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Original Research Article

Postoperative outcome of deviated nasal septum and its effect on quality of life

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ABSTRACT

Background: Deviated nasal septum (DNS) is a common clinical entity. The most common complaint is nasal obstruction followed by headache, facial pain, nasal discharge. All these symptoms lead to reduced physical and emotional wellbeing with poor quality of life. Nasal septal surgery is strongly indicated in these patients which not only lead to improvement of symptoms but also improved quality of life. Sinonasal Obstruction Test (SNOT) 22 is a questionnaire which helps in selecting patients preoperatively and also helpful in postoperative assessment of symptoms. The aim of the study is to assess quality of life in patients following DNS surgeries using SNOT 22 questionnaire in patients admitted in department of ENT in a tertiary care hospital.
Methods: Hospital based prospective observational study with 50 patients who presented to Department of Otorhinolaryngology, Assam Medical College and Hospital, with DNS and having symptoms.
Results: Highest incidence was seen in 21-30 years. There were 58% male and 42% female. Most common symptom was nasal obstruction (92%). Right sided DNS is more common (60%). SMR was done in 44% patients while Septoplasty in 56%. Postoperative SNOT 22 scores showed significant improvement in all 22 symptoms with highest improvement in nasal blockage and headache. Also, quality-of-life (QoL) related symptoms showed significant improvement following surgery.
Conclusions: Septal surgeries in symptomatic patients showed improvement in symptoms including quality of life with the help of SNOT 22 questionnaire.

Keywords: Deviated nasal septum, Quality of life, SNOT 22

INTRODUCTION

The most noticeable feature on the face is the nose. Although it is a component of the upper respiratory tract, it serves purposes other than breathing, such as warming, filtering, and humidifying inspired air and also the organ of smell. The nose, as one of the main attributes to the face, has a considerable role in representing one's ancestral identity and sense of one's own individuality.[1] The septum of nose subdivide nasal cavity into two parts which should mostly be in a straight plane but in reality, it is not like that.[2] The main structural component that supports the nose is the septum of nose.[3] The distortion of septum of nose from the midline is termed as deviated nasal septum.[2] When severely malformed, the septum can lead to both functional abnormalities and aesthetic deformities, leading to alteration of various functions of nasal cavity.[3] Patients with a deviated nasal septum also experience a range of symptoms like headache, nasal discharge, facial pain, reduced sense of smell.[4]

Otorhinolaryngologist frequently encounter patients with symptoms related to septal deviation. A severely deformed septum requires surgical intervention to correct the issue. When dealing with less severe distortion, surgeons must rely on their professional judgement and expertise to determine the best course of action. Accurate preoperative evaluation is crucial to ensure that both patient and surgeon have a shared understanding of the expected outcomes and goals of the surgery.[5]

One of the most frequent otolaryngological operations performed is septal surgery for nasal blockage.[6] A best possible surgery of septum of nose should improve breathing by correcting the deviation. The surgery should preserve as much of the normal anatomy of nose as possible avoiding unnecessary removal of tissue or bone.[7]

The sino nasal outcome test (SNOT)-22 is a set of questions which are specific to the pathology that combines general health concerns with rhinologic concerns.[8] In the year 1998 Anderson et al first developed this.[9] The most commonly used form of the test is the twenty-two-version format.[10,11] There are four primary categories in the SNOT 22 questionnaire.[12]

Nasal symptoms need to blow nose, runny nose, post nasal drip, nasal obstruction, sneezing and loss of smell and taste.

Ear and face symptoms are dizziness, facial pain, ear fullness, ear pain, and pressure.

Quality of life (QoL) related symptoms difficulty in falling asleep, wake up tired, wake up at night, reduced productivity, fatigue and reduced in the concentration.

Symptoms related to psychological factors: frustrated or restless, embarrassed and sad.

The aim of the study was to assess quality of life in patients following deviated nasal septum surgeries using SNOT 22 questionnaire.

METHODS

Study design and period

This was hospital based prospective observational study conducted in the Department of Otorhinolaryngology and Head & Neck Surgery, Assam Medical College and Hospital, Dibrugarh, Assam. This study was conducted for one year from May 2023 to April 2024. Total 50 patients were included in this study.

Study population

Patients undergoing septal surgery for deviated septum with clinical symptoms presenting to us in ear, nose and throat department of Assam Medical College and Hospital.

Inclusion criteria

Patients with deviated nasal septum with various symptoms and affecting quality of life, patients who had given consent for the surgery, no other underlying nasal pathology apart from nasal septal deviation, patients above 17 years of age were included.

Exclusion criteria

Patients with other severe comorbidities, and patients with nasal polyposis were excluded.

A proper history and then a thorough clinical examination done with special emphasis on ear, nose, throat and head and neck region. Diagnostic Nasal Endoscopy (DNE) was done in all the patients. Radiological imaging mainly CT nose and paranasal sinuses done. All routine investigations were done.

All patients were asked to fill the SNOT 22 questionnaire before surgery based on their severity. Patients score each item on the questionnaire on a scale of 0 (no problem) to 5 (problem as bad as it can be). Following surgery, patients were followed up at 1 week, 2 weeks, 4 weeks and 8 weeks. Postoperatively SNOT 22 questionnaire was again assessed at 8 weeks following surgery.

Statistical analysis

All data will be compiled and analysed in terms of count, percentage and mean±SD. Statistical significance will be done using chi square test. A p value of <0.05 will be considered as significant.

Ethical clearance

Ethical clearance obtained from the Institutional Ethics Committee (H) of Assam Medical College and Hospital.

RESULTS

In our study, amongst 50 patients the age groups were segregated into six groups as shown in Figure 1. Highest incidence was seen in the age group of 21-30 years with 30 patients (60%). The mean age and standard deviation are 28±7.6 years and range are 17-51.

58% of total patients were male and 42% were female and the ratio is 1.38:1 as shown in Figure 2.

In our study among 50 patients, nasal obstruction was the most common complaint with 46 patients (92%), followed by headache/facial pain (76%), rhinorrhea (66%), sneezing (36%) as shown in Figure 3. Epistaxis was complained by 7 patients (14%) while 5 patients (10%) had ear symptoms. Only 2 patients (4%) complained of external nasal deformity along with other symptoms. 30 (60%) had deviated nasal septum towards right, 17 (34%) had

deviations towards left while 3 patients (6%) had S- shaped deviations.

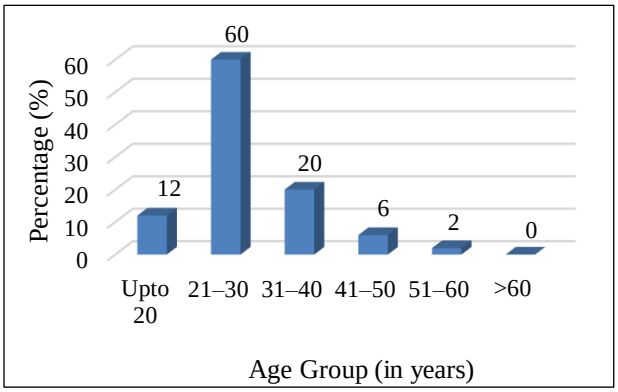

Figure 1: Age distribution.

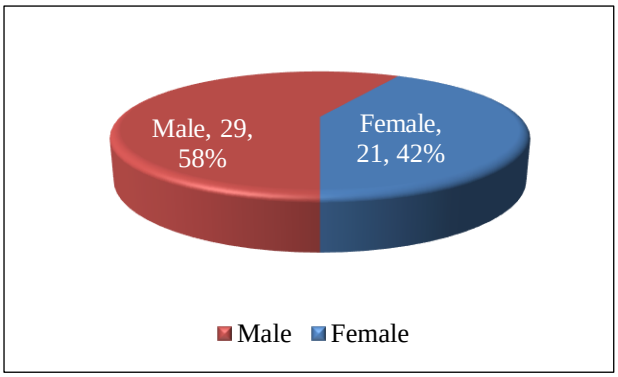

Figure 2: Gender distribution.

In our study, both septoplasty and submucous resection (SMR) of septum were executed amongst 50 patients. SMR was executed in 22 patients (44%) while septoplasty was executed in 28 patients (56%).

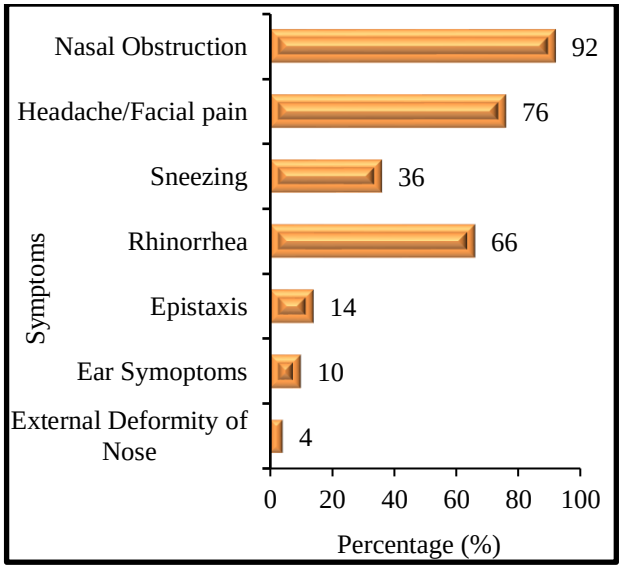

Figure 3: Presenting symptoms.

The postoperative mean (SD) of each of the 22 items of SNOT 22 questionnaire is noted which showed improvement postoperatively after 8 weeks. The p value of each of the individual 22 symptoms were <0.05 which revealed statistically significant betterment in all the 22 items after 8 weeks postoperatively. Highest improvement was noted in nasal obstruction followed by headache. All nasal, non-nasal, quality of life (QoL) related symptoms showed significant improvement postoperatively at 8 weeks as shown in Table 1 and Figure 4.

The total mean of SNOT 22 questionnaire preoperatively was 42.10 which got reduced to 17.62 after 8 weeks of surgery. And p value was <0.05. Thus, statistically significant improvement was noted in total mean after 8 weeks as shown in Table 2 and Figure 5.

Table 1: Mean preoperative and postoperative SNOT-22 score (after 8 weeks).

SNOT 22 score	Preoperative		Postoperative after 8 weeks		P value*
	Mean	±S.D.	Mean	±S.D.	
Need to blow nose	3.72	0.76	1.90	0.76	0.000
Nasal obstruction (blockage)	4.06	0.91	1.14	0.45	0.000
Sneezing	2.20	0.90	1.30	0.61	0.000
Runny nose	2.78	1.04	0.96	0.45	0.000
Cough	1.00	0.57	0.12	0.33	0.000
Post-nasal discharge	1.92	0.63	1.20	0.57	0.000
Thick nasal discharge	2.08	0.57	1.08	0.53	0.000
Ear fullness	1.68	0.84	0.16	0.37	0.000
Dizziness	0.22	0.42	0.02	0.14	0.002
Ear pain	0.98	0.55	0.12	0.33	0.000
Facial pain/pressure	3.18	1.00	0.88	0.48	0.000
Decreased sense of smell or taste	2.00	0.57	0.58	0.54	0.000
Difficulty falling asleep	1.96	0.60	0.98	0.25	0.000
Wake up at night	1.70	0.58	0.92	0.34	0.000
Lack of a good night's sleep	1.64	0.60	0.94	0.31	0.000
Wake up tired	1.72	0.67	0.94	0.31	0.000

Continued.

SNOT 22 score	Preoperative		Postoperative after 8 weeks		P value*
	Mean	±S.D.	Mean	±S.D.	
Fatigue	1.70	0.74	0.84	0.37	0.000
Reduced productivity	1.56	0.64	0.92	0.27	0.000
Reduced concentration	1.72	0.81	0.90	0.30	0.000
Frustrated/restless/irritable	1.52	0.79	0.72	0.45	0.000
Sad	1.36	0.85	0.66	0.48	0.000
Embarrassed	1.40	0.83	0.66	0.48	0.000

Student t Test; The p-value is significant at 5% level of significance.

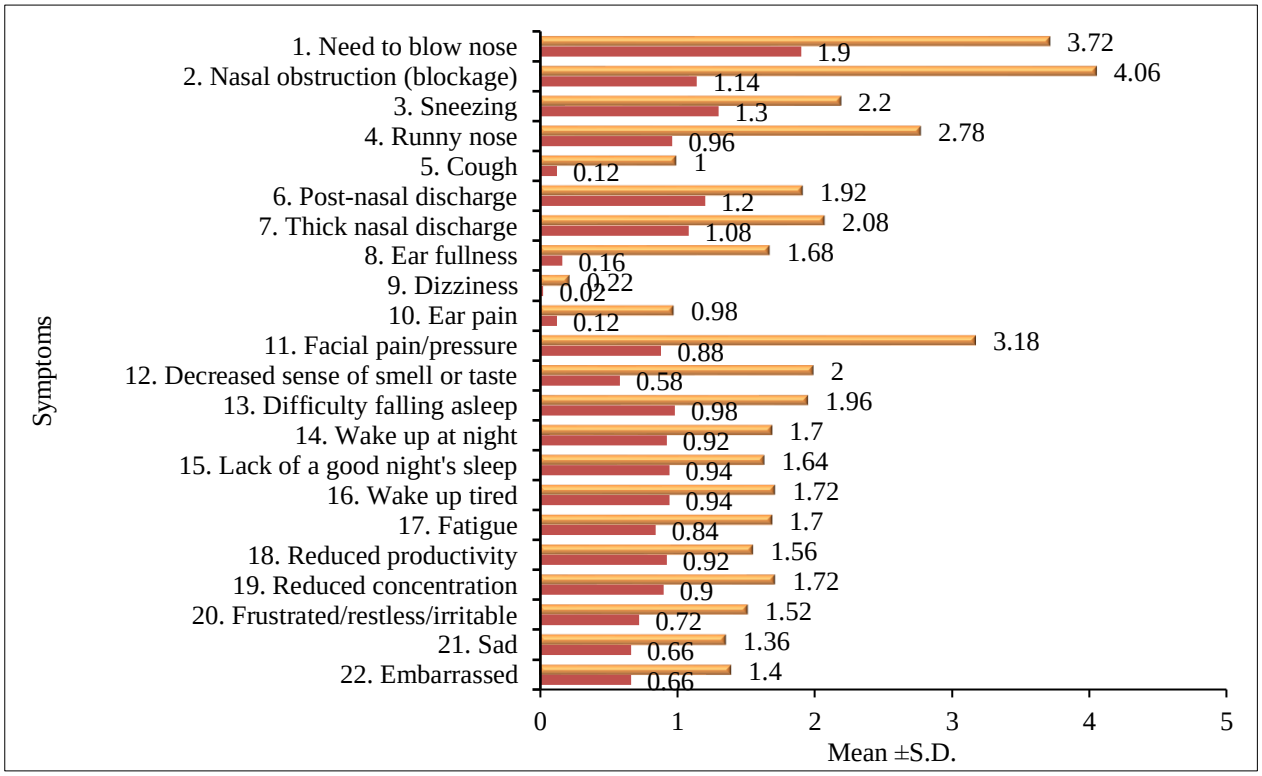

Figure 4: Mean preoperative and postoperative SNOT 22 score (After 8 weeks).

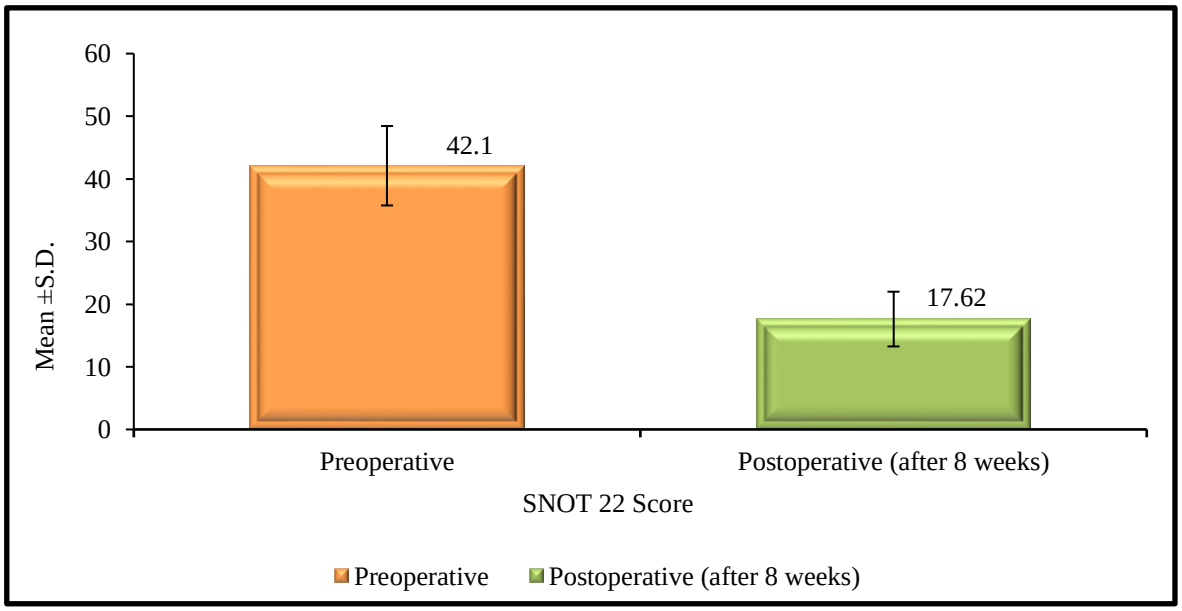

Figure 5: Comparison of total mean score after 8 weeks.

Table 2: Comparison of total mean score after 8 weeks.

	Preoperative				Postoperative (after 8 weeks)				P value*
	Mean	±S.D.	Range		Mean	±S.D.	Range		
			Min	Max			Min	Max	
SNOT 22 score	42.10	6.34	30	57	17.62	4.37	0	24	<0.001*

*Fisher Exact Test; The p-value is significant at 5% level of significance.

DISCUSSION

Age wise distribution

In our study, the most affected group was from 21-30 years as number of patients found in this group was 30 patients (60%). The second most common affected range was 31-40 years (20%) age average is 27.92 years. Alotaibi et al found the highest influenced age group involved was 21-25 years (33%) followed by 26-30 years (22%) with an age average of 26.4 years. Mogarnad M et al found 21-30 years (41.7%) as the most common age group involved with an average of 29.3 years.[13,14]

Gender distribution

There are 29 male patients and 21 females out of 50 patients. The sex ratio was 1.38:1 with a male preponderance. Mogarnad et al found male to female ratio as 2: 1 (40 males and 20 females).[14] It was 2.2:1 in a study conducted by Satish et al.[15] Similarly Alotaibi et al, Arunachalam et al, in their studies found male to female ratio as 3.1:1 and 3.3:1 respectively with a high male preponderance.[13,16]

Symptoms

In the current analysis, 46 patients in an overall of 50 patients had complaint of nasal obstruction (92%). It was the predominant symptom. Nasal stuffiness was also the predominant symptom found by Singh et al where amongst 50 patients, 49 had the symptom (98%).[17] It is also the leading complaint in studies conducted by Mogarnad et al (100%), Pannu et al (80%).[14,18]

Surgical procedures

In our study, SMR was conducted in 22 patients (44%) while Septoplasty was conducted in 28 patients (56%). Fjermedal et al, in his investigation in a total of 478 subjects they conducted septoplasty in 278 cases (58%) and SMR in 200 cases (42%) in a span of 5 years.[19] Iqbal et al in their study performed septoplasty in 100 cases (45.45%) while SMR in 120 patients (54.55%).[20]

Preoperative and postoperative (after 8 weeks) total mean SNOT 22 questionnaire score

In our study we used SNOT 22 questionnaire preoperatively and postoperatively after 8 weeks, the average mean score preoperatively was 42.10 while postoperative mean after 8 weeks was 17.62 which showed significant improvement. P value was <0.05 after each interval. Thus, there was statistically significant improvement. Bhandari et al in their study found that total score of SNOT-22 prior to surgery was 24.42 whereas the mean total score after surgery after 30th day was 12.93.[11] Similarly, Satish et al the total pre-SNOT and post- SNOT scores were 26.93 and 17.01 respectively.[15]

Relief of individual symptom

In our study following surgery, nasal obstruction showed a major improvement with a mean preoperative SNOT 22 score of 4.06, which reduce to 1.14 after 8 weeks of surgery. Facial pain/headache which was the second most common complaint showed significant improvement after nasal obstruction with a preoperative mean of 3.18 which reduced to 0.88 after 8 weeks. Also rest each of the symptom showed significant improvement following surgery. Similar findings were found by Bhandari et al, Biswas et al in their study.[11,4]

Quality of life related symptom improvement

There is total 10 items in SNOT 22 questionnaire dedicated to sleep and quality of life related symptoms. In our study, the total preoperative mean of sleep and quality of life (QoL) related symptoms was 16.28, which reduced to 8.48 postoperatively at 8 weeks. Pannu et al in their study found that quality of life related issues showed noteworthy improvement with preoperative score of 7.75 and postoperative score of 4.42 respectively.[18]

This study has few limitations. There were only 50 patients in the current research, if the number of patients would have been more, then the result would have been more precise. Also, the duration of the study was one year, if it would have been longer, then a better picture of the result would have been possible.

CONCLUSION

We can infer that symptomatic deviated nasal septum patients with poor quality of life related symptoms are ideal candidates for nasal septal surgery. The SNOT 22 questionnaire that we have used is a very reliable subjective equipment. It not only helps in selecting patients for surgery but also helps in assessing the severity of symptoms and also the effectiveness of surgeries. Finally, we can conclude that following nasal septal surgeries there is significant improvement in all symptoms

including quality of life related symptoms using SNOT 22 questionnaire.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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