

Validity of Sinonasal Outcome Test 22 in Assessing Symptomatology Outcome Following Septoplasty in Deviated Nasal Septum

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ABSTRACT

Introduction: Nasal obstruction is the most common symptom of deviated nasal septum. Septoplasty is a surgical procedure that corrects deformity of the nasal septum. Sinonasal outcome test 22 is a subjective questionnaire tool that include various nasal symptoms which is useful to measure patient's symptoms outcome after septoplasty. **Aims:** To determine the symptomatology outcome in patients with deviated nasal septum following septoplasty using Sinonasal outcome test 22 **Methods:** This prospective longitudinal study was done at Nepalgunj Medical College and Teaching Hospital, Kohalpur including 60 patients of symptomatic deviated nasal septum who underwent septoplasty. Details of patient symptoms as per Sinonasal outcome test - 22 were graded from zero to five preoperatively and were compared one month following surgery. **Results:** Patients who underwent septoplasty were commonly in the age group 20-45 years and least in the age group 46-60 years with a mean age of 25.48. In the present study, the male to female ratio was 1.4:1. Deviated nasal septum was more common on the left side (53.3%). The mean preoperative sinonasal outcome test -22 score was 24.42 (range 14-40), and the mean postoperative sinonasal outcome test-22 score was 12.93 (range 8-23) and the difference was 11.49. **Conclusion:** Sinonasal outcome test 22 is a subjective questionnaire tool used in patients with deviated nasal septum. In our study with the use of this questionnaire tool there was improvement in nasal symptoms on comparing preoperative and postoperative symptoms following septoplasty.

Keywords: Deviated nasal septum, Sinonasal outcome, Septoplasty

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INTRODUCTION

Deviated nasal septum (DNS) although usually asymptomatic, may cause nasal obstruction, nasal discharge, facial pain, epistaxis, disturbances of smell and other symptoms.¹ Among the various symptoms, the most common one is nasal obstruction. The usual purpose of surgery is to improve the nasal breathing. There are two accepted basic septal surgeries for DNS: Submucosal resection (SMR) and Septoplasty.² The efficacy of septoplasty remains controversial. So various objective and subjective measures have been developed to evaluate the efficacy of nasal surgery. Most studies showed that objective measures to quantify and determine surgical success in the treatment of nasal obstruction do not correlate with subjective improvement as reported by patients.³ The use of subjective ordinal scale to measure partitioning of airflow greatly increased the specificity of patient selection and it is proposed that these scales may be useful to the surgeon when assessing patients for septal surgery.⁴ Sino nasal outcome test (SNOT) is a subjective tool, of one of its kind, in which both nasal and health-related symptomatic improvements are assessed.

It is a modification of Rhinosinusitis Outcome Measure (RSOM-31) that was developed in 1995 A.D.⁵

The SNOT-22 questionnaire had four main categories⁶

1. Nose related (need to blow nose, sneezing, runny nose, nasal obstruction, loss of smell/taste and post nasal drip).
2. Ear/Facial related (Ear fullness, dizziness, ear pain, facial pain and pressure).
3. Quality of life-related (difficulty falling asleep, wake up at night, wake up tired, fatigue, reduced productivity and reduced concentration).
4. Psychologically related (frustrated/restless, sad and embarrassed).

In a country like Nepal where objective tools are not easily available and are costly, they do not seem to be of much value. For these reasons patient related questionnaire subjective tools are used in this study.

METHODS

This hospital based prospective longitudinal study was done in patients presenting to ENT Out Patient Department (OPD) at Nepalgunj Medical College & Teaching Hospital, Kohalpur, Banke with symptomatic DNS and this study was carried from January 2021 to January 2022 after ethical clearance from institutional review committee. Total 60 septoplasty were performed during this period. Details of patient symptoms as per SNOT - 22(PoirrierALet al)⁷ were documented. The patient and his/her guardian were counselled about the significance and complications of surgery and informed consent was taken. The preoperative and postoperative symptoms were assessed and compared using SNOT-22. Each symptom of SNOT-22 was graded from zero to five after one month following surgery on follow up. Patients with age less than 10 years, previous septal surgery, acute and chronic rhino-sinusitis, allergic rhinitis, patient who used vasoconstrictor, perforated nasal septum, granulomatous condition of nose and sinuses, craniofacial malformation and pregnancy were excluded from the study. Preoperative investigations as per the guideline of this institution were performed.

Statistical analysis

Results were tabulated in Microsoft Excel 2013 and Statistical Package for Social Sciences (SPSS) version 21. Descriptive analysis regarding age, sex and different symptoms were done. Association between preoperative and postoperative symptoms after one month of surgery was analyzed using student’s t test and p value<0.05 was taken as significant.

RESULTS

Age Group Distribution

The age of patients in the study ranged from 11 to 56 years. The mean age of the patients was 25.48 years. Most common age groups included in the study were 20-45 years of age.

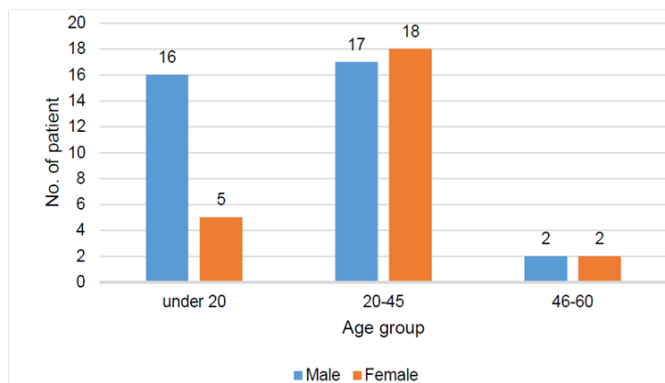


Figure 1: Age group distribution

In present study, male (35) to female (25) ratio was 1.4:1. There were 32 (53.3%) patients with left DNS and 28 (46.7%) with right DNS.

Post-operative outcome

1. Nasal obstruction:

Most of the patients complained of nasal obstruction preoperatively with mean SNOT score of 3.32± 0.504 and 65% had moderate symptoms. Following surgery the mean SNOT-22 was 0.9 ± 0.511 (p<0.00001) and had improvement to mild symptoms.

2. Need to blow nose:

It was the second most common symptom following nasal obstruction. The preoperative mean was 2.22 ± 0.761. 65 % had mild symptoms, and postoperative mean was 0.78±0.454. (p<0.00001) More than 90% had no to very mild symptoms.

3. Thick nasal discharge:

Third common symptom of the patients. The preoperative mean score was 2.02±0.596 and postoperative-30th day mean was 0.75± 0.508. (p<0.00001)

4. Runny nose :

The preoperative mean was 1.7 ±0.646 and 30th post operative day mean was 0.67± 0.542. (p<0.00001)

5. Facial pain:

The preoperative SNOT mean was 1.53 ±0.873 and 30th postoperative day it was 0.65± 0.481. (p<0.00004)

Symptoms	Pre op mean(S.D)	30th POD mean(S.D)	p value
Loss of Sense of smell	0.70(0.766)	0.23(0.427)	0.00001
Ear fullness	0.92(0.671)	0.55(0.502)	0.00001
Sneezing	1.18(0.725)	0.60(0.527)	0.00001
Dizziness	0.50(0.597)	0.47(0.596)	0.159
Difficulty falling asleep	0.75(0.773)	0.43(0.500)	0.00002
Waking up at night	0.72(0.640)	0.45(0.502)	0.00006
Lack of good sleep	0.90(0.706)	0.35(0.481)	0.00001
Wake up tired	0.73(0.686)	0.47(0.503)	0.0001
Reduced concentration	0.81(0.629)	0.78(0.645)	0.419
Reduced productivity	0.57(0.698)	0.52(0.701)	0.083
Frustrated	0.77(0.722)	0.70(0.696)	0.045
Embarassed	0.48(0.504)	0.40(0.494)	0.024
Sad	0.58(0.696)	0.52(0.701)	0.045
Fatigue	0.95(0.699)	0.82(0.651)	0.004

Table 1: Pre operative and post operative 30th day mean of SNOT-22 other symptoms

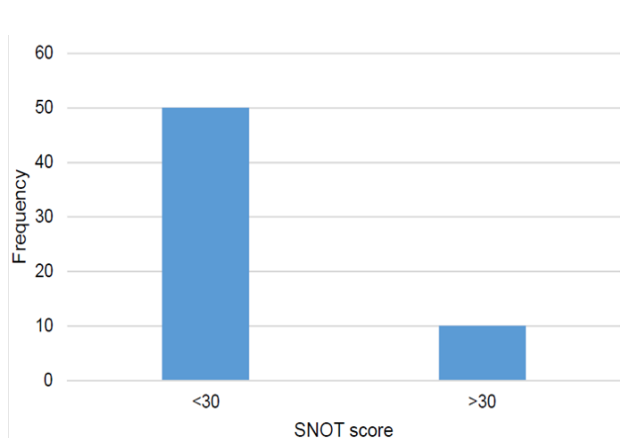


Figure 2: Frequency of patient according to SNOT 22 score

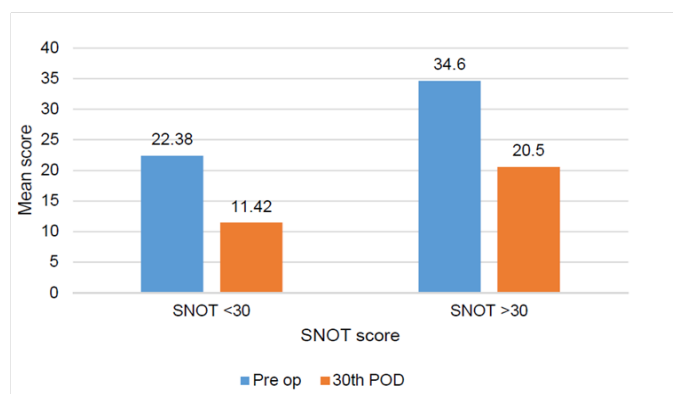


Figure 3: Preoperative and 30th postoperative day mean SNOT score

The mean Preoperative SNOT-22 score was 24.42 (range: 14 - 40) and in 30th POD was 12.93 (range 8 to 23) ($p < 0.00001$). Mean improvement of 11.49 was seen in SNOT-22 score in the patients. (Table II) Patients who underwent septoplasty had statistically significant improvement in nasal symptoms as compared to the Preoperative Sinonasal outcome-22 score with that of 30th Postoperative day following septoplasty ($p < 0.005$).

	Mean
SNOT-22-Pre-OP	24.42
SNOT-22-30th POD	12.93
Improvement	11.49

Table II: Comparison of SNOT-22 score and improvement

DISCUSSION

A clinically significant DNS is defined as the one with sufficient deviation that would make the patient a candidate for septoplasty if the nasal obstructive symptoms do not respond to medical therapy.⁸ Surgery on a DNS has progressed from radical removal of cartilage and mucosa, and radical removal of cartilage only by SMR to the modern technique septoplasty.⁹

Septum

In this study SNOT-22 results were better when compared to the expected results of septoplasty especially with some of the major symptoms like nasal obstruction which decreased from 3.32 to 0.9, with a mean difference of 2.42 & also with thick nasal discharge which decreased from 2.01 to 0.75, with a mean difference of 1.26. The study conducted by Dizdar et al¹⁰ showed improvement in nasal obstruction by 0.81 and by Goodson et al¹¹ showed improvement of nasal obstruction from 3.56 to 1.57. The other symptoms of SNOT-22 questionnaire such as need to blow nose, sneezing, running nose, loss of smell or taste, cough, postnasal discharge, facial pain, ear pain, ear fullness, difficulty in falling asleep, waking up at night, lack of good night's sleep, waking up tired and fatigue ($p < 0.005$) has significant improvement.

SNOT-22 other symptoms like reduced concentration, frustrated/restless, irritable, sad and dizziness the p-value was not significant, suggesting the decreasing quality of life, and the finding of our study was similar to the study conducted by Satish H.S¹² SNOT-22 symptoms show no any significant. ($p > 0.005$) The mean preoperative SNOT-22 score was 24.42 (range 14-40) and the mean postoperative SNOT-22 score was 12.93 (range 8-23) and the difference was 11.49

Planning for septoplasty is challenging in deviated nasal septum patients having both nasal and psychological symptoms. Most of the studies done on SNOT22 questionnaire showed that only nasal symptoms were improved postoperatively following septoplasty in comparison to Quality of life related and psychological symptoms. So before septoplasty postoperative outcome should be clearly discussed with patient on the basis of their severity of symptoms based on SNOT22.

LIMITATION

The limitation of our study is that it addresses only the short term post-operative outcomes which could alter later.

CONCLUSION

It can be concluded from this study that the total SNOT-22 score was reduced, showing that septoplasty had reduced the nasal symptoms. Preoperatively patients selection for septoplasty is essential on the basis of various nasal symptoms as this will help to measure post operative outcome.

SNOT-22 is a reliable subjective questionnaire tool for knowing the severity of nasal symptoms, evaluation of improvement in symptoms after septal surgeries and also help in selecting patient preoperatively.

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Septum

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