

Original Research Article

Quality of life after septoplasty in patients with nasal obstruction – a prospective observational study

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ABSTRACT

Background: Nasal septum deviation is most common cause of nasal obstruction. Septoplasty is most commonly done surgery for deviated nasal septum. At present the effectiveness of septoplasty in patients with nasal obstruction due to a deviated nasal septum remains uncertain. The outcome of the procedure is essential for the surgeon and patient to make an appropriate decision on the plan of management. Hence this study is undertaken to evaluate patients at different postoperative follow up intervals using nasal obstruction septoplasty effectiveness scale (NOSE) to know the efficacy of septoplasty.

Methods: Fifty patients with nasal obstruction due to deviated nasal septum were included in our study. All the patients answered NOSE questionnaire preoperatively and at 1, 3 and 6 months after septoplasty.

Results: The mean preoperative NOSE Score of 71.4 ± 15.1 reduced to 2.5 ± 3.5 at 6 months after septoplasty indicating improvement in the symptoms. Nasal congestion and nasal obstruction were completely eliminated from majority of the patients. Furthermore, breathing troubles and sleeping troubles had completely disappeared in 98% patients by 6 months in the postoperative period. Exercise problems had completely disappeared postoperatively in all patients.

Conclusions: The preoperative NOSE scores reduced significantly in the postoperative period. Septoplasty is a relieving surgery for patients with symptomatic deviated nasal septum, who are suffering from nasal congestion, nasal blockage, trouble breathing, trouble sleeping and exercise problems. Hence septoplasty results in improvement in the disease-specific quality of life of patients.

Keywords: Deviated nasal septum, Nasal obstruction, Septoplasty, Nasal obstruction septoplasty effectiveness scale, Quality of life

INTRODUCTION

A blocked nose is one of the commonest presenting chronic symptoms in ear nose and throat practice.¹ Nasal obstruction is the feeling of blockage or insufficient air flow through the nose, and it can impact significantly on the individual's quality of life (QoL). Deviated nasal septum (DNS) is a very common cause of nasal obstruction.² Septoplasty is most commonly done procedure for nasal septal deviation.

At present the effectiveness of septoplasty in adults with nasal obstruction due to a deviated nasal septum remains uncertain. The short- and long-term outcome of the procedure is essential information that enables surgeon and the patient to make an appropriate decision on the plan of management.

QoL is a subjective evaluation of the effects of a disease or therapeutic effects of its treatment on patient's health. It includes not only symptoms of the disease but also a wide spectrum of daily life activities such as physical and social

activities, emotional and practical problems, and general feeling of patients related to the disease.³

The nasal obstruction septoplasty effectiveness (NOSE) scale was first designed by Stewart and associates in 2004 and since then it has been widely used in day-to-day practice.⁴ It is a brief, simple, and easily administered QoL instrument specific to nasal obstruction. This validated instrument has been used to study the effectiveness of septoplasty for treatment of nasal obstruction. It addresses the severity of complaints that the patient experiences like nasal congestion/stuffiness, nasal blockage/obstruction, trouble breathing through nose, trouble sleeping, and unable to get enough air through the nose during exercise or exertion. Cross-cultural adaptation of the NOSE scale makes it effective to allow the comparison of outcome results between institutions and to organize multicenter studies.⁵

Hence this study was undertaken to evaluate the patients at different postoperative follow up intervals using NOSE Scale to know the efficacy of septoplasty in relieving nasal obstruction secondary to nasal septal deviation and to study the impact on quality of life of the patient. This information is useful for the surgeon and the patient by providing realistic expectation on the outcome of septoplasty.

METHODS

This is an institution based prospective study of effect of septoplasty in relieving nasal obstruction due to deviated nasal septum conducted at department of otorhinolaryngology and head and neck surgery, Ballari Medical College and Research Centre, Ballari. The Study was conducted for a period of one and half years from December 2018 to May 2020. All the patients above 18 years of age with nasal obstruction due to deviated nasal septum, undergoing septoplasty were taken up for the study. Patients with chronic sinonasal problems, patients undergoing septoplasty along with other nasal surgeries, revision septoplasty patients were excluded from the study. 50 cases have been taken as sample for the study.

Informed consent was obtained from the patients. Detailed evaluation including history and complete nose examination was done. CT nose and paranasal sinuses was done according to the necessity. All the patients answered NOSE questionnaire preoperatively and after septoplasty at 1 month, 3 month and 6 months.

Statistical analysis

Data was analyzed with IBM statistical package for the social sciences (SPSS) version 22 for windows. Categorical data was represented in the form of frequency and percentage. Quantitative data was represented as mean and standard deviation. Comparison of variables within the group has been done with paired t test. A p value of <0.05 was considered statistically significant.

Nasal Obstruction and Septoplasty Effectiveness (NOSE) – Scale

How to complete this Questionnaire:

- These are statements many people have used to describe their Nasal symptoms and the effect on their lives
- In the last **1 month**, how much of a problem were the following conditions for you?
- Circle the rating number that reflects the severity of the problem for you, for each statement.

Situation	Degree of Problem				
Nasal congestion or stuffiness.	0	1	2	3	4
Nasal blockage or obstruction.	0	1	2	3	4
Trouble breathing through my nose.	0	1	2	3	4
Trouble Sleeping.	0	1	2	3	4
Unable to get enough air through my nose during exercise or exertion	0	1	2	3	4
TOTAL 4 x 5 = 20 (max) – then multiply by 5 for final score					

0 – 4 Rating Scale
 0 = NOT a problem
 1 = Very mild problem
 2 = Moderate problem
 3 = Fairly bad problem
 4 = Severe problem

A NOSE score of:

- <25 is suggestive of Mild obstruction
- 25–50 is suggestive of moderate obstruction
- >50 is suggestive of severe obstruction

Figure 1: NOSE scale.

RESULTS

The study comprised of 50 patients who underwent septoplasty for the complaints of nasal obstruction. The age of the patients ranged from 19-52 years. Maximum number of patients were in the age group of 21 to 25 years. Male to female ratio was 3.5:1.

The mean pre-op NOSE score was 71.4±15.1 suggestive of severe nasal obstruction. In the NOSE questionnaire the symptom that caused more trouble to the patient was nasal obstruction followed by nasal congestion, trouble sleeping, trouble breathing through nose and unable to get enough air through nose during exercise or exertion in the decreasing order. According to NOSE score 92% of the patients had severe nasal obstruction and 8% had moderate nasal obstruction.

The mean preoperative NOSE score of 71.4±15.1 reduced to 12.6±7.2, 6.5±5.8 and 2.5±3.5 at 1, 3 and 6 months of postoperative period respectively indicating improvement in the symptoms (Figure 2).

The most common answer preoperatively to nasal congestion was “a fairly bad problem” which changed to “very mild problem” at 1 month and “not a problem” at 3 and 6 months in the postoperative period. These findings indicate that septoplasty is effective in the management of nasal congestion and this was found to be statistically significant (p<0.001).

The most common answer preoperatively to nasal obstruction was “a severe problem” which changed to “very mild problem” at 1 and 3 months and “not a problem” at 6 months in the postoperative period. These findings indicate that septoplasty is effective in relieving the nasal obstruction and improves the quality of life of patients and this was found to be statistically significant (p<0.001).

The most common answer preoperatively to trouble breathing through nose was “a moderate problem” which changed to “not a problem” at 1, 3 and 6 months in the postoperative period. These findings indicate that septoplasty solves the problem of trouble breathing through the nose and this was found to be statistically significant ($p<0.001$).

The most common answer preoperatively to trouble sleeping was “a moderate problem” which changed to “not a problem” at 1, 3 and 6 months in the postoperative period. These findings indicate that septoplasty is effective in reducing the patient complaints like trouble sleeping due

to deviated septum and this was found to be statistically significant ($p<0.001$).

The most common answer preoperatively to exercise problems like unable to get enough air through nose during exercise or exertion was “a moderate problem” which changed to “not a problem” at 1, 3 and 6 months in the postoperative period. These findings indicate that in a patient with deviated septum with complaints of difficulty in breathing during exercise and exertion, septoplasty becomes the treatment of choice and this was found to be statistically significant ($p<0.001$) (Table 1).

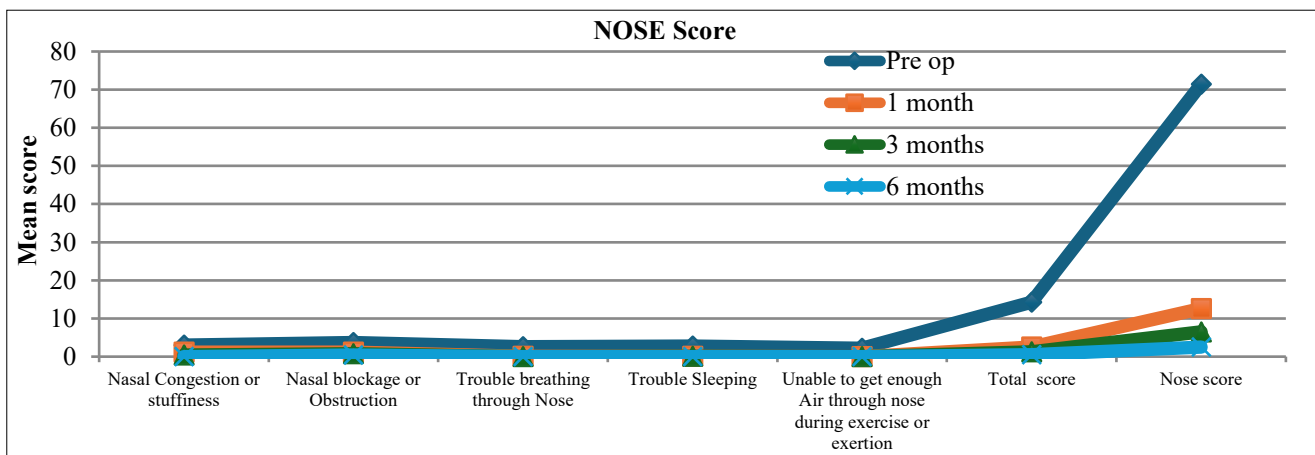


Figure 2: NOSE score.

Table 1: Comparison of NOSE scores before and after septoplasty by paired T test.

NOSE score	Pre op versus 1 month	Pre op versus 3 month	Pre op versus 6 month
Nasal congestion or stuffiness	16.08, $p<0.001$, HS	23.76, $p<0.001$, HS	25.68, $p<0.001$, HS
Nasal blockage or obstruction	26.66, $p<0.001$, HS	30.88, $p<0.001$	41.24, $p<0.001$, HS
Trouble breathing through nose	22.28, $p<0.001$, HS	23.49, $p<0.001$, HS	23.49, $p<0.001$, HS
Trouble sleeping	20.74, $p<0.001$, HS	21.53, $p<0.001$, HS	22.11, $p<0.001$, HS
Unable to get enough air through nose during exercise or exertion	21.31, $p<0.001$, HS	21.31, $p<0.001$, HS	21.31, $p<0.001$, HS
Total score	31.61, $p<0.001$, HS	35.63, $p<0.001$, HS	35.92, $p<0.001$, HS
Nose score	31.6, $p<0.001$, HS	35.6, $p<0.001$, HS	35.9, $p<0.001$, HS

*HS-Highly significant

DISCUSSION

In a study by Bezzerra et al on quality-of-life assessment after septoplasty the most frequent preoperative answer to all the questions was: “a reasonably severe problem”.⁶ The preoperative median NOSE score was 75.

In a study by Tejas et al they found that in patients with nasal septal deviation the symptom which was causing the most problem to all the patients was “nasal block/obstruction,” and the symptom which was causing the least problem was “trouble sleeping”.⁷ The maximum score recorded in the questionnaire was 80. These findings are similar to results from our study.

The assessment of quality of life after certain surgical procedures plays an important aspect of research outcomes has received growing significance in latest years. Consequently, in the present study we tried to evaluate the ultimate improvement of quality of life after 6 months of septoplasty. The mean preoperative NOSE score of 71.4 ± 15.1 reduced to 12.6 ± 7.2 , 6.5 ± 5.8 and 2.5 ± 3.5 at 1, 3 and 6 months of postoperative period respectively indicating improvement in the symptoms. Similar results were stated in studies conducted by Karakus et al and Younas et al.^{8,9}

Nasal congestion was completely eliminated from majority of the patients and comforted to lower degrees in few. Nasal blockage or obstruction score was also

significantly lowered in the severity of all cases. In a study by Samad et al they observed that septoplasty successfully relieved nasal obstruction in 70.5% of patients.¹⁰ This positive association between septoplasty and relief of nasal congestion and obstruction was also supported by a study by Posnick et al.¹¹ Furthermore, in the present study, breathing troubles, sleeping troubles had completely disappeared in 98% patients by 6 months in the postoperative period. Exercise problems have completely disappeared in our patients. Studies by Younes et al, Chambers et al, and Fuller et al reported that septoplasty could be recommended for patients with breathing troubles to ensure better nasal breathing outcomes.¹²⁻¹⁴ This was found to significantly improve the nasal breathing and quality of life. The patients had statistically significant improvement in their NOSE questionnaire scores at 1, 3 and 6 months after surgery. The scores reduced to more than three times lower as compared to pre op scores indicating an important treatment effect. In a study by Hsu et al it has been reported that subjective and objective measurements of nasal obstruction showed improvement throughout the 1-year follow-up after septoplasty.¹⁵ The visual analog scale (VAS) and NOSE scores were highly correlated before and 3, 6, and 12 months after septoplasty.

CONCLUSION

From our study on 50 patients, preoperative NOSE scores reduced significantly in the postoperative period indicating significant improvement in the symptoms. Postoperatively none of the patients complained of nasal obstruction. Hence septoplasty is a relieving surgery for patients with symptomatic DNS who are suffering from symptoms like nasal congestion or stuffiness, nasal blockage or obstruction, trouble breathing through the nose, trouble sleeping and unable to get enough air through nose during exercise or exertion.

Also, NOSE scale is a very potent method for the assessment of the symptoms of the patients who are undergoing septal surgery. The QOL of most of our patients improved by an appreciable amount after septoplasty.

Hence, we conclude by endorsing that septoplasty which is an established surgical procedure can significantly improve QOL when performed in carefully selected patients suffering from nasal obstruction due to DNS.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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