

Prospective Comparative Study of Management of Inferior Turbinate Hypertrophy with Partial Turbinectomy and Submucous Diathermy

Gudise Abhinav Kiran¹, I Sandeep², Baddamrachna Reddy³

¹Assistant Professor, Department of ENT, Mallareddy Institute of Medical Sciences, Quthbullapur, Jeedimetla, Hyderabad, Telangana - 500 055

²Associate Professor, Department of ENT, Mallareddy Medical College for Women, Quthbullapur, Jeedimetla, Hyderabad, Telangana - 500 055

³Assistant Professor, Department of ENT, Mallareddy Medical College for Women, Quthbullapur, Jeedimetla, Hyderabad, Telangana - 500 055

Received: 01-10-2023 / Revised: 04-10-2023 / Accepted: 09-10-2023

Corresponding author: Baddamrachna Reddy

Conflict of interest: Nil

Abstract

Background: Nasal obstruction due to hypertrophied inferior turbinate is very common. In such patients nasal obstruction is relieved by reducing the size of inferior turbinate. Many well documented procedures are available to achieve this size reduction.

Aims: Study compares partial inferior turbinectomy and submucous diathermy, the 2 most commonly done procedures for reducing the size of hypertrophied inferior turbinate

Methods: This prospective comparative study was carried out on 60 patients from July 2022 to June 2023 in the department of ENT in Malla Reddy Hospital. 30 patients underwent SMD & 30 patients partial turbinectomy with postoperative follow up on day 1, day 7 and one month by subjective & objective assessment to ascertain nasal patency, post-operative bleeding, pain and crusting

Results: Moderate to good improvement of nasal air flow is seen in 18 patients of SMD & 26 patients of partial turbinectomy at the end of 1 month. At day 1 assessment 4 patients of SMD had mild bleeding and about 18 patients had moderate bleeding with partial turbinectomy, none of the patients of SMD had severe pain and 10 patients had severe pain with partial turbinectomy. At day 7,7 patients had moderate crusting with SMD and 22 patients had moderate crusting with partial turbinectomy

Conclusions: We found SMD to be a safer technique while partial turbinectomy was better in relieving nasal obstruction.

Keywords: Nasal obstruction, Inferior Turbinate Hypertrophy, Partial Turbinectomy, Submucous Diathermy.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Nasal airflow disturbance occur in about 30% of the population causing nasal obstruction and most common cause being hypertrophied inferior turbinate [1]. Different surgical methods have been described to reduce the size of hypertrophied inferior turbinate when conservative management fails. The surgical method selected should reduce the turbinate size thereby decreasing the nasal obstruction while maintaining the function and anatomy of nasal air passages.

Inferior turbinectomy has been described to relieve chronic nasal obstruction due to hypertrophied inferior turbinate but is known to cause several complications like post operative bleeding [2], crusting [3] amongst others.

Woodhead described the changes caused to inferior turbinate by SMD that induces sub mucosal fibrosis and thus reducing size of the turbinate [4,5].

However damage to nasal alae, columella and nasal septum is seen with SMD if care is not taken. This study is aimed at comparing the results of SMD and partial inferior turbinectomy, the two most commonly done procedures, in terms of symptom relief, post-operative bleeding, pain and crusting.

Materials and Methods

A prospective comparative study was conducted in the department of ENT in Malla Reddy Hospital from July 2022 to June 2023 on 60 patients of all age groups and both sexes. They were randomized by simple random sampling into two groups of 30 each. Group A had sub mucosal diathermy on inferior turbinate and Group B had partial inferior turbinectomy. Patients with only bilateral inferior turbinate hypertrophy not responding to conservative treatment and no other associated pathology were included in study. Patients with

previous history of nasal surgery, deviated nasal septum, nasal polyps and sinusitis were excluded. Patients not willing for surgery, abnormal coagulation profile, having hemoglobin less than 10 gm/dl, any systemic illness or acute infection at the time of surgery were also excluded from the study. All patients were examined by anterior rhinoscopy and nasal endoscopy.

The size of turbinate's were graded as follows:

Grade 1-inferior turbinate's occupying <25% of nasal cavity

Grade 2-inferior turbinate's occupying 25-50% of nasal cavity

Grade 3-inferior turbinate's occupying 50-75% of nasal cavity

Grade 4-inferior turbinate's almost touching or touching the nasal septum

The patients were followed up on post-operative day 1, day 7 and at the end of 1 month for assessing complications and improvement of nasal obstruction

Results

A total of 60 patients entered the study of which 30 in Group A underwent SMD and 30 in Group B underwent partial inferior turbinectomy.

Table 1: Nasal Bleeding in present study after first post OP day

Post op day-1 assessment		SMD	PIT
		Number of cases (%)	Number of cases (%)
Bleeding	None	26(86.7%)	--
	Mild	4(13.4%)	12(40%)
	Moderate	--	18(60%)

On the first post op day, of the 30 patients who underwent SMD 26 patients had no bleeding while 4 had mild bleeding. In contrast, of the 30 patients who had partial inferior turbinectomy 12 had mild bleeding and 18 had moderate bleeding.

Table 2: Pain in present study after first post OP day

Post op day-1 assessment		SMD	PIT
		Number of cases (%)	Number of cases (%)
Pain	Mild	19(63.4%)	6(20%)
	Moderate	11(36.7%)	14(46.7%)
	Severe	--	10(33.3%)

19 patients of SMD had mild pain and 11 had moderate pain. While in the patients who had partial turbinectomy, 6 had mild pain, 14 had moderate pain and 10 had severe pain.

Table 3: Crusting in present study after seventh post OP day

Post-op day-7 assessment		SMD	PIT
		Number of cases (%)	Number of cases (%)
Crusting	None	10(33.3%)	--
	Mild	13(42.3%)	8(26.7%)
	Moderate	7(23.3%)	22(73.3%)

On post op day 7, 10 patients of SMD had no crusting, 13 had mild crusting and 7 had moderate crusting. 8 patients of partial turbinectomy had mild crusting and remaining 22 had moderate crusting.

Table 4: Improvement in Nasal Obstruction in present study in one month assessment

Post-op one month assessment.		SMD	PIT
		Number of cases (%)	Number of cases (%)
Improvement	Mild	12(40%)	4(13.4%)
	Moderate	12(40%)	10(33.3%)
	Good	6(20%)	16(53.3%)

After 1 month, of the Group A patients who had SMD, 12(40%) had mild improvement of nasal obstruction, 12(40%) had moderate improvement and 6(20%) had good improvement. While in group b patients who had partial inferior turbinectomy, 4 (13.4%) had mild improvement, 10(33.3%) had moderate improvement and 16(53.3%) had good improvement.

Discussion

Chronic nasal obstruction is one of the commonest symptoms encountered in otolaryngology. In most patients the cause is either septal deviation or

inferior turbinate hypertrophy, Surgical reduction of turbinate's can be performed by several different techniques.

Partial inferior turbinate resection is preferred by

many surgeons as there is low morbidity & the amount of turbinate excised can be altered according to the degree of symptomatology. Our object is to discuss the results of SMD in comparison with the results of partial turbinectomy.

According to a study by Fradis et al done in 2000 in USA, the improvement of nasal symptoms was 76% with SMD and 96% with partial turbinectomy. In our study moderate to good improvement was 60% with SMD and 86% with partial inferior turbinectomy.

Mohammad Hassan Al-Baldawi did a comparative study between partial turbinectomy and submucous diathermy, according to his study postoperative nasal obstruction improvement seen in 82.5% patients with submucous diathermy and 97.5% in patients with turbinectomy postoperative bleeding seen in 12.5% patients with turbinectomy and with submucosal diathermy it was negligible. Nasal crusting was seen in 5% patients with turbinectomy [6]. Imad et al., did comparative study of submucosal diathermy with partial turbinectomy and found submucosal diathermy safe and better procedure in respect to bleeding, pain, crusting and healing than partial turbinectomy and nasal permeability between two procedures at the end of one month was (SMD: PIT) 11:14 [7]. Another study by Imad et al in 2012[7] found post-operative improvement in nasal symptoms to be almost similar in both SMD and partial turbinectomy. Post-operative bleeding, pain and crusting was less in SMD when compared to partial inferior turbinectomy.

After 1 month, of the Group A patients who had SMD, 12(40%) had mild improvement of nasal obstruction, 12(40%) had moderate improvement and 6(20%) had good improvement. While in group b patients who had partial inferior turbinectomy, 4(13.4%) had mild improvement, 10(33.3%) had moderate improvement and 16(53.3%) had good improvement. In a study by Santosh Uttarkar Panduranga Rao et al in 2017[8] comparing different methods of turbinate reduction, the improvement of symptoms with bipolar and monopolar cautery reduction of turbinate's was higher compared to turbinectomy which is in contrast to the results of our study. The post-operative complications like synechiaeformation, post-operative pain, bleeding and crusting was also less when compared to turbinectomy.

Finally the results in our study are mostly comparable to other studies which shows that

partial turbinectomy is better than SMD in terms of improvement of nasal obstruction but the post-operative complications are more than with SMD.

The limitations of our study are smaller sample size and the subjective nature of information collected.

Conclusion

We found SMD to be a safer technique in view of lesser post-operative bleeding, crusting and pain but partial inferior turbinectomy was better in relieving nasal obstruction. SMD is also a lesser invasive surgery. Finally the choice of surgery is ultimately with the surgeon and the surgeon has to weigh the risks and benefits of both procedures depending on the grade of turbinate hypertrophy.

References

1. Luczaj J, Submucosal bipolar radiofrequency therapy for treatment of inferior turbinate hypertrophy, *Otolaryngology Polska*, 2007, 61 (3), 290-4
2. Bandos RD, Rodrigues de Mello V, Ferreira MD, Rossato M, Anselmo-Lima WT. Clinical and ultrastructural study after partial inferior turbinectomy. *Braz J Otorhinolaryngol* 2006; 72:609-16.
3. Qureshi N. Role of partial anterior inferior turbinectomy in nasal obstruction. *J Rawal Med Coll* 2006;10:70-2.
4. Manzoor T, Asghar A, Aslam S, Ali M, Ayub W. Partial inferior turbinectomy. *Professional Med J* 2008; 15:512-7.
5. Nassif Filho AC, Ballin CR, Maeda CA, Nogueira GF, Moschetta M, de Campos DS. Comparative study of the effects of submucosal cauterization of the inferior turbinate with or without fracture. *Braz J Otorhinolaryngol* 2006;72:89-95
6. Al-Baldawi MH. Management of inferior turbinate hypertrophy: a comparative study between partial turbinectomy and submucous diathermy. *Iraqi J Comm Med*. 2009;22(4):264-67
7. Imad, Javed, Sanaullah. Comparison of submucosal diathermy with partial inferior turbinectomy: A fifty case study. *JPMI*. 2012; 26 (1):91-95.
8. Santosh Uttarkar Panduranga Rao, Prashanth Basavaraj, Supriya Basavaraj Yempalle, Aravind Darga Ramachandra. A Prospective Study of Different Methods of Inferior Turbinate Reduction. *JCDR*. 2017;11 (5):01-03.