

PARTIAL INFERIOR TURBINECTOMY FOR INFERIOR TURBINATE HYPERTROPHY: REVIEW OF 30 CASES

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ABSTRACT

OBJECTIVES

To compare the preoperative and postoperative subjective, objective parameters and postoperative complications of 30 patients with nasal obstruction due to inferior turbinate hypertrophy following partial inferior turbinectomy.

PATIENTS AND METHODS

A prospective observational study involving 30 patients with nasal obstruction due to inferior turbinate hypertrophy was done at SGMC, TVM from January 2014 to June 2015. Patients were evaluated preoperatively and postoperatively based on subjective and objective parameters. Postoperative evaluation was done at day 1, 1 week, 1 month and 3 months based on subjective and objective parameters and postoperative complications.

RESULTS

Snoring among the study population decreased from 26.7% to 10% at the end of 1 month and was further reduced 3.3% at the end of 3 months. Feeling of nasal obstruction, present in all patients, preoperatively was reduced to 36.7%, 16.7% and 3.3% at the end of 1 week, 1 month, and 3 months respectively. Among preoperative objective parameters, cold spatula test which was showing decreased fogging for all patients initially, following the procedure showed improvement in fogging in 70%, 90%, 100% of patients at the end of 1 week, 1 month and 3 months postoperatively. Anterior rhinoscopy showing large turbinate in all patients preoperatively, showed reduction in turbinate size in 70%, 86.73% and 96.7% at the end of 1 week, 1 month and 3 months respectively. Radiological evidence of enlarged inferior turbinate present in all patients was reduced to 3.3% at the end of 3 months. Occurrence of postoperative reactionary haemorrhage on day 1 was 43.3%. Nasal crust formation was not seen in 6.7% of the patients by the end of 3 months. Nasal pain was seen in 6.7% of the patients at the end of 1 week. Remote sequelae like synechiae and atrophic rhinitis were not reported in any of the patients during the assessment time period.

CONCLUSION

PIT is an effective technique for management of hypertrophy of inferior turbinate and is associated with incidence of short-term complications like bleeding, nasal crusting, etc.

KEYWORDS

Inferior Turbinate Hypertrophy, Partial Inferior Turbinectomy, Nasal Obstruction.

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INTRODUCTION: One of the common presenting complaints to an ENT OPD is nasal obstruction.¹ Deviated septum, nasal polyposis, hypertrophied inferior turbinate, vasomotor or perennial rhinitis are common aetiologies causing nasal obstruction. Out of which inferior turbinate hypertrophy forms a major problem encountered, which may sometimes respond to medical management by topical decongestants. Physiological functions of inferior turbinate include resistor function, diffusor and protective function. Disorders affecting inferior turbinate include compensatory

hypertrophy, protrusion of the os turbinata, hyperplasia of the end of the turbinate.² Severe cases of Inferior turbinate hypertrophy do not respond to medical treatment and requires surgery. Multiple surgical techniques have been made available for the management of the same.³ Some of them are turbinectomy, laser cautery, radioablation, turbinoplasty, cryosurgery, electrocautery, submucosal diathermy, submucosal resection with or without lateral displacement. Surgeons are still under dispute regarding which surgical technique serves the best in treating the hypertrophy.¹ This study aims to compare the preoperative and postoperative subjective, objective parameters and postoperative complications following partial inferior turbinectomy.

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MATERIALS AND METHODS: A prospective observational study of 30 patients who attended the ENT OPD with complaints of nasal obstruction due to inferior turbinate hypertrophy was done in the department of ENT SGMC from January 2014 to June 2015.

A thorough history and detailed examination of ear, nose and throat was conducted by anterior rhinoscopy, DNE and radiologically by sinus X-Ray. Routine preoperative investigation was done for every patient.

Inclusion Criteria: Patients with nasal obstruction or stuffiness due to inferior turbinate hypertrophy (hypertrophy of the stroma) who attended ENT OPD in whom Partial Inferior Turbinectomy was done during time period from Jan 2014 to June 2015 at SGMC &RF, Venjaramoodu.

Exclusion Criteria:

- 1) Patients not willing to participate in the study.
- 2) Patients who were operated in conjunction with nasal polypectomy/ functional endoscopic sinus surgery.

Size of inferior turbinate was classified into three grades³:

Grade 1: Normal size inferior turbinate, not atrophic without any nasal obstruction.

Grade 2: Moderate sized inferior turbinate, touching the septum with nasal obstruction, responding to local decongestant.

Grade 3: Large mulberry turbinate touching the septum with nasal obstruction, not responding to local decongestant.

The procedure was done for both grades 2 and grade 3 patients.

Preoperative subjective parameters assessed were presence of snoring and feeling of nasal obstruction. Preoperative objective parameters assessed were cold spatula test showing a decreased fogging, anterior rhinoscopy showing enlarged inferior turbinate and X-ray PNS showing large sized turbinate.

The procedure was done under GA, with the patient in reclining position and head end of the table raised. Nasal cavity was packed with two cotton pledgets soaked in oxymetazoline and adrenaline. After decongestion, the inferior turbinate was infiltrated with 2% Xylocaine + Adrenaline up to the posterior end. Using turbinectomy scissors, the medial one third of the anterior end of the inferior turbinate was resected without any trauma to the bony inferior concha.

Following the procedure, anterior nasal packing was done with antibiotic ointment (Soframycin+ Metronidazole). All patients were given parenteral antibiotics, analgesics and nasal drops for 5-7 days postoperatively.

Postoperatively, subjective parameters like persistence of snoring and relief of nasal obstruction were assessed. Postoperative objective parameters that were assessed include cold spatula test showing increased fogging, anterior rhinoscopy showing reduced turbinate size and X-Ray PNS showing reduced turbinate size. In addition, occurrence of

postoperative complications like reactionary haemorrhage, nasal crust formation, vestibular skin burn, headache and nasal pain, synechiae formation and atrophic rhinitis were also assessed. Postoperative assessment of persistent snoring was done at 1 month and 3 months. Nasal obstruction was evaluated at 1 week, 1 month and 3 months postoperatively. Cold spatula test and anterior rhinoscopy were done at 1 week, 1 month and 3 months postoperatively. X-ray PNS for the evaluation of the persistent large sized turbinate was done postoperatively at the end of 3 months. Follow-up was done on Day 1 for assessing reactionary haemorrhage. Nasal crust formation was evaluated at 1 week, 1 month and 3 months postoperatively. Vestibular skin burn was assessed on Day 1. Assessment of nasal pain was done on postoperative Day 1 and Day 7. Synechiae formation and atrophic rhinitis were evaluated at 1 month and 3 months.

RESULTS: Out of the 30 patients recruited for the study, 20 were males and 10 were females, with mean age of 27.8. (Figure. 1)

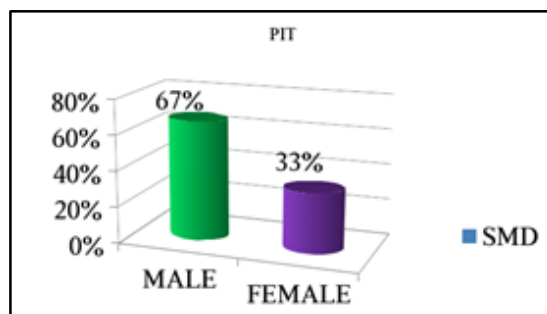


Fig. 1: Percentage Distribution of Sample in Group According to sex

Preoperatively, 26.7% of patients suffered from snoring. Postoperatively, snoring was reduced to 10% after 1 month and by the end of 3 months it was 3.3%. All patients complained of nasal obstruction preoperatively. Following the procedure, the feeling of nasal obstruction was reduced in 63.3% by the end of 1 week and was further reduced in 83.3% at the end of 1 month. 96.7% of the patients were relieved of nasal obstruction by the end of 3rd month postoperatively. (Figure 2)

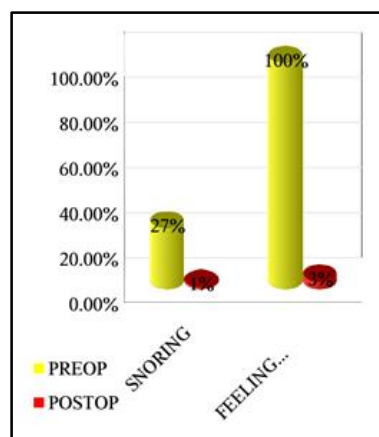


Fig. 2: Preoperative and Post-operative (3rd month) Incidence of Snoring and Feeling of Nasal Obstruction

Cold spatula test done preoperatively revealed reduced fogging in all 30 patients, whereas the test when done post-surgery showed improvement in fogging in 70%, 90% and 100% of patients at the end of 1 week, 1 month and 3 months. Both Anterior rhinoscopy and X-ray PNS revealed large sized turbinate in all patients when assessed preoperatively. Only 30%, 4% and 1% of the patients had persistent large sized turbinate postoperatively when assessed by anterior rhinoscopy at 1 week, 1 month and 3 months respectively. X-Ray PNS done at the end of 3 months showed persistent large turbinate in only 1% of the 30 patients (Figure 3).

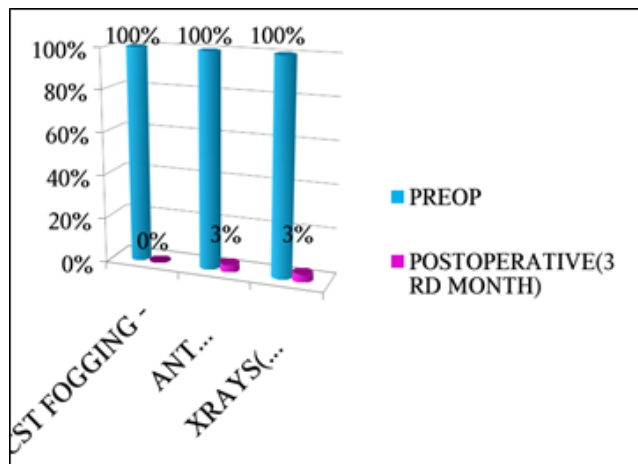


Fig. 3: Preoperative and Postoperative (3rd month) Assessment of Objective Parameters

On the first postoperative day, reactionary haemorrhage was observed in 13(43.3%) patients.

Nasal crust formation evaluated at the end of first week demonstrated crust formation in 46.7% of patients. Follow-up at the end of 1 month revealed crust formation in 26.7% of patients. Follow-up at the end of 3rd month demonstrated that 6.7% of the patients had crust formation. (Figure 4)

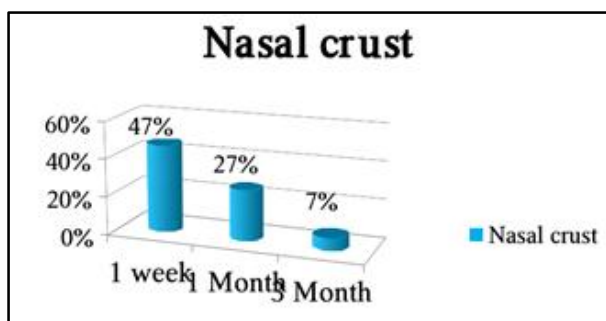


Fig. 4: Incidence of Nasal Crust Formation at Various Time Intervals

Nasal pain was present in 11(36.7%) of patients on day 1. At the end of first week 2(6.7%) of the patients had the same. (Figure 5)

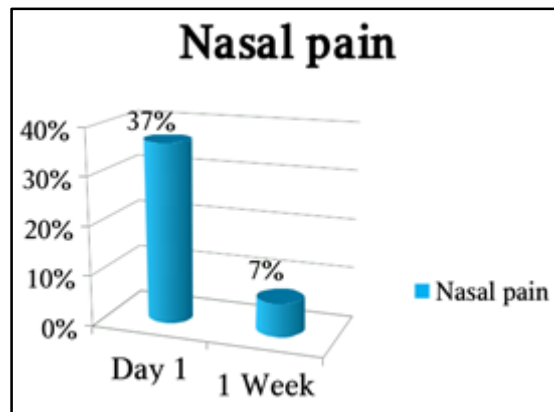


Fig. 5: Incidence of Nasal Pain at Various Time Intervals following PIT

Synechiae formation and atrophic rhinitis were evaluated at 1 month and 3 months postoperatively and none of the patients had the same.

DISCUSSION: Nasal obstruction is one among the commonest presenting complaints of patients attending the ENT OPD. One of the most common aetiology for nasal obstruction is hypertrophy of the inferior turbinates due to allergic rhinitis or vasomotor rhinitis. The hypertrophy is almost always due to dilatation of the venous sinusoids resulting in swelling of the submucosal layer.⁴ Majority of the patients respond to antihistamines or local decongestants. Occasionally, submucous fibrosis may render the turbinates incapable of decongestion and in such cases surgical management becomes necessary.⁴ Even though multiple treatment options are available, there is considerable controversy over the merits of the various techniques.

This study is done to compare the preoperative and postoperative subjective, objective parameters and postoperative complications of 30 patients with nasal obstruction due to inferior turbinate hypertrophy following partial inferior turbinectomy. Cold spatula test, anterior rhinoscopy and radiological investigations (X-ray PNS) were done. Rhinomanometry was not done due to lack of availability in our institute.

In a study conducted by Mohammad Hassan Al-Baldawi⁵ in 2009, about 97.5% of patients had disappearance of snoring on the side where PIT was performed. In a study conducted by Anil.H.T.-Bilkhis Mahjabeen G M & et al in 2013,⁵ 92% patients had disappearance of snoring who underwent PIT. In our study, disappearance of snoring was observed in 90% after 1 month, 96.7% of patients at the end of 3 months in those who underwent PIT.

A study done by Mohammad Hassan Al-Baldawi in 2009 demonstrated an improvement in feeling of nasal obstruction in 97.5% of patients who underwent PIT. In a study conducted by Barbosa Ade A et al,⁶ 2005 (Brazil) showed an improvement in nasal airflow in 98% patients following PIT. Fradis et al⁷ 2000 (USA) demonstrated an improvement in nasal obstruction in 96% of the patients. Serrano in 1996 (France)⁸ study showed an improvement in nasal airflow in 81.7% of patients who underwent PIT. John Mathai¹ in 1992 showed that 98.3% had improved nasal

airflow following PIT. Our study showed an improvement in nasal airflow for 96.7% of the patients who underwent SMD. Improvement of fogging in cold spatula test was observed in all patients who underwent PIT in a study conducted by Mohammad Hassan Al-Baldawi in 2009. In our study, it was observed that the improvement in fogging was 70%, 90% and 100% at the end of 1 week, 1 month and 3 months respectively and these results were similar to that observed in other studies.

Study done by Mohammad et al, Iraq, 2009 showed reduction in the size of the turbinates in 97.5% of the patients who underwent PIT. Anterior rhinoscopic examination was done postoperatively at different time intervals for assessing decrease in the size of the turbinates. At the end of 1 week, anterior rhinoscopic examination revealed reduced size turbinates in 70% of patients and by the end of 1st month 86.7% of patients had reduced turbinates. The anterior rhinoscopic picture after 3 months showed reduced turbinates in 96.7% of patients who underwent PIT. Radiological examination (X-ray PNS) which was done after 3 months showed reduced turbinates in 96.7% of patients.

In a study conducted by Imad, Javed, Sanaullah⁹ in 2010, it was found that only 40% who underwent PIT had moderate bleeding. In a study by Passali¹⁰ et al, there was high incidence of postoperative reactionary haemorrhage who underwent PIT compared with other techniques like laser turbinectomy, cryosurgery and submucosal resection. The studies done by Mohammad Hassan Al-Baldawi revealed that the incidence of reactionary haemorrhage was 12.5% of the patients who underwent PIT had reactionary haemorrhage. In our study, the reactionary haemorrhage was evaluated on postoperative day 1 which was 43.3%.

Study conducted by Imad, Javed, Sanaullah⁹ in 2010 revealed that at the end of 2 weeks, 20% of the patients who underwent PIT had crusting. 5% of the patients who underwent PIT had developed nasal crust formation according to the study by Mohammad Hassan. In this study, the incidence of nasal crust formation was assessed at various time intervals. The incidence of nasal crust formation was 46.7% after 1 week which further reduced to 26.7% after 1 month. At the end of 3 months, 6.7% of the patients who underwent PIT had nasal crust formation.

In a study conducted by Imad, Javed, Sanaullah⁹ in 2010, in Peshawar 32% of patients who underwent PIT had moderate pain. In a study conducted in Iraq by Mohammad Hassan Al-Baldawi, the occurrence of nasal pain and headache was 12.5% of patients who underwent SMD. Our study also assessed the incidence of headache and nasal pain. On post-operative day 1, the incidence of nasal pain in patients was 36.7% and 6.7% of the patients had nasal pain at the end of 1 week.

Nasal synechiae/adhesions were not observed in patients who underwent PIT in a study conducted by Mohammad Hassan Al-Baldawi in 2009. The occurrence of synechiae formation was assessed in our study at 1 month and 3 months post-operatively. None had synechiae formation at the end of 1 month and 3 months.

Study done by Mohammad et al, Iraq, 2009 revealed that none of the patients who underwent SMD had atrophic rhinitis. In our study, we also assessed the incidence of atrophic rhinitis at time intervals of 1 month and 3 months. None of the patients had the same.

CONCLUSION: This study showed the following results:

- Improvement in airflow postoperatively 96.7% of the patients who underwent PIT.
- The relief from snoring postoperatively was seen in 96.7% of the patients who underwent PIT.
- By the end of 3 months, there was improvement in fogging in 100% of cases as seen in cold spatula test.
- The anterior rhinoscopic examination conducted postoperatively by the end of 3rd month showed that 96.7% of patients who underwent PIT had reduced turbinates.
- The radiological examination (X-ray PNS) taken postoperatively at 3 months revealed reduced turbinates in 96.7% patients.
- This study showed that the incidence in reactionary haemorrhage was 43.3%.
- 6.7% of patients who underwent PIT had both nasal crust formation and nasal pain at the end of 3 months and 1 week respectively.
- None of the patients had synechiae and atrophic rhinitis by the end of assessment period.

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