

## COMPARISON OF NASAL PATENCY FOLLOWING SUBMUCOSAL DIATHERMY OF INFERIOR TURBINATE VERSUS INFERIOR TURBINECTOMY

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### ABSTRACT

**Objective:** To compare the nasal patency following sub mucosal diathermy (SMD) of inferior turbinate and inferior turbinectomy (IT).

**Study Design:** Randomized controlled trial.

**Place and Duration of Study:** Department of ENT Combined Military Hospital Rawalpindi. Study was completed in one year from 15th September 2009 to 15th September 2010.

**Subjects:** Total 160 patients with symptomatic inferior turbinate hypertrophy were included in the study. Patients were randomly divided into two groups of 80 each using random numbers table. Group A underwent submucosal diathermy (SMD) of inferior turbinate where as Group B underwent inferior turbinectomy (IT). Post-operative nasal patency was judged after 03 weeks by visual analog scale (VAS).

**Results:** Both the groups are comparable with respect to age and gender. Post-operative nasal patency is significantly better in group B as compared to group A.

**Conclusion:** IT is a more effective method to improve nasal patency as compared to SMD in case of inferior turbinate hypertrophy.

**Keywords:** Inferior turbinate hypertrophy, Inferior turbinectomy, Nasal patency, Sub mucosal diathermy.

### INTRODUCTION

Inferior turbinates are shelf like bony projections in the lateral wall of nose covered by mucosa. Intrinsic rhinitis, allergic rhinitis, rhinitis medicamentosa and chronic hypertrophic rhinitis often lead to hypertrophy of inferior turbinates<sup>1</sup>. Hypertrophied inferior turbinates are a common cause of nasal obstruction leading to post nasal drip, nasal congestion and headache<sup>2</sup>. Hypertrophied turbinates can be treated medically with local or systemic steroids and antihistamines, which is effective initially but there are high chances of recurrence when the drug is discontinued<sup>3</sup>.

Surgically, inferior turbinate reduction can be accomplished with a number of techniques e.g. laser cautery, electrocautery, cryotherapy, SMD, sub mucosal resection with microdebrider and IT<sup>4</sup>. However, IT remains controversial because of the bleeding associated with this, its effects on

nasal physiology and fear of subsequent rhinitis sicca and secondary atrophic rhinitis<sup>5</sup>.

SMD of inferior turbinates is a relatively minor surgical procedure that is safe and offers good relief of nasal obstruction<sup>6</sup>. For symptomatic inferior turbinate hypertrophy, where topical nasal decongestant has little role, SMD is the choice of treatment<sup>7</sup>. SMD is increasingly being performed both under local and general anaesthesia. It is relatively simple, easier and safer procedure than IT, but post operative improvement in nasal patency needs to be compared in both procedures.

### PATIENTS AND METHODS

After approval of hospital ethical committee, these randomized controlled trials were carried out at department of ENT Combined Military Hospital Rawalpindi, from 15<sup>th</sup> September 2009 to 15<sup>th</sup> September 2010. One hundred and sixty patients aged 16 to 41 years from either sex, having symptomatic inferior turbinate enlargement were selected through non-probability random sampling. Patients having deviated nasal septum, nasal polyps, history of

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previous turbinate surgeries, those undergoing combined septal and turbinate surgery and children below 16 years were excluded from the study. After taking an informed written consent, name, age, gender, serial number, hospital record number, and address of each individual were noted.

Pre-operative nasal patency of the individuals was assessed on visual analogue scale of 0 to 10 as no-obstruction (0), mild (1-3), moderate (4-6) or severe obstruction (7-10). Patients were randomly allocated into two groups of 80 patients each using random numbers table. Group A underwent SMD of inferior turbinate under local or general anesthesia. Group B underwent IT under general anesthesia followed by bilateral nasal packing with paraffin gauze. Patients in both the groups were given Tablet Co-Amoxiclav 625mg 8 hourly, Tablet Mefenamic acid 500mg 8 hourly and Tablet Chlorpheniramine maleate 4mg 12 hourly for 5 days. Nasal packs were removed after 48 hours in group B. Patients were advised regular nasal toilet, Xylometazoline nasal spray, 2 puffs 12 hourly and liquid paraffin nasal drops, 2 drops 8 hourly for 5 days

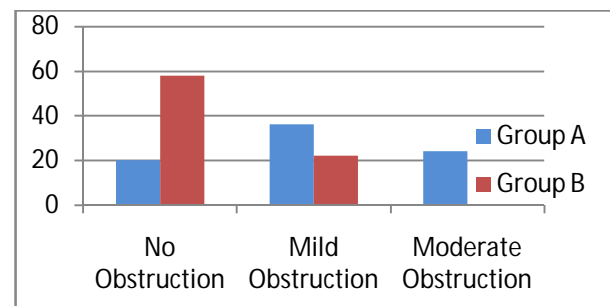
Post-operative nasal patency of the individuals was noted after 03 weeks. Observer and the patient were kept blinded about the type of surgery performed. Visual analogue scale of 0 to 10 was divided as no-obstruction (0), mild (1-3), moderate (4-6) or severe obstruction (7-10).

Data had been analyzed using SPSS version 15. Descriptive statistics were used to describe the results. The two groups were compared for nasal obstruction by Chi-square test. P-value < 0.05 was considered as significant.

## RESULTS

The age of patients varied from 16 to 41 years. Mean age in group A was 27.2 years (S.D = 3.55) while in group B it was 26.5 years (SD = 4.38). There were, 58 (72.5%) males in group A while in group B, 54 (67.5%) were males. Both the groups were comparable with respect to age ( $p < 0.05$ ) and gender ( $p > 0.05$ ).

All the patients in both groups had severe nasal obstruction pre-operatively. Three weeks post operatively in group A, 20 (25%) patients had no obstructive symptoms, 36 (45%) had mild obstructive symptoms while 24 (30%) had moderate nasal obstruction. In group B, 58 (72.5%) felt complete relief with no-obstruction, 22 (27.5%) patients had mild obstruction while none had moderate or severe obstruction of nose. Post-operative nasal patency is significantly



**Figure-1: Comparison of nasal obstruction between both the groups following submucosal diathermy of inferior turbinate versus inferior turbinectomy.**

better in group B as compared to group A ( $p < 0.001$ ). (Fig-1)

## DISCUSSION

Nasal obstruction secondary to hypertrophy of the inferior turbinates is a very common disease encountered in otorhinolaryngology practice. Surgically, inferior turbinate reduction can be accomplished with a number of techniques e.g. electrocautery, laser cautery, cryotherapy, SMD, sub mucosal resection with microdebrider and inferior turbinectomy. However, inferior turbinectomy is associated with more bleeding, it affects nasal physiology and may lead to secondary atrophic rhinitis<sup>8</sup>. Submucosal diathermy of inferior turbinate is a relatively safe surgical procedure and preserves nasal mucosa<sup>9</sup>.

A number of studies have been performed worldwide about various surgical procedures adopted for management of hypertrophied inferior turbinates. In our study two surgical procedures, IT and SMD of inferior turbinate were compared. Inferior turbinectomy was found

significantly more effective in relieving nasal obstruction ( $p$  value less than 0.05).

Fradis M and Golz A, in a retrospective study, compared bilateral inferior turbinectomy and submucosal diathermy. 96% of patients who underwent inferior turbinectomy reported improvement in nasal breathing two weeks after surgery, and 88% had improvement two months after surgery. Diathermy showed good results in 86% of cases two weeks after surgery. The efficacy of this procedure was reduced to 82% after two months of surgery<sup>6</sup>.

Kafle P et al compared effectiveness of submucosal diathermy and partial resection of inferior turbinate. Following six months of follow up, six patients of group undergoing SMD had recurrence with nasal blockage and in patients undergoing inferior turbinectomy none had recurrence. It was concluded that partial resection of inferior turbinates is better than SMD in long course<sup>7</sup>.

Dov Ophir studied the effects of total inferior turbinectomy in one hundred and fifty patients, and he found that 91% of patients had patent nasal airway post operatively<sup>10</sup>. A study involving 357 patients was conducted at Department of Otolaryngology-Head and Neck Surgery, Western Galilee Hospital, Nahariya which showed that even in a hot and dusty climate, total inferior turbinectomy is an effective and relatively safe procedure in relieving nasal obstruction. The results of inferior turbinectomy in our study are in accordance with the above mentioned international studies<sup>11</sup>.

Khan NU et al, studied post operative results in 135 patients who underwent inferior turbinectomy for hypertrophied inferior turbinates. 128 patients reported marked improvement in nasal breathing, four had mild improvement, and three had no change<sup>15</sup>. It was found that total inferior turbinectomy is safe and very effective in relieving chronic nasal obstruction caused by hypertrophied inferior turbinates and does not require expensive instrumentation.

Similarly a prospective clinical study was conducted at Ear Nose and Throat department Combined Military Hospital Lahore to evaluate the results of total inferior turbinectomy in patients suffering from nasal obstruction due to hypertrophied inferior turbinates<sup>12</sup>. One hundred patients were operated upon and followed up for nine months. Nasal obstruction was relieved in 96% patients.

A study was also performed on one hundred and sixteen patients at department of Otolaryngology Holy Family Hospital, Rawalpindi<sup>3</sup> in which inferior turbinectomy was found effective in controlling the symptoms of 94% patients with inferior turbinate hypertrophy.

Recently many other newer techniques have been employed for surgical resection of inferior turbinates. These include cryosurgery, use of LASER, radiofrequency ablation, coblation reduction, submucosal bipolar radiofrequency therapy and use of microwave therapy.

These are also very effective in improving nasal obstruction objectively and in preserving nasal mucociliary function. Laser ablation of the turbinate is effective in improving the nasal obstruction; however, it disturbs the mucociliary function significantly. Studies should also be conducted on these newer techniques in our country so that our local population should also begin to benefit from the latest trends of surgery in rhinology.

## CONCLUSION

Total inferior turbinectomy for hypertrophied inferior turbinates is more effective than submucosal diathermy of inferior turbinates in relieving nasal obstruction.

## REFERENCES

1. Muhammad S, Farooq AM. Nasal Turbinectomy. Pakistan Journal Otolaryngol. 2006; 22:51-3.
2. Saurabh BS, Ivor AE. Non allergic and allergic rhinitis. In: Anil KL, editor. Current Diagnosis and Treatment in Otolaryngology-Head and neck surgery. 1st ed. Lange 2004: 280-1
3. Baig M, Akhtar FP. Management of the hypertrophied inferior turbinate. J Rawal Med Coll. 2004; 8: 75-7.
4. Passali D, Passali FM, Damiani V, Passali GC, Bellusi L. Treatment of inferior turbinate hypertrophy: a randomized clinical trial. Ann Otol Rhinol Laryngol. 2003 ; 112:683-8.

5. Khan NU, Arshad M, Ahmed T, Ashfaq M. Total Inferior Turbinectomy For Hypertrophied Inferior Turbinates: Postoperative Results In 135 Patients. Pak Armed Forces Med J. 2005;55:187-92.
  6. Fradis M, Malatskey S, Magamsa I, Golz A. Effect of submucosal diathermy in chronic nasal obstruction due to turbinate enlargement. Am J Otolaryngol. 2002; 23:332-6.
  7. Kafle P, Maharjan M, Shrestha S, Toran KC. Comparison of chemical cautery (AgNo3) and steroid spray against SMD (submucosal diathermy) in the treatment of symptomatic inferior turbinate hypertrophy (ITH). Kathmandu Univ Med J (KUMJ). 2007;5:335-9.
  8. Martinez SA., Nissan AJ, Stock CR, Tesmer T. Nasal turbinate resection for relief of nasal obstruction. Laryngoscope. 1983; 93, 871-5.
  9. Farmer SE, Eccles R. Understanding submucosal electro-surgery for the treatment of nasal turbinate enlargement. J Laryngol Otol. 2007; 121:615-22.
  10. Ophir D, Shapira A, Marshak G. Total inferior turbinectomy for nasal airway obstruction. Arch Otolaryngol. 1985; 111: 93-5.
  11. Talmon Y, Samet A, Gilbey P. Total inferior turbinectomy: operative results and technique. Ann Otol Rhinol Laryngol. 2000;109:1117-9.
  12. Azeem QA, Khalil H, Barlas NM. Is total inferior Turbinectomy a reliable answer for nasal obstruction caused by hypertrophied inferior turbinates. Pak Postgrad Med J. 2002; 13:120.
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