

Chapter 13

A Cross–Sectional Study on Clinical Evaluation of Surgical Interventions for Nasal Obstruction in Allergic Rhinitis

Abhay D. Havle

Krishna Vishwa Vidyapeeth, India

Vikas S. Kulkarni

Krishna Institute of Medical Sciences, India

Anagha Y. Rajguru

Krishna Institute of Medical Sciences, India

Hamisol Sair Hanuy

General Health College, Indonesia

ABSTRACT

Allergic rhinitis commonly results in nasal blockage, affecting those seeking care in ear, nose, and throat (E.N.T) departments. This study aimed to assess three treatments for nasal obstruction in allergic rhinitis: partial inferior turbinectomy, cryo-application, and submucosal steroid injection. Seventy-five individuals with allergic rhinitis were split into three groups, each undergoing different treatments. Diverse scoring methods like total nasal symptom score (TNSS), nasal obstruction symptom evaluation (NOSE score), and nasal secretion score were employed for pre and postoperative evaluations. Partial inferior turbinectomy consistently displayed superior results across all evaluation periods compared to cryo-application and steroid injection. Patients who received turbinectomy reported more significant improvements in symptom relief, nasal blockage reduction, and decreased reliance on medication.

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INTRODUCTION

Allergic rhinitis, a chronic ailment, displays distinctive symptoms: persistent itchiness in the nose, a series of sneezes, continuous watery or mucous discharge, frustrating nasal blockages, and discomfort in the nasal or throat regions (Businco et al., 2014). A key feature is the infiltration of inflammatory cells like mast cells, CD4-positive T cells, B cells, macrophages, and eosinophils into the nasal lining when triggered by common allergens such as dust mites, cockroach residues, animal dander, molds, and various pollens (Berger et al., 2006).

Allergic rhinitis is a complex condition with far-reaching effects, particularly evident in the considerable reduction of nasal airflow experienced by a notable portion of the population (Koçak et al., 2016). Comprehensive studies conducted across Europe and the US indicate that between 10 and 25% of individuals endure chronic nasal obstruction due to allergic reactions (Kumar et al., 2017). This obstruction often links significantly to a condition known as Inferior Turbinate Hypertrophy (ITH), which is intricately associated with allergic rhinitis and contributes substantially to the restricted nasal airflow experienced by those affected (Rosato et al., 2016; Schoenwetter et al., 2004).

In those dealing with allergies, the infiltrating T cells primarily adopt a T helper 2 (Th2) profile within the nasal mucosa (Larrabee & Kacker, 2013). These specialized cells unleash cytokines such as IL-3, IL-4, IL-5, and IL-13, prompting plasma cells to produce Immunoglobulin E (IgE). Interaction between these allergens and IgE on mast cells triggers the release of potent mediators like histamine and leukotrienes (Nathan et al., 2008). These substances prompt bodily responses: dilation of small blood vessels, increased permeability, itching, nasal discharge, heightened mucous production, and lung muscle contractions (Stewart, 2008).

While an initial immune response releases these mediators and cytokines, the subsequent late-phase inflammatory response, occurring within 4 to 8 hours, fuels recurring symptoms, often centered around persistent nasal congestion (Masuda et al., 2018). These mediators activate sensory receptors and stimulate the central nervous system, prompting reflex actions like sneezing and lingering nasal discomfort (Ahuja et al., 2011). These troubling symptoms can persist for hours, exacerbated by non-allergenic triggers like strong odors or environmental irritants that heighten airway sensitivity (Chhabra & Houser, 2009).

Remarkably, this condition affects nearly 20% of the population, impacting more than just nasal comfort (Kukreja et al., 2011). Symptoms extend across life facets, inducing fatigue, disturbed sleep, social interaction challenges, mood swings leading to depression and anxiety, learning and attention difficulties, increased school absenteeism, and decreased work productivity (Kukreja et al., 2012). Left untreated, allergic rhinitis significantly compromises one's quality of life. Beyond the physical toll, there's a distinct behavioral marker (Albo Hay Allah & Alshamsi, 2022). To alleviate irritation or mucus flow, individuals repetitively resort to what's colloquially known as the "nasal salute" or "allergic salute," constantly wiping or rubbing the nose upward with the palm (Dodwad et al., 2012). This repeated action etches a visible crease across the nose, often called the "transverse nasal crease," a testament to the ongoing struggle with this chronic condition (Chhabra & Houser, 2009).

Understanding the specific allergens triggering an individual's sensitivity is critical to managing allergic rhinitis. Allergy testing plays an indispensable role in this regard. Among the various methods available, skin testing, particularly the skin prick test, remains the most widely utilized approach for diagnosing allergic reactions (Dodwad & Kukreja, 2011). Complementary techniques such as patch tests, intradermal scratch tests, and, less commonly, the application of suspected allergens on the lower

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