

**PROSPECTIVE STUDY ABOUT ROLE OF SUBMUCOSAL DIATHERMY IN INFERIOR TURBINATE HYPERTROPHY**Manikandan D<sup>1</sup>, Srinivasa V<sup>2</sup>, Ganesh Bala A<sup>3</sup>, Kannappan A. L<sup>4</sup>**HOW TO CITE THIS ARTICLE:**

Manikandan D, Srinivasa V, Ganesh Bala A, Kannappan A. L. "Prospective Study about Role of Submucosal Diathermy in Inferior Turbinate Hypertrophy". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 47, September 25; Page: 11327-11330, DOI: 10.14260/jemds/2014/3481

**ABSTRACT: OBJECTIVE:** Our study is to evaluate role of submucosal diathermy in inferior turbinate hypertrophy. **METHOD:** Study conducted at our ENT center from July 2012 to July 2014 included 30 patients presented with nasal obstruction due to inferior turbinate hypertrophy with various cases like allergic rhinitis, concha bullosa, chronic rhinosinusitis, rhinitis medicamentosa, deviated nasal septum with compensated hypertrophy. **RESULT:** All these Patients undergone sub mucosal diathermy and followed up for one year. Among 30 patients, 22 patients completely relieved nasal obstruction within 3 months and 5 patients partially relieved and 3 patients showed no improvement in follow up of 6 months. **CONCLUSION:** Inferior turbinate hypertrophy is effectively reduced by submucosal diathermy. It is cheap, safe and effective procedure for long-term positive outcome.

**KEYWORDS:** Submucosal Diathermy, Inferior Turbinate Hypertrophy, Monopolar cautery.

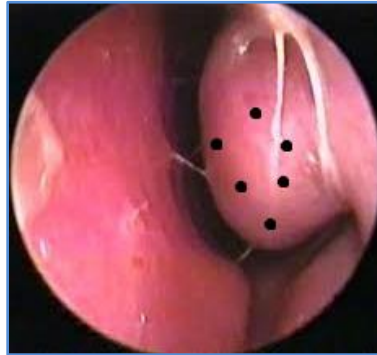
**INTRODUCTION:** Chronic nasal obstruction resulting from turbinate hypertrophy is a common complaint faced by rhinologist. The mucosa of the inferior turbinates is essential to maintain normal nasal defense, Humidification, Warming and cleaning the air. Allergy and infection enhance the degree of mucosal swelling and topical drugs, such as steroids and vasoconstrictors, change the rhythm of the cycle.<sup>(1)</sup>

The goal of any surgical treatment of the Inferior Turbinate should be to improve nasal obstruction and to avoid complications in the short and long term Conservative therapy including nasal spray, systemic decongestants, antihistamine and allergic desensitization have been tried, but they were often ineffective and of short duration.<sup>(2,3)</sup>

Surgical treatment for reduction of inferior turbinate hypertrophy is controversial and variety procedure has been proposed. Various reduction techniques have been tried to improve the nasal airways such as radio frequency coablation, ultrasound, LASER and monopolar submucosal diathermy. In this study we carried out the role and effectiveness of submucosal diathermy in turbinate reduction.

**METHOD:** All the patients who came with complaints of nasal obstruction to our Centre are subjected to imaging studies and diagnostic nasal endoscopy was found to be due to inferior turbinate hypertrophy, were included in the study. A total of 30 patients were observed in this study. Out of which 20 male and 10 female patients.

24 patients had bilateral and 6 patients had unilateral inferior turbinate hypertrophy. Patients were advised to use nasal decongestant spray one puff three times a day for one week and to assess the type of hypertrophy and to know the effect of decongestant drops in hypertrophied turbinate. All the patients were suggested for submucosal diathermy and undergone all the routine investigations and prepared for SMD under general anesthesia.



Patient with orotracheal intubation under general anesthesia. The turbinates were injected with adrenaline and saline. The syringe needle connected with monopolar cautery was inserted deep to the conchal bone and withdrawn gradually while the cauterized for 5 sec, then the procedure repeated for at 6 marked areas of the turbinate using a monopolar cautery.

The strength and length of cauterization was judged by the amount of discoloration of turbinate. Little bleeding was arrested by adrenaline soaked gauze pack. The postoperative follow-up schedule was as follows: 1 days, 3 days, one week, 2 weeks, 4 weeks, 3 months, and 6 months. During the first week alkaline nasal douche was performed by the surgeon, then by the patient followed by a steroid cream application, twice a day for 3 weeks.

**RESULT:** All patients were complaining of chronic nasal obstruction. Other presenting symptoms were mouth breathing, sore throat, bad mouth odor, sneezing and headache. The follow-up ranged from 1–6 months with average of 5 months. The cause for inferior turbinate hypertrophy was allergic rhinitis in 6 patients, concha bullosa in 4, and idiopathic rhinitis in 6 patients, chronic rhinosinusitis in 9 and DNS with unilateral compensatory hypertrophy in 5.

22 patients showed subjective and objective excellent improvement after 3 month follow-up. Their complaints and symptoms disappeared which was examined by anterior rhinoscopy, CT PN and nasal endoscopy. 5 patients with chronic rhinosinusitis had little improvement and therefore underwent fess. 3 patients with compensatory hypertrophy had no improvement and therefore underwent a corrective septal surgery.

**DISCUSSION:** Inferior turbinate hypertrophy is the commonest cause for chronic nasal obstruction.<sup>(4)</sup> The surgical management of the enlarged inferior turbinates has been debated for more than 100 years. Several studies report subjectively good results for nasal obstruction in over 90 percent of cases, following inferior turbinate reduction in cases of minor or no anterior septal deviation, both in the short<sup>(5)</sup> and long term.<sup>(6)</sup>

Monopolar diathermy is an old technique for the reduction of submucosal tissue of the inferior turbinate, but still widely practiced. The bone and/or the mucosa may be enlarged, but what constitutes pathologic or normal is not well defined and therefore there is controversy over the management of the turbinates in symptomatic subjects.<sup>(7)</sup> The hypertrophy of the inferior turbinate is either due to increased thickness of the medial mucosal layer which could be attributed to hypertrophy of the lamina propria that houses sub epithelial inflammatory cells, venous sinusoids

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and submucosal glands or it could be due to an increase in the size of the bony structure of the inferior turbinate.

Only patients with inferior turbinate hypertrophy due to thickness of the mucosal layer could benefit from SMD. If the hypertrophy is due to an increase in bony structure, only turbinoplasty is the solution to improve the airway.<sup>(8)</sup> Submucosal diathermy of inferior turbinate first documented in 1918. It works by shrinking the bulky space occupying hypertrophied inferior turbinates in the nasal cavity. It can be either done by general or local anesthesia.<sup>(9)</sup>

The effect of SMD is achieved through coagulation of the venous sinusoids within the turbinate, leading to submucosal fibrosis.<sup>(10)</sup> In SMD, an area of coagulation necrosis is formed along the electrode passage, which is replaced with sclerotic connective tissue providing a stable reduction of the enlarged turbinate.<sup>(11,12)</sup>

Talaat et al examined his patients histologically after SMD of the inferior turbinate one month after surgery and observed significant postoperative clinical and histopathological improvement in non-allergic subjects, whereas improvement in allergic patients was less. In our study, 22 out of 30 patients (73%) completely relieved from nasal obstruction after 6 months and 5 patients (17%) with rhinosinusitis showed little improvement which required fess and 3 patients (10%) with compensatory hypertrophy showed poor improvement and required septoplasty.

Irfan et al reported 50% improvement in their patients after one year and 36% after two-year post SMD.<sup>(9)</sup> On the other hand, Fradis et al reported 86-89% subjective and objective improvement among their patients after one-year post SMD.<sup>(13)</sup>

**CONCLUSION:** In our study 73% of patients showed excellent improvement after 6 month and 27% required other corrective procedures. Submucosal diathermy does not require cosily instrumentation and is a safe, effective technique to reduce inferior turbinate hypertrophy without affecting the turbinate mucosal function and to reduce nasal obstruction for short and long term basis.

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Date of Submission: 09/09/2014.  
Date of Peer Review: 10/09/2014.  
Date of Acceptance: 17/09/2014.  
Date of Publishing: 23/09/2014.