal congestion or who do not respond to INCS. This is because PAR is a long-term treatment, and long-term corticosteroid use has a number of drawbacks, including difficulties adhering to the treatment and the possibility of adverse effects on the nasal lining. Turbinoplasty is for patients who have persistent nasal congestion. Surgical procedures have been shown to have considerable advantages, including the enhancement of nasal airflow and the reduction of long-term medical expenditures, as demonstrated by this study and other more recent research.

CONCLUSION

Turbinoplasty provides more consistent relief, particularly in terms of reducing nasal congestion and improving overall patient satisfaction and quality of life, as demonstrated by this study. Perennial allergic rhinitis symptoms can be effectively managed with intranasal corticosteroids; however, turbinoplasty yields better results. Compared to patients who took intranasal corticosteroids for six months, those who had turbinoplasty showed a huge and statistically significant increase in nasal airflow, TNSS, and quality of life. Corticosteroids were related with an elevated risk of symptom recurrence and required constant treatment in order to maintain their efficacy. Despite the fact that they provided temporary relief from sneezing and rhinorrhea, they were also connected with this risk. As a result of its low complication rate and long-lasting advantages, turbinoplasty has shown to be an acceptable and preferable alternative for long-term therapy. This is especially true for patients who are not responding to medication or who seek surgical resolution. As a result of these findings, turbinoplasty may be the recommended course of treatment for those who suffer from moderate to severe perennial allergic rhinitis and who do not react favorably to conservative medication treatment.

Conflict of interest: There is no conflict of interest among the present study authors.

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