

Use of Nasal Obstruction Symptom Evaluation Scale in Objective Evaluation of Symptomological Improvement in Post Septoplasty Patients

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ABSTRACT

Introduction

The complaint of nasal obstruction or difficulty in nasal breathing is highly subjective. Benefits of Septoplasty, as perceived by the patient, also varies widely with subjective satisfaction ranging from complete alleviation of symptoms to a total failure.

Materials and Methods

Fifty three patients above 18 years of age, with anatomical deviation of the nasal septum as the sole cause of obstruction and symptoms persisting for more than 3 months, underwent septoplasty. Nasal endoscopy was done for Mladina typing of the nasal septal deviation. Pre and post operative NOSE (Nasal Obstruction & Symptom Evaluation) score were analysed.

Results

Mean preoperative NOSE score was 11.98 ± 1.23 . On the 6th and 12th postoperative week follow up NOSE score was 3.13 ± 1.30 & 1.05 ± 0.87 respectively with p value < 0.05 .

Conclusion

Mladina typing along with NOSE score will help in letting the patient know about his or her expected outcome following septoplasty.

Keywords

Nasal Obstruction; Nasal Septum; Quality of Life; Patient Satisfaction

Nasal obstruction or difficulty in nasal breathing is a highly subjective sensation and it is a common complaint in rhinological practice. Although there are several aetiologies, like mucosal congestion, nasal mass, turbinate hypertrophy etc, deviated nasal septum (DNS) itself, forms one of the common causes of nasal obstruction. Mladina classifies septal deformity in to 7 types on the basis of their orientation in vertical and horizontal axes (Fig. 1).¹

As per a recent international study, almost 90% of the subjects showed one of the 7 types of septal

deformity.² Most of the subjects with DNS are asymptomatic but when they are symptomatic, the definitive treatment is universally accepted as surgical correction or 'septoplasty'. However, the benefits of septoplasty, as perceived by the patient, widely vary over different grades of satisfaction, ranging from complete alleviation of symptoms to a total failure. Pre and post operative assessment of symptoms are necessary for outcome analysis. It is possible to assess nasal obstruction objectively by Rhinomanometry and Acoustic Rhinometry.^{3,4} However, most of the time it is found that pre and post operative symptoms of patients do not correlate with the physical finding and objective measurements.⁵ As patient's perception of nasal airflow is of primary concern, the improvement in subjective score of patient's symptoms is definitely an important outcome parameter of management plan in order to

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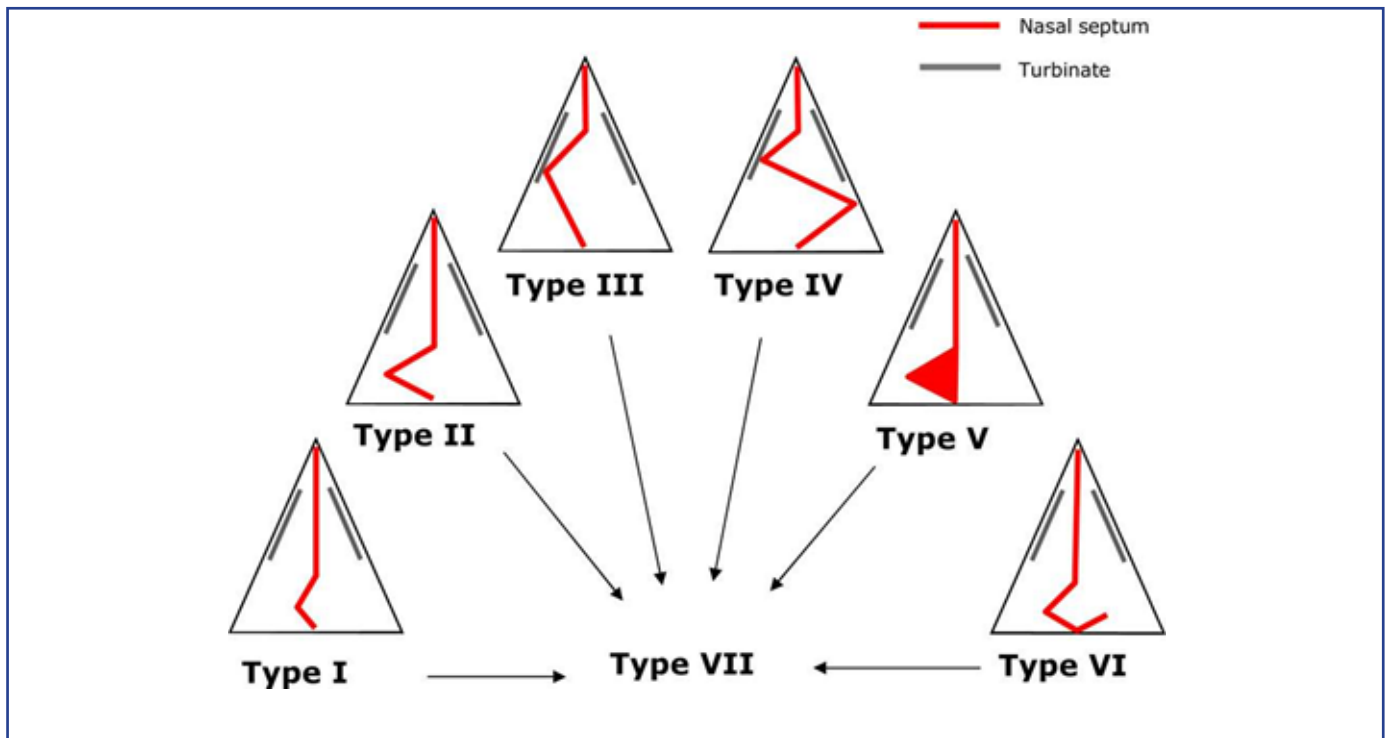


Fig.1. Schematic diagram of Mladina classification of deviated nasal septum

address the complex problem.

NOSE (Nasal Obstruction & Symptom Evaluation) scale was introduced by Stewart et.al in 2004 (Table I).⁶ This is a disease specific quality of life instrument

for subjective assessment of nasal obstruction. It is in a form of a questionnaire containing five symptoms in increasing severity.

Table I : NOSE (Nasal Obstruction & Symptom Evaluation) scale⁶

	NOT A PROBLEM	VERY MILD PROBLEM	MODERATE PROBLEM	FAIRLY BAD PROBLEM	SEVERE PROBLEM
Nasal congestion/ stiffness	0	1	2	3	4
Nasal blockage/ obstruction	0	1	2	3	4
Trouble breathing through nose	0	1	2	3	4
Trouble sleeping	0	1	2	3	4
Unable to get enough air through during exertion	0	1	2	3	4

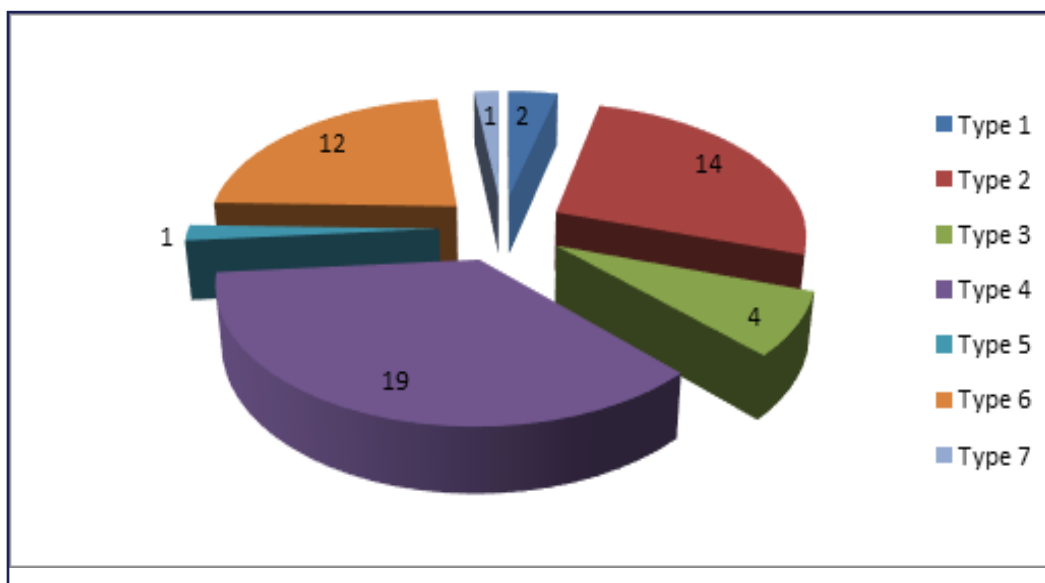


Fig.2. Distribution of types of nasal septum deviation according to Mladina classification

Materials and Methods

This prospective observational study was conducted between September 2014 and September 2015 in a tertiary care hospital to assess the benefits of septoplasty in terms of patient satisfaction in different types of DNS, documented with the help of the NOSE Scale Score. Ethical clearance for the study was taken from Institutional Ethics Committee. Inclusion criteria were age more than 18 years, identifiable anatomical deviation as the sole cause of obstruction, symptoms persisting for more than 3 months, failure of medical management (topical nasal decongestants and steroids, oral antihistaminics and decongestants). Exclusion criteria were sinonasal malignancy, h/o radiation to head neck region, septal perforation, h/o nasal trauma in the last year, adenoid hypertrophy, uncontrolled asthma, septoplasty performed with concurrent sinus surgery.

A detailed and comprehensive evaluation of each patient was made, nasal endoscopy was done for Mladina typing and preoperative NOSE score was noted in patient's own language. All patients underwent septoplasty. Nasal polyvinyl alcohol sponge packs were placed for 48 hours and all patients received parenteral antibiotic. All patients received standard postoperative care. NOSE score taken at 6th and 12th post operative

days. The results of our study were analysed on SPSS statistical software package version 20 by using paired 't' test.

Results

In our study of 53 patients aged between 18-52 years, 38 patients were male and 15 were female. The majority (19 patients) were of type 4 and least were of type 5 or 7 (1 patient in each type)

Preoperatively, the NOSE score was ranging from 2-11 in 20 (37.73%) cases, 12-13 in 27 (50.94%) cases and 14-20 in 6 cases. In 6th post operative week NOSE score of 14(26.41%) patients was 3 and 12 patients in each group was 2 and 4. Only one patient had NOSE score of 6. At 12th post operative week nearly equal percentage (32-33%) of patients had NOSE score of 0, 1, 2. Only two patients had NOSE score of 3. (Fig. 3) Majority of patients (type 4) showed 89.5% improvement in NOSE score (from 12 to 1.25). Type 1 and type 2 showed almost 95% improvement. Type 5 showed 100% improvement. In majority of the patients (50.94%) preoperative NOSE score ranged from 12-13. (Fig. 4) Mean preoperative NOSE score was 11.98 ± 1.23 . 6th and 12th postoperative week follow up NOSE

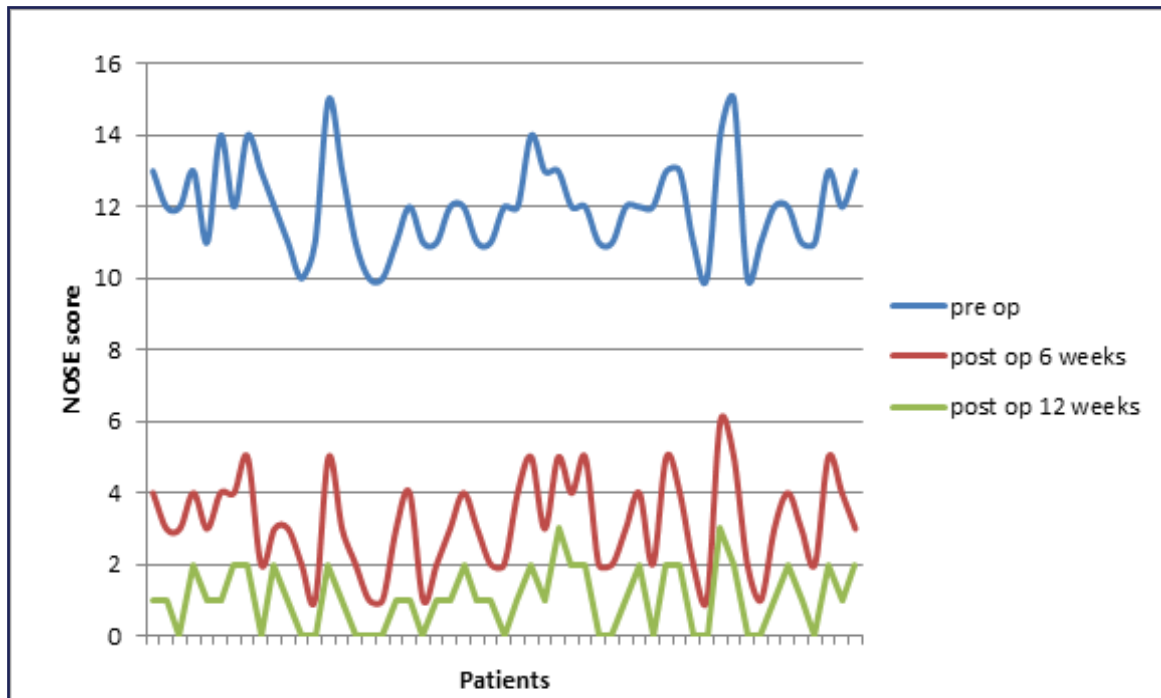


Fig.3. Comparison of NOSE score in the pre-operative period and in the post-operative phase at 6th and 12th week

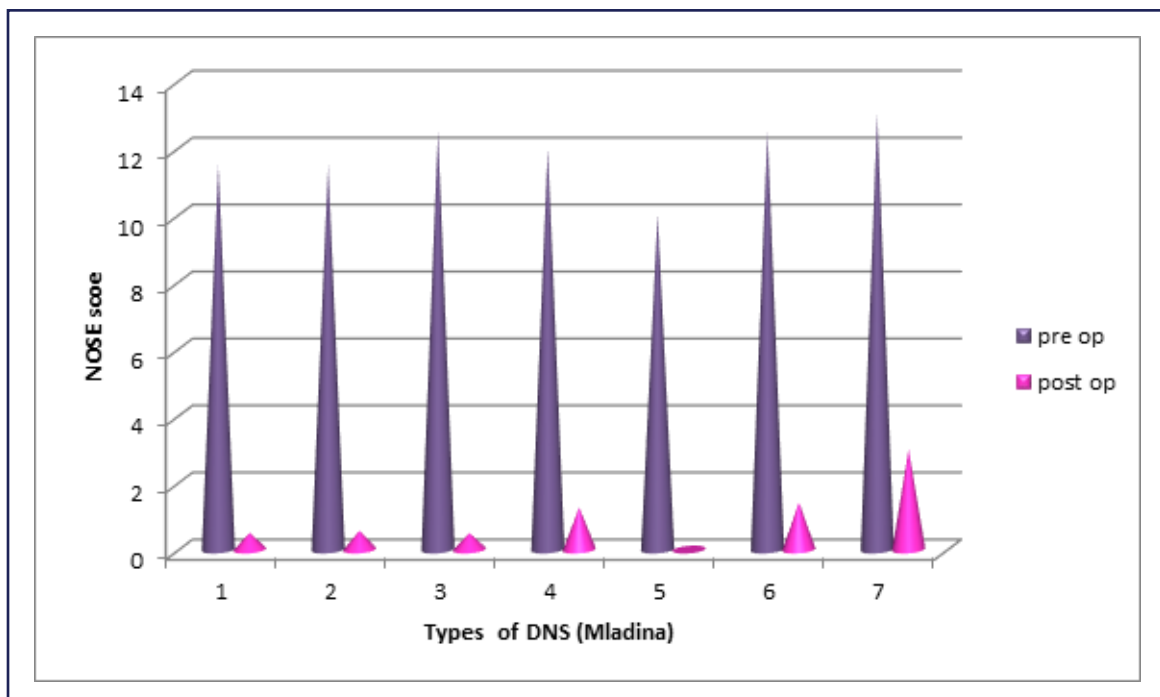


Fig.4. Improvement of NOSE score in different types of DNS (Mladina classification)

score was 3.13 ± 1.30 and 1.05 ± 0.87 with p value < 0.05 . (Table II)

Discussion

Results of this study almost match with the mean Nose

Table II : improvement of each symptom under NOSE score in different types of DNS (Mladina classification)

SEPTAL DEVIATION MLADINA TYPES		NOSE SCORE (MEAN VALUE)					
		Nasal	Nasal blockage	Trouble breathing through nose	Trouble sleeping	Unable to get enough air through during exertion	Total
1	Pre op.	3.5	3.5	2	1.5	1	11.5
	Post op. 6th wks	1.5	0.5	0.5	0	0	2.5
	Post op. 12th wks	0.5	0	0	0	0	0.5
2	Pre op.	3.42	3.79	2.21	1	1.06	11.48
	Post op. 6th wks	1.07	0.93	0.29	0.14	0	2.43
	Post op. 12th wks	0.35	0.07	0.07	0.07	0	0.56
3	Pre op.	4	4	2	1.5	1	12.5
	Post op. 6th wks	1.25	0.75	0.5	0.25	0.25	3
	Post op. 12th wks	0.25	0	0.5	0	0	0.75
4	Pre op.	3.84	3.95	2.05	1.25	0.89	11.98
	Post op. 6th wks	1.47	1	0.63	0.16	0.16	3.42
	Post op. 12th wks	0.42	0.21	0.47	0.05	0.10	1.25
5	Pre op.	3	3	2	1	1	10
	Post op. 6th wks	0	1	1	0	0	2
	Post op. 12th wks	0	0	0	0	0	0
6	Pre op.	3.92	3.92	2.33	1.17	1.17	12.51
	Post op. 6th wks	1.42	0.83	0.75	0.17	0.33	3.5
	Post op. 12th wks	0.67	0.08	0.42	0.08	0.08	1.33
7	Pre op.	4	4	3	1	1	13
	Post op. 6th wks	1	2	2	0	0	5
	Post op. 12th wks	1	1	1	0	0	3

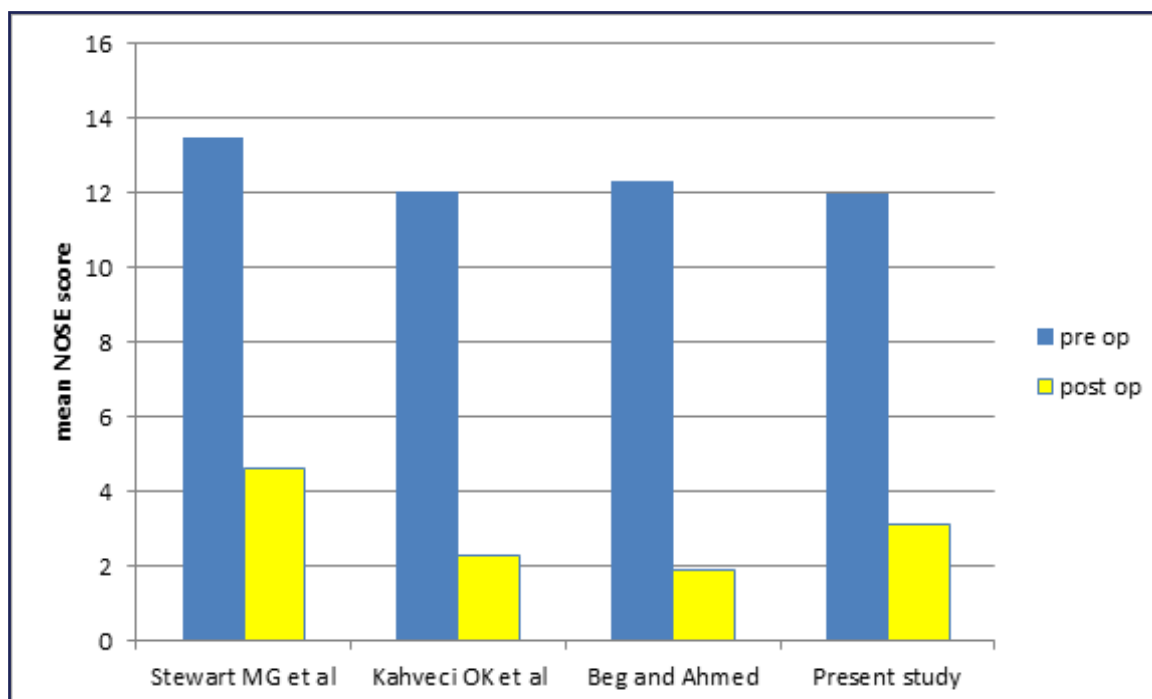


Fig.5. Comparison between mean pre-operative and post-operative NOSE score in different studies

score in the study of Beg and Ahmed,⁷ Stewart et al⁸ and Kahveci et al.⁹ (Fig. 5)

Singla et al¹⁰ in their study uses Mladina system to classify the types of DNS. The most common type was type 5(46%), followed by type 6(16%), type 2(10%), type 4(10%), type 3(8%), type 7(8%), type 1(2%). In present study most common type was type 4(35.84%), followed by type 2(26.41%), type 6(22.64%), type 3(7.54%), type 1(3.77%), type 5 & 7(each 1.88%).

Conclusion

The definitive treatment of deviated nasal septum (DNS) is the universally accepted surgical correction or septoplasty. However the benefits of septoplasty, as perceived by the patient, widely vary over different grades of satisfaction, ranging from complete alleviation of symptoms to a total failure. Mladina typing along with NOSE score will help in letting the patient know about his or her expected outcome following septoplasty. Maximum improvement (100%) was seen in type 5 though there was only one patient in this type and type

7, the complex type of DNS, showed not so satisfactory outcome compared to other types of DNS.

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