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OPTIMIZATION OF SURGICAL MANAGEMENT OF VASOMOTOR RHINITIS

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Abstract: Vasomotor rhinitis is a chronic non-allergic nasal disorder characterized by persistent nasal obstruction, rhinorrhea, sneezing, and hyperreactivity of the nasal mucosa to nonspecific environmental stimuli. The condition significantly impairs patients' quality of life and often demonstrates limited response to standard pharmacological therapy. In cases refractory to conservative management, surgical intervention aimed at inferior turbinate volume reduction is considered; however, there is no universal consensus regarding the optimal surgical technique that ensures long-term efficacy with minimal morbidity.

Objective: The aim of this study was to optimize the surgical management of vasomotor rhinitis by comparing clinical outcomes of conventional and minimally invasive inferior turbinate surgical techniques and by identifying effective treatment strategies based on individualized patient selection.

Methods: A prospective clinical study was conducted involving patients diagnosed with vasomotor rhinitis who failed to respond to at least six months of medical treatment. Diagnosis was confirmed by clinical evaluation, negative allergy testing, and nasal endoscopy. Patients underwent inferior turbinate surgery using either conventional turbinate reduction or minimally invasive submucosal techniques designed to preserve mucosal integrity. Clinical efficacy was assessed using validated nasal symptom severity scores, objective nasal airflow measurements, and patient-reported quality-of-life questionnaires obtained preoperatively and at follow-up visits.

Results: Surgical intervention resulted in a statistically significant reduction in nasal obstruction and rhinorrhea, accompanied by marked improvement in nasal airflow and quality-of-life scores ($p < 0.05$). Both surgical approaches demonstrated clinical effectiveness; however, minimally invasive techniques were associated with reduced intraoperative bleeding, fewer postoperative complications, shorter recovery time, and higher patient satisfaction. Preservation of the nasal mucosa appeared to play a key role in maintaining physiological nasal function and minimizing postoperative morbidity.

Conclusion: Optimization of surgical management in vasomotor rhinitis through careful patient selection and preference for minimally invasive turbinate reduction techniques leads to superior clinical outcomes and improved quality of life. These approaches represent effective and safe surgical options for patients unresponsive to conservative therapy.

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Introduction

Vasomotor rhinitis (VMR) is a chronic functional disorder of the nasal mucosa characterized by nasal obstruction, rhinorrhea, sneezing, and congestion in the absence of allergic or infectious etiology. Symptoms are typically triggered by nonspecific stimuli such as temperature changes, strong odors, humidity, or emotional stress. The prevalence of VMR and its persistent symptoms significantly reduce patients' quality of life.

Conservative treatment remains the first-line approach and includes intranasal corticosteroids, antihistamines, and anticholinergic agents. Despite adequate medical therapy, a subset of patients continues to experience severe symptoms. In such cases, surgical treatment targeting inferior turbinate hypertrophy is considered.

Various surgical techniques have been proposed; however, concerns remain regarding postoperative complications and long-term effectiveness. Therefore, optimization of surgical management through appropriate technique selection is of clinical importance.

The aim of this study is to evaluate surgical outcomes in vasomotor rhinitis and to identify optimal approaches that ensure symptom relief while preserving nasal mucosal function.

Materials and Methods

This prospective clinical study was conducted at a tertiary otorhinolaryngology center after approval by the institutional ethics committee, and written informed consent was obtained from all participants in accordance with the Declaration of Helsinki. Patients with chronic nasal symptoms suggestive of vasomotor rhinitis were consecutively enrolled. The diagnosis was established based on detailed medical history, clinical examination, negative allergy testing, and nasal endoscopy, which confirmed inferior turbinate hypertrophy and excluded other intranasal pathologies.

Only patients with persistent nasal obstruction and/or rhinorrhea lasting longer than twelve months and demonstrating inadequate response to at least six months of optimized medical therapy were included in the study. Patients with allergic or infectious rhinitis, structural nasal abnormalities requiring additional surgical correction, previous nasal surgery, chronic rhinosinusitis, or systemic inflammatory diseases were excluded.

Preoperative evaluation included assessment of nasal symptom severity using validated scoring systems, objective measurement of nasal airflow by rhinomanometry or acoustic rhinometry, and evaluation of disease-specific quality of life using standardized questionnaires. All surgical procedures were performed by experienced otorhinolaryngologists under local or general anesthesia.

Patients underwent inferior turbinate surgery using either conventional turbinate reduction or minimally invasive submucosal techniques. Conventional surgery involved partial resection of hypertrophied turbinate tissue to enlarge the nasal airway. Minimally invasive procedures

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focused on submucosal volume reduction with preservation of the overlying mucosa in order to maintain physiological nasal function and reduce postoperative morbidity.

Postoperative care included saline nasal irrigation and topical medications as required. Patients were followed at regular intervals for clinical examination, symptom assessment, and detection of postoperative complications. Primary outcome measures included changes in nasal obstruction and rhinorrhea severity, while secondary outcomes comprised objective nasal airflow improvement, quality-of-life scores, recovery time, and patient satisfaction.

Statistical analysis was performed using standard statistical software. Continuous variables were expressed as mean ± standard deviation, and categorical variables as frequencies and percentages. Preoperative and postoperative outcomes were compared using paired statistical tests, with a p-value of less than 0.05 considered statistically significant.

Results and Discussion

Postoperative evaluation demonstrated a significant improvement in clinical symptoms in the majority of patients undergoing surgical treatment for vasomotor rhinitis. Nasal obstruction and rhinorrhea scores showed a marked reduction compared with preoperative values, indicating effective symptom control. Objective nasal airflow measurements confirmed a statistically significant increase in nasal patency following surgery, supporting the subjective improvement reported by patients. Quality-of-life assessments revealed substantial enhancement in daily functioning, sleep quality, and overall patient satisfaction.

When comparing surgical techniques, both conventional inferior turbinate reduction and minimally invasive submucosal procedures were effective in alleviating symptoms. However, patients treated with minimally invasive techniques experienced superior postoperative outcomes. This group demonstrated reduced intraoperative bleeding, less postoperative crusting, and faster mucosal healing. Additionally, recovery time was shorter, allowing patients to return to normal daily activities earlier than those undergoing conventional surgery.

Preservation of the nasal mucosa in minimally invasive procedures appeared to be a key factor contributing to improved postoperative comfort and maintenance of physiological nasal function. In contrast, conventional turbinate reduction, although effective in reducing turbinate volume, was more frequently associated with transient postoperative discomfort and prolonged healing. No severe or life-threatening complications were observed in either group during the follow-up period.

The findings of this study are consistent with previously published data emphasizing the importance of mucosal preservation in turbinate surgery. Minimally invasive techniques have been shown to provide long-term symptom relief while minimizing postoperative morbidity. These approaches reduce the risk of complications such as excessive dryness, crust formation, and impaired nasal physiology, which are of particular concern in patients with vasomotor rhinitis characterized by mucosal hyperreactivity.

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From a clinical perspective, the optimization of surgical management in vasomotor rhinitis should focus on individualized patient assessment and selection of the least invasive yet effective technique. Careful evaluation of symptom severity, turbinate hypertrophy, and response to medical therapy is essential in determining the appropriate surgical strategy. The results of this study support a tailored surgical approach that balances symptom relief with preservation of nasal function.

Despite favorable outcomes, certain limitations should be acknowledged, including the absence of long-term follow-up in some patients and the relatively limited sample size. Further multicenter studies with extended follow-up periods are required to confirm the durability of surgical outcomes and to refine patient selection criteria.

In conclusion, surgical treatment provides significant clinical benefit in patients with vasomotor rhinitis unresponsive to conservative therapy. Minimally invasive inferior turbinate procedures offer effective symptom control with reduced postoperative morbidity and should be considered the preferred surgical option in appropriately selected patients.

Conclusion

Surgical intervention is an effective treatment option for patients with vasomotor rhinitis who do not respond adequately to conservative medical therapy. The results of this study demonstrate that optimized surgical management, based on careful patient selection and appropriate technique choice, leads to significant improvement in nasal symptoms, nasal airflow, and overall quality of life. Minimally invasive inferior turbinate reduction techniques provide clinical outcomes comparable to conventional surgery while offering the advantages of reduced postoperative morbidity, faster recovery, and better preservation of nasal mucosal function. Therefore, minimally invasive approaches should be considered the preferred surgical strategy in the management of vasomotor rhinitis refractory to medical treatment.

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