

# WHY NASAL SEPTAL SURGERY ALONE IS NOT SUFFICIENT TO RELIEVE NASAL OBSTRUCTION IN CASE OF DEVIATED NASAL SEPTUM?

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## ABSTRACT

**Objectives:** To find out a surgical procedure for nasal obstruction caused by deviated nasal septum and inferior turbinate hypertrophy by comparison between septal surgery alone and in combinations with inferior turbinate minimum surgery.

**Material and Methods:** It is a comparative study in nasal obstruction patients subjected to either septal surgery alone or with turbinate surgery to get good results. This study was conducted in ENT Department, Khyber Teaching Hospital, Peshawar, Pakistan from January 2012 to December 2014 for a period of two years. A total of 100 patients were selected with nasal obstruction and inferior turbinate hypertrophy. These were divided into two groups, in group 1 two procedures of septal surgery and inferior turbinate reduction were done and in group 2 only septal surgery were done to compare the results for airway assessment and complications.

**Results:** In Group 1 almost 86% success rate from nasal obstruction while in Group 2 only 16.6% success while complications rate is almost similar in both groups.

**Conclusion:** Nasal surgery is almost always successful when done in combination submucosal resection (SMR) or Septoplasty with inferior turbinate reduction but with minimal procedure to avoid complications.

**Key Word:** Nasal septum, inferior terbinates, septoplasty.

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## INTRODUCTION

Deviated nasal septum (DNS) is usually associated with inferior turbinate hypertrophy specially opposite side of DNS and is the cause of nasal obstruction in 75% population.<sup>1</sup> It is called compensatory hypertrophy because it fills the roomy side of the nose to decrease the excess air to flow through the nose which will cause crust formation and drying effects.<sup>2</sup> This hypertrophic turbinate may cause nasal obstruction even more than DNS side. Therefore this hypertrophic turbinate size must be reduce to get relief from nasal obstruction.

But the increased morbidity associated with turbinate surgery<sup>3</sup> we adopted minimal procedure in our study that is submucosal diathermy or even linear cautry on soft tissue of the turbinate to reduce its size. But as we know that this increase in size is only compensatory and ideally patients should be free from nasal obstruction after septal surgery only. But this concept is not always correct.<sup>4</sup> Therefore we included in our study both conditions that is with septal surgery alone and septal surgery associated with turbinate reduction procedure to find out whether turbinate surgery can be of any help in nasal airway obstruction. The unique structure of inferior turbinate is that it maximally helps in maintaining functions of nose. The inferior turbinate is lined by pseudostratified columnar epithelium with numerous goblet cells and this epithelium rests on well defined basement membrane. The submucosa contains array of arteries, arterio-venous anastomosis, and venous sinusoids. The submucosa also contains a large number of secreting glands. The venous sinusoids located between the capillaries and the venules are surrounded by smooth muscle fibers which are controlled by the

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autonomic nervous system. They are able to vasodilate and vasoconstrict depending on the physiologic demands of the body.<sup>5</sup> Hypertrophy of inferior turbinate may affect air way and olfaction. Hypertrophy usually results from allergic rhinitis, vasomotor rhinitis, chronic irritant exposure and chronic rhinosinusitis commonly seen in Pakistan in the form of exhaust from automobiles and industrial pollution, nasal congestion during pregnancy, and unilateral compensatory hypertrophy due to deviated nasal septum on other side.<sup>6</sup>

### MATERIAL AND METHODS

This comparative study was done in the Department of ENT and Head and Neck Surgery, Khyber Teaching Hospital, Peshawar from January 2012 to December 2014. A total of 100 patients were selected and divided in two groups 50 in each group. Group 1 included those patients planned to do septal surgery (Septoplasty or SMR as needed) as well inferior turbinate reduction surgery and in group 2 patients only septal surgery were done. We select only simple procedure of sub mucosal diathermy (SMD) or external linear diathermy to inferior hypertrophic turbinate. We adopt this procedure to decrease the rate of complications of more invasive procedures and also with the concept that the hypertrophy is only compensatory it should even regress after septoplasty. In our study no gender or age effects were included but there were 65 male and 35 female patients in both groups also age range was from 20 to 35 years. Patient's collections were almost all from OPD, admitted by an experienced ENT surgeon. All these patients were treated first with medical treatment for about a month to treat any underlying mucosal disease and to get proper result. After we assure that medical treatment has no effect then we included the patients. Patient's history and examination were recorded on a proforma as we believe that by only history and examination patients airway can be easily assessed as there are considered gold standard for diagnosis of septal as well as inferior turbinate pathology. We have the limitation of objectively assessment of patient's airway. Only routine investigations were done as a fitness for surgery. We included only patients having DNS and Hypertrophic inferior turbinate and excluding those patients having only DNS with no

inferior turbinate enlargement, allergic rhinitis patients, polyps and sinuses pathology. All these patients were subjected for surgery under general anesthesia but every patient was examined again preoperatively under local Anesthesia on operation table for proper septum and turbinate pathology.

Group 1 patients were subjected for both septal surgery and Sub mucosal diathermy (SMD). SMD needle was inserted at 3 sites of inferior turbinate to reach the needle up to posterior end of turbinate but in five cases as turbinate size was too huge we used linear cautery as well over surface of turbinate to reduce its size.

After the procedure anterior nasal packing were done for 24 hours and splints were put for 7 to 10 days. All patients were put on oral antibiotics, analgesics and antihistamine as for splints were there and discharge on 2nd post operative day and advice to come after 7 to 10 days for splints removal and follow up and encourage washing their noses with saline specially group 1 patients. After their splints were removed and did suction for blood clots and slough patients airway were assessed and also complications were noted. All patients were advised to come after 14 day, one month, 3 months and 6 months follow up. We lost 5 patients 3 in group 1 and 2 in group 2 after 3 months follow up while another 10 patients 6 in group 1 and 4 in group 2 were lost after 6 months follow up. At each follow up airway assessed both subjectively and on examination of nasal cavity and also any complications observed.

### RESULTS

In group1 10% patients has got nasal obstruction either in one or both sides after 3 months follow up in which 6% patients were due to complications (3 perforation 2 adhesions) adhesions were released and patients became symptom free only 4% patients experienced nasal obstruction may be due to improper septoplasty. Otherwise we have excellent result of 86% in group 1 patients in which we did both procedures.

As compared in group 2 only 16.6% patients have completely both sides open all remaining 83.3% were still complaining of one sided nasal obstruction which required some additional turbinate surgery to

#### Group 1 patient with two procedures septoplasty and partial inferior turbinectomy

Duration	Airway assessment	Complications
On 1st post op day	Both sides blocked	Mild bleeding
2nd post op day	Both sides blocked	Pain, burning
On 7—10 post op day	Partially blocked	Pain, oozing
On 14th post op day	One side fully open	Perforation seen in 3
On 30th day	One side blocked	In 5 crust with perforation
After 3 Months	In 47 pts 42 ok	Still 3 pts with perforation
After 6 Months	In 41 total pts 36 ok	No extra complications

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### Group 2 patients with only septal surgery

Duration	Airway Assessment	Complications
1st post up day	Blocked both sides	Mild bleeding
2nd post up day	Same condition	Oozing
On 7---10 day	Partially blocked	Crusts seen in 10
On 14 days	One side open	Perforation in 2
On 30 days	One side open	Adhesion in one
After 3 months	In 48,40pts one side open	perforation in one
After 6 months	In 44,38pts one side open	In 5 pts both sides open No extra complication

relieve nasal obstruction. It is clear from our study that with only septal surgery without turbinate surgery chances of failure is almost 80% to completely relieve nasal obstruction on both sides while in combinations there is 80% success rate. The airway assessment and complications of groups 1 = 2 are shown in Table 1-2 respectively.

### DISCUSSION

Inferior turbinate hypertrophy is a common finding in every deviated nasal septum but we are still unable to find out its cause, and treatment. Hypertrophy may be bony mucosal or both and the most common cause of nasal obstruction.<sup>7,8,9</sup> Various procedures for reduction or resection of turbinate is widely adopted for nasal obstruction but some patients are still not satisfied if associated with septal surgery? Because we still don't know when turbinate is pathologically enlarge or normal. Therefore there is controversy over the turbinate surgery. Also in nasal obstruction patients there is nonspecific finding associated with disturbed function and not necessarily caused by mechanical obstructions to airflow. Hypertrophy of inferior turbinate has been shown subjectively but there is no evidence that it should be treated as a supplementary procedure to septoplasty.<sup>10</sup>

The long term results of septoplasty have not commonly been reported, probably because the difficulty is objectively evaluating nasal function. The degree of septal deviation could not be correlated to turbinate mucosal hypertrophy. A hypertrophic inferior turbinate can be managed with different therapeutic procedures including Steroids injection, lateral out-fracture, partial or complete turbinectomy, submucosal resection, cryotherapy, laser, electrocautery, radiofrequency, and coblation.<sup>11,12,13,14</sup> Assessment of turbinate hypertrophy and complaints of patients were made by many ways in the literature depending on, Histopathology, CT scan, rhinomanometric studies, questionnaire, and endoscopic examination.<sup>15,16</sup> Grymer et al, reported that with severe septal deviation adding turbinectomy to the septoplasty increases the cross-section of the nasal cavity in the wider side, while it decreased in non- turbinectomy group.<sup>17</sup> Berger et al, concluded that

the significant bone expansion and the relative minor role played by the mucosal hypertrophy in cases of compensatory turbinate hypertrophy would support the decision to excise the inferior turbinate bone at the time of septoplasty.<sup>2</sup> On the other hand, the work of Illum, proved that addition of compensatory turbinate reduction to septoplasty did not play a detectable influence on the outcome evaluated by patients questionnaire and acoustic rhinometry.<sup>18</sup> Kim et al, reported that both the thickness of turbinate mucosa and the cross sectional areas of the inferior turbinate (measured by the CT) on the concave side were significantly decreased by septoplasty.<sup>3</sup> Gandomi et al had the same result and concluded that in the group of patients who had turbinate manipulation with septoplasty, and those patients who had septoplasty alone no significant difference in patient satisfaction was observed between these 2 groups at follow up period of 3 and 6 months.<sup>19</sup> The result of our study was not consistent with the studies done by Illum<sup>18</sup> and Gandomi<sup>19</sup> in the fact that nasal obstruction improved with septoplasty alone without turbinate surgery.

Assuming that hypertrophy is mainly mucosal, some authors proposed only septoplasty in treatment of compensatory turbinate hypertrophy (CTH) expecting reversibility of this mucosal hypertrophy and turbinate shrinkage, but if the hypertrophy is also bony, turbinate reduction will be a must during septoplasty. Both mucosa and bone contribute to compensatory turbinate hypertrophy. In cases of septal deviation, septoplasty alone cannot reverse compensatory turbinate hypertrophy or relieve the patient complaint of obstruction on the opposite side of deviation, so a turbinate reduction procedure should be done during septoplasty for CTH. This is what we did in our study we have got excellent results of 86% in group 1 in which we did both procedures as compared to group 2 in which only 6.6% patients showed complete relief in both sides.<sup>20</sup> Nasseem et al, in their study of comparison between two groups only 6.9% nasal obstruction in which both procedures of septal surgery as well as turbinate reduction was done as compared to 36.9% in which only septal surgery was done.<sup>21</sup>

## CONCLUSION

To achieve proper nasal airway it is mandatory to perform inferior turbinectomy in addition to septoplasty with enlarge inferior turbinate.

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## AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

**Ahmad N:** Concept and design, data collection, manuscript writing

**Din I:** Review the article, critical analysis, final approval Literature review, Statistical analysis

**Gul I:** Data analysis, result interpretation, references collection, helps in writing and typing.

**Rukh G:** Data collection.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.