

# Impact of Septoplasty on the Quality of Life of Patients with Symptomatic Nasal Septal Deviation

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## ABSTRACT

**Objective** - To assess the impact of septoplasty on the disease specific quality of life in patients with symptomatic nasal septal deviation.

**Methods** - A prospective observational study was conducted at the Department of ENT, Kempegowda Institute of Medical Sciences, Bangalore. Patients suffering from symptomatic deviated nasal septum underwent septoplasty. Disease specific quality of life was assessed using the Nasal Obstruction Symptom Evaluation scale preoperatively and at 4 weeks postoperatively.

**Results** – 60 patients were recruited. The mean age of patients was 31.7±1.74 years. The mean duration of symptoms of nasal septum deviation was 3.4±1.19years. A decrease was seen in the total mean score of all attributes of the Nasal Obstruction Symptom Evaluation scale, from 2.49 preoperatively to 1.09 postoperatively. An increase in the mean general health score from 0.72 preoperatively to 3.15 post operatively was observed. In all cases, quality of life showed significant improvement after septoplasty. No complications were seen.

**Conclusion** –Septoplasty results in significant improvement in disease specific quality of life in patients with deviated nasal septum.

**Keywords** – Nasal obstruction, Nasal septum, Septoplasty, Nasal Obstruction Symptom Evaluation (NOSE) Scale, Quality of life.

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## INTRODUCTION

Nasal obstruction is one of the most common patient reports in otorhinolaryngology practice<sup>1</sup>. It is the feeling of blockage or insufficient airflow through the nose and can significantly impact the individual's quality of life, leading to psychological distress<sup>2</sup>. Quality of life represents the functional effect of an illness and its consequent therapy upon the patient, as perceived by the patient<sup>3</sup>.

Deviated nasal septum (DNS) is one of the most frequent reasons for nasal obstruction presented with a reduction in nasal airflow. About 80 % of the general population has DNS to some degree<sup>4</sup>. Treatment of choice for DNS is septoplasty. Septoplasty is defined as an open surgery of the nasal septum with the goal of straightening it<sup>2</sup>. Several studies have attempted to measure the outcome after septoplasty using both quantitative techniques such as rhinomanometry and patient

based outcome measures. Quality of life (QoL) assessment of patients with nasal obstruction has not been well studied. While retrospective analysis of functional rhinoplasty has shown some beneficial effects, the efficacy of these techniques has not been examined prospectively with a disease specific quality of life instrument<sup>1</sup>.

The Nasal Obstruction Symptom Evaluation (NOSE) scale<sup>5</sup> is a subjective tool that correlates results with patient satisfaction<sup>6</sup>. Its major advantage is that it is superior to history in evaluating the subjective symptoms in the most accurate possible way with regard to difficulty breathing, whereas other scales are not equally reliable<sup>6</sup>.

This study was therefore undertaken with the objective of assessing the impact of nasal septal surgery on the disease specific quality of life of patients with nasal obstruction due to DNS, based on the NOSE scale.

## MATERIALS AND METHODS

A prospective observational study was conducted from June to December 2013 at the Department of ENT, Kempegowda Institute of Medical Sciences, Bangalore.

60 adults of both sexes aged 20-50 years, suffering from symptomatic anterior DNS, who failed to show improvement with medical management for 4 weeks (topical nasal steroids, antihistamines and decongestants) and were willing to undergo septoplasty, were included in the study.

Those who suffered from other nasal conditions (allergic rhinitis, acute or chronic infection of the nose or paranasal sinuses, polypi, inferior / middle turbinate hypertrophy, choncha bullosa, septal perforation, septal haematoma, synechia, granulomatous disease, sinonasal malignancies, nasopharyngeal mass), acute nasal trauma or fracture in the past 3 months, had undergone previous nasal / septal surgery, received head and

neck radiotherapy, had craniofacial syndrome, other systemic conditions such as uncontrolled asthma, other lung pathology, pregnancy etc or attrition to follow up or death from a cause not related to the study parameters in the observation period, were excluded from the study.

Preoperative evaluation was done by clinical examination and nasal endoscopy. Disease specific QoL assessment was performed using the NOSE scale (Table 1). Routine preoperative work up was carried out and all patients underwent septoplasty.

Post operative care included oral antibiotic and analgesic for 1 week and antihistamine for 10 days. Following nasal pack removal, saline nasal douching was advised for 4 weeks.

Patients were followed up at 1 month post operatively when they were examined and asked to complete a questionnaire based on the NOSE scale.

**Table 1** –Nasal Obstruction Symptom Evaluation (NOSE) Scale – Alpha version<sup>5</sup>

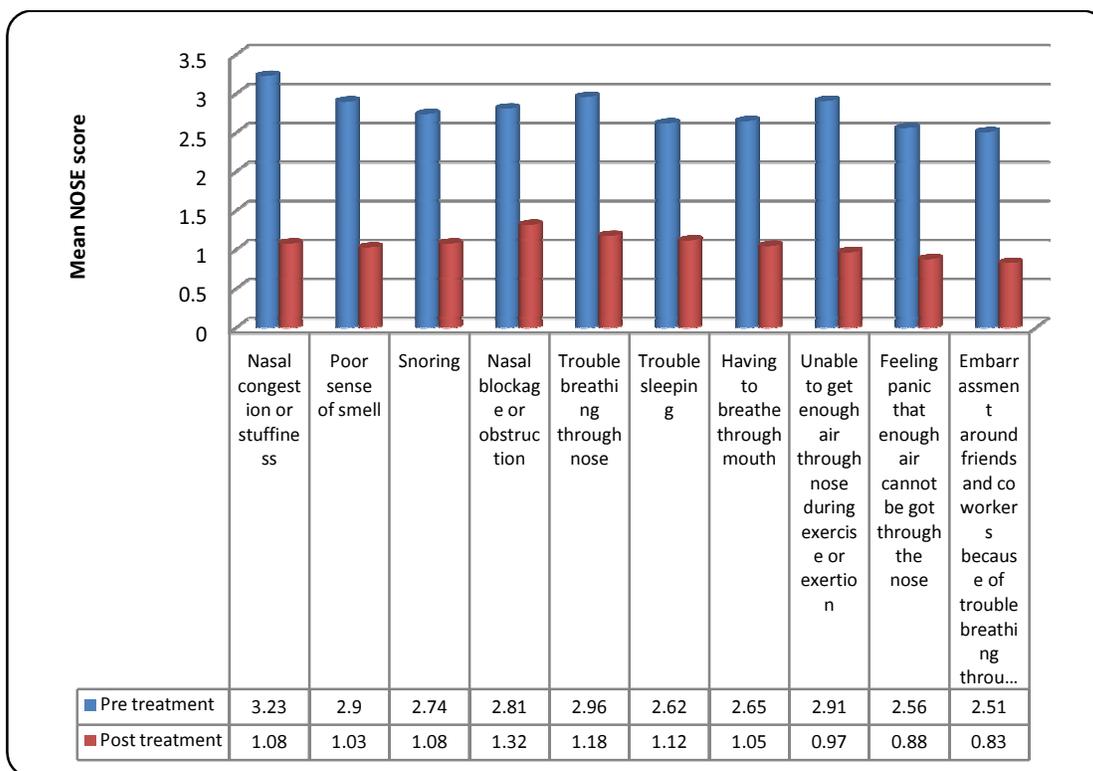
| No | Attribute  | Not a problem | Very mild problem | Moderate problem | Fairly bad problem | Severe problem |
|----|--|---------------|-------------------|------------------|--------------------|----------------|
| 1  | Nasal congestion or stuffiness   | 0             | 1                 | 2                | 3                  | 4              |
| 2  | Poor sense of smell  | 0             | 1                 | 2                | 3                  | 4              |
| 3  | Snoring  | 0             | 1                 | 2                | 3                  | 4              |
| 4  | Nasal blockage or obstruction  | 0             | 1                 | 2                | 3                  | 4              |
| 5  | Trouble breathing through my nose  | 0             | 1                 | 2                | 3                  | 4              |
| 6  | Trouble sleeping   | 0             | 1                 | 2                | 3                  | 4              |
| 7  | Having to breathe through my mouth   | 0             | 1                 | 2                | 3                  | 4              |
| 8  | Unable to get enough air through my nose during exercise or exertion                         | 0             | 1                 | 2                | 3                  | 4              |
| 9  | Feeling panic that I cannot get enough air through my nose                                   | 0             | 1                 | 2                | 3                  | 4              |
| 10 | Embarrassment around friends and co workers because I have trouble breathing through my nose | 0             | 1                 | 2                | 3                  | 4              |
| 11 | In general my health is  | Poor<br>0     | Fair<br>1         | Good<br>2        | Very good<br>3     | Excellent<br>4 |

## RESULTS

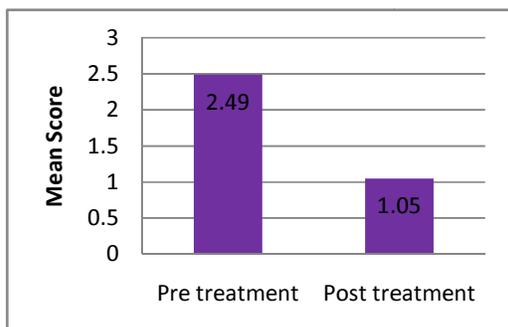
The mean age of the study patients (39 males and 21 females) was 31.7±1.74 years, with a range of 20-50 years. 50% were in the age group of 20-30 years, while 27% were aged between 30-40 years, and 23% between 40-50 years.

The mean duration of symptoms of DNS was 3.4±1.19 years (range of 1-9 years), with majority of patients (42%) having suffered for 3-5 years. 12% were symptomatic for 1-2 years, while 6% were symptomatic for 6-10 years.

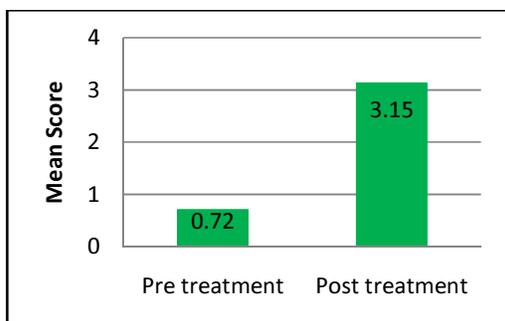
All patients in the study suffered from all of the attributes in the NOSE scale. Mean score for each of these attributes was calculated both pre and post operatively. There was a significant improvement in all symptoms following septoplasty (Graph 1). A decrease was seen in the total mean score of all attributes of the NOSE scale, from 2.49 preoperatively to 1.09 postoperatively (Graph 2). An increase in the mean general health score from 0.72 preoperatively to 3.15 post operatively was observed (Graph 3). No intraoperative or postoperative complications were seen.



**Graph 1:** Comparison of mean score of each attribute of the NOSE scale pre and post operatively



**Graph 2 –** Comparison of mean score of all attributes of the NOSE scale pre and post operatively



**Graph 3 –** Comparison of mean score of general health pre and post operatively

Difficulty in nasal breathing is probably the most common complaint in rhinologic practice. DNS is a common structural cause of nasal obstruction<sup>6</sup>. This condition not only causes impairment of nasal function but also affects quality of life leading to psychological distress<sup>7</sup>. Posterior nasal cavity can accommodate significant septal deviations without a substantial increase in airway resistance. In contrast, a deviation in the nasal valve region more than doubled nasal resistance. These findings are in agreement with rhinomanometry literature and with the observation that patients with anterior septal deviations benefit the most from septal correction<sup>8</sup>. The principal benefit of septal surgery is related to improvement in nasal symptoms<sup>3</sup>. It increases nasal volume and decreases nasal resistance, creating a positive outcome on nasal airflow<sup>4</sup>. Quantitative techniques measure volumetric changes in nasal cavity but not the subjective sensation of nasal obstruction or airflow in patients<sup>1</sup>. There seems to be only a limited argument for the use of rhinomanometry or acoustic rhinometry in routine rhinologic practice for quantifying surgical results. Both these may have no diagnostic value in estimating severity of nasal obstruction symptoms<sup>9</sup>. Furthermore, poor reliability in repeated measures and lack of

**DISCUSSION**

correlation between symptomatic improvement with rhinometry measurements precludes its use<sup>10</sup>. The Nasal Obstruction Symptom Evaluation scale is a valid, reliable and responsive instrument that is brief and easy to complete and has potential use for outcomes in studies with adults with nasal obstruction<sup>5</sup>. Developed in a multicentre study by Stewart et al, the NOSE scale is a validated disease specific quality of life instrument used to measure nasal obstruction and thus the effectiveness of septoplasty<sup>1</sup>. In contrast to the global QoL instruments, the NOSE scale is specific and sensitive to changes in nasal physiologic features<sup>10</sup>. NOSE questionnaires can be used to perform pre and post therapeutic assessment<sup>6</sup>.

In our study, the mean age of patients was 31.7±1.74 years, in contrast with more than 40 years in most studies<sup>11</sup>. Patients were clinically evaluated as studies show that physical examination from nasal endoscopy/anterior rhinoscopy is an accurate method of diagnosing DNS patients requiring septal surgery<sup>7</sup>, and physician rating of degree of nasal obstruction was found to be significantly correlated with patient reported quality of life<sup>2</sup>.

All patients were subjected to septoplasty. Lack of a control group is because there is no effective alternate treatment for DNS, and ethically a placebo treatment could not be carried out due to accepted treatment standards. Post operatively assessment at 4 weeks was carried out as it is considered ideal as it is enough to judge the surgical outcome, and longer periods of follow up have not shown significant differences in patient satisfaction<sup>4</sup>.

In a study by Calder et al, patients reported minimal improvement in health related quality of life following septal surgery<sup>12</sup>. Other studies have demonstrated that in patients with septal deformity, nasal septoplasty results in significant improvement in disease specific quality of life and high patient satisfaction<sup>13</sup> as was observed in our study, as all cases showed significant improvement after septoplasty.

**CONCLUSION:** In patients with symptomatic anterior nasal septal deviation, septoplasty results in significant improvement in disease specific quality of life and high patient satisfaction. The NOSE scale is a convenient and cost effective tool to assess the disease specific quality of life in

patients with nasal obstruction caused by nasal septal deviation.

## REFERENCES

1. Most SP. Analysis of outcomes after functional rhinoplasty using disease specific quality of life instrument. Arch Facial Plastic Surg 2006; 8(5): 306-309.
2. Bezerra TF, Stewart MG, Fornazieri MA et.al. Quality of life assessment septoplasty in patients with nasal obstruction. Braz J Otorhinolaryngol Jun 2012; 78(3): 57-62.
3. Baumann I. Quality of life before and after septoplasty and rhinoplasty. GMS current topics in otorhinolaryngology, head and neck surgery 2010; 9.
4. Karatzanis AD, Fragiadakis G, Moshandrea J et.al. Septoplasty outcome in patients with and without allergic rhinitis. Rhinology 2009; 47: 444-449.
5. Stewart MG, Witsell DL, Smith TL et.al. Development and validation of Nasal Obstruction Symptom Evaluation (NOSE) scale. Otolaryngol Head Neck Surg Feb 2004; 130(2): 157-163.
6. Mondina M, Marro M, Maurice S et.al. Assessment of nasal septoplasty using NOSE and RhinoQoL questionnaires. Eur Arch Otorhinolaryngol Oct 2012; 269(10): 2189-2195.
7. Ramos SL, Hochman B, Gomes HC et al. Effect of nasal deviation on quality of life. Plast Reconstr Surg July 2011; 128(1): 132-136.
8. Garcia, Guilherme JM, Rhee et al. Septal deviation and nasal resistance : An investigation using virtual surgery and computational fluid dynamics. American J Rhinology and Allergy 2010; 24(1): 46-53.
9. Kim CS, Moon BK, Jung DH, Min YG. Correlation between nasal obstruction symptoms and objective parameters of acoustic rhinometry and rhinomanometry. Auris Nasus Larynx Jan 1998; 25(1): 45-48.
10. Dolan RW. Minimally invasive nasal valve repair – an evaluation using the NOSE scale. Arch Otolaryngol Head Neck Surg March 2010; 136(3): 292-295.
11. Gandomi B, Bayat A, Kazemei T. Outcomes of septoplasty in young adults : the Nasal Obstruction Septoplasty Effectiveness study. Am J Otolaryngol May 2010; 31(3): 189-192.
12. Calder NJ, Swan RC. Outcomes of septal surgery. Journal of Laryngology and Otology Nov 2007; 121(11): 1060-1063.
13. Stewart MG, Smith TL, Weaver EM et.al. Outcomes after nasal septoplasty : Results from the NOSE study. Otolaryngol Head Neck Surg March 2004; 130(3): 283-290.

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