

A Study on Clinical Profile of Deviated Nasal Septum and to determine the Efficacy of the Surgery

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ABSTRACT

Aim: To study the clinical profile of deviated nasal septum and to assess the subjective efficacy of the surgical outcome using Likert scale.

Materials and methods: This study is a prospective, observational, single-center study from October 2013 to May 2015. The study was conducted in Sri Siddhartha Medical College, Tumkur, Karnataka, India. A detailed clinical history was taken and clinical examination of the patient was carried out. Sixty symptomatic patients were taken up. Patient scored their symptom-related severity using a Likert scale preoperatively. All patients underwent conventional septoplasty. Postoperatively, their symptoms were scored on 30th, 45th, and 90th day.

Results: Preoperative and Postoperative values were analyzed. Statistically significant improvement was observed in the entire population: Nasal obstruction ($p < 0.001$), headache ($p < 0.001$), nasal discharge ($p < 0.001$), facial pain ($p < 0.001$), and hyposmia ($p < 0.001$). Patient satisfaction was high and they used fewer nasal medications.

Conclusion: After surgical correction of the septum and analysis of the subjective scale, i.e., Likert scale showed improvement in all symptoms. The principal benefits of septal surgery relate to improvement in nasal symptoms.

Keywords: Clinical profile, Deviated nasal septum, Likert scale, Septoplasty.

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INTRODUCTION

Symptoms and signs accompanying septal pathology may be nasal blockage, dryness, crusting, bleeding, itching, rhinorrhea, anosmia, headache, and cosmetic complaints. These are the common problems faced by otorhinolaryngologists in day-to-day practice.

Underlying pathology is either a septal deformity or mucosal pathology.

Among these symptoms, common problems are headache and nasal obstruction. Determination of the primary cause can be both challenging and frustrating. However, identification and treatment of patients whose symptoms arise from the sinonasal region is rewarding especially when a correctable anatomic problem, i.e., septal deviation, contributes to the disease process.

Although septoplasty is a common procedure, there have been few studies on the patient-relevant clinical outcomes of nasal septal surgery. Most were retrospective and none used an outcomes instrument validated for nasal symptoms. Despite multiple study methods, however, prior studies have found that septoplasty is generally beneficial. Hence, the present study has been taken up to describe the clinical profile of deviated nasal septum and to determine the efficacy of the surgery using a subjective scale on the patients. Patients rated their symptoms from 0 (not troubled at all) to 6 (extremely troubled) using Likert scale, preoperatively and postoperatively for a stipulated time and thus the subjective improvement was assessed.

MATERIALS AND METHODS

The present study was on the clinical profile of deviated nasal septum and to determine the efficacy of the surgery that was carried out in the Department of Otorhinolaryngology, Sri Siddhartha Medical College, Tumkur, Karnataka, India, between October 1, 2013, and May 31, 2015.

All patients attending the outpatient Department of Otorhinolaryngology, Sri Siddhartha Medical College, Tumkur, Karnataka, India, with deviated nasal septum who fulfilled the inclusion criteria were included in the study.

Data were collected by selecting the patients with symptomatic deviated nasal septum willing for surgery.

Sample Size

Sixty patients were included in the study.

Sampling Method

Convenience sampling

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Study Design

Prospective study

Inclusion Criteria

Patients with symptomatic deviated nasal septum between 15 and 60 years.

Exclusion Criteria

Nasal obstruction due to tumor, polyp, and allergic rhinitis

- Revision surgery
- Septoplasty in combination with sinus and other surgeries
- Rhinoplasty operation
- Patients who did not return for follow-up

Methods of Collection of Data

Cases selected for the study were subjected to detailed history and clinical examination.

- They were assessed subjectively and objectively before the surgery.
- Nasal patency test was done followed by anterior rhinoscopy and details were noted.
- Deviations were classified according to Mladina classification, which was modified by Rao et al (Fig. 1):
 - *Type I*: Mild deviation in vertical or horizontal plane
 - *Type II*: Moderate anterior vertical deviation of cartilaginous septum in full length
 - *Type III*: Posterior vertical deviation at level osteomeatal complex and middle turbinate
 - *Type IV*: “S” shaped, posterior to one side and anterior to other
 - *Type V*: Horizontal septal crest touching or not touching the lateral wall

- *Type VI*: Prominent maxillary crest contralateral to the deviation with a septal crest to the deviated side
 - *Type VII*: Combination of previously described septal deformity types
- Posterior rhinoscopy was done in all patients to rule out other pathologies.
 - X-ray nose and paranasal sinus was done (Water’s view) in all the cases.
 - Computed tomography scan of paranasal sinuses was done in selected cases.
 - Diagnostic nasal endoscopy was performed.
 - A correlation was established between clinical features and endoscopic findings.
 - After complete preoperative assessment, patients were subjected to surgical intervention.

RESULTS

In our study of 60 cases, 40 (67%) patients were male and 20 (33%) patients were female, in a ratio of 2:1 male to female. The age of the patients varied between 17 and 45 years, and the mean age was 29.3 years (Table 1). In our study, all 60 patients (100%) had presented with nasal obstruction. The next common symptom was headache in 51 patients (85%), followed by nasal discharge in 44 patients (73%), facial pain in 18 patients (30%), and hyposmia in 3 patients (5%). There were no patients who presented with epistaxis (Table 2).

Following are the anterior rhinoscopy findings where deviated nasal septum was present in all the 60 patients. In 21 patients (35%), the nasal mucosa was congested. Thirty-four patients (56.6%) had right-sided deviation, 26 patients (43.3%) had left-sided deviation, 11 patients (18.3%) had spur, and 44 patients (73.3%) had inferior turbinate hypertrophy on the opposite side (Table 3). Following are the diagnostic nasal endoscopy findings

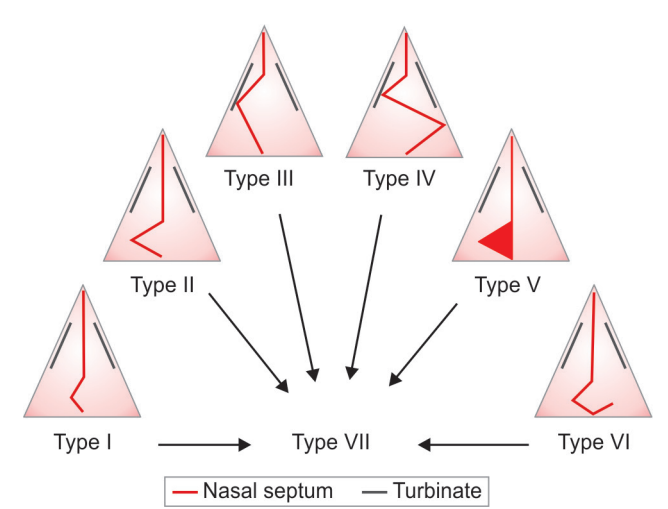


Fig. 1: Mladina classification modified by Rao et al

Table 1: Age distribution pattern among the study group

Age (years)	Number of patients	%
11–20	11	18.3
21–30	25	41.7
31–40	20	33.3
41–50	4	6.7
51–60	0	0

Table 2: Presenting symptoms of the study group

Symptoms	Number of patients	%
Nasal obstruction	60	100
Headache	51	85
Nasal discharge	44	73
Facial pain	18	30
Hyposmia	3	5
Epistaxis	0	0

Table 3: Anterior rhinoscopy finding

Findings	Number of patients	%
Septal deviation	60	100
Right	26	43.3
Left	34	56.7
Inferior turbinate hypertrophy	38	63.3
Congested mucosa	21	35
Spur	11	18.3
External deformity	8	13.3

Table 5: Septal deformities seen in the study group according to Mladina classification modified by Rao et al

Mladina classification modified by Rao et al ³	Number of patients	%
Type I	2	3.3
Type II	7	11.67
Type III	4	6.67
Type IV	8	13.3
Type V	19	31.67
Type VI	14	23.3
Type VII	6	10

done using 0° nasal endoscope (Table 4). In the study, all 60 patients were classified according to Mladina classification which was modified by Rao et al (Table 5). Post-operative patients were reviewed on 30th, 45th, and 90th day. During each visit, patients were asked about their symptomatic improvement and benefits of the surgery and scoring was tabulated (Graph 1).

DISCUSSION

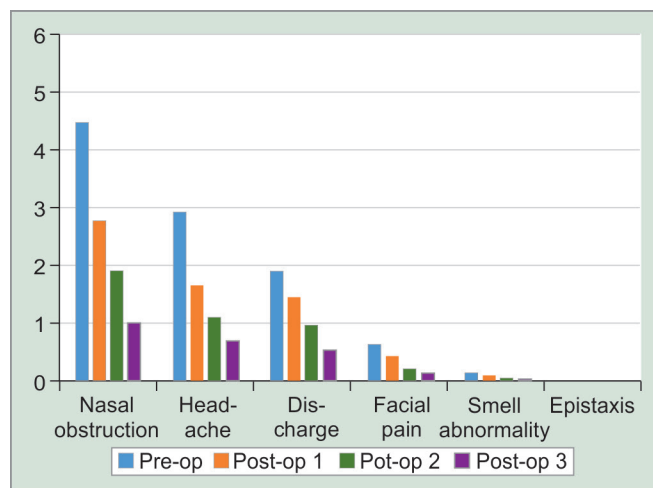
In the present study, there are 40 (67%) males and number of female patients are 20 (33%), in the ratio of 2:1. Our findings correlate with those of Satish and Sreedhar, where out of 70 patients, 48 patients (68.6%) were males and 22 patients (31.4%) were females in their study in the ratio 2.1:1.¹

In the present study, the age group of the patients included was between 17 and 60 years. The youngest patient was 17 years old while the eldest was 45 years old. The mean age was 29.3 years. Highest number of patients belonged to group between 21 and 30 years, i.e., 25 patients (41.7%), next between 31 and 40 years, i.e., 20 patients (33%). Nayak et al² concluded that the mean age of patients in their study was 28 years, which is similar to our study. Most of the patients belonged between second and fourth decade of life in a study conducted by Rao et al,³ which is comparable to our study.

In our study, the common symptom was nasal obstruction (100%), followed by headache (85%), nasal discharge (73%), facial pain (30%), and hyposmia (5%). The finding of the present study was similar to a study conducted by Iqbal et al,⁴ which concluded that nasal

Table 4: Diagnostic nasal endoscopic findings

Findings	Number of patients	%
Septal deviation	60	100
Inferior turbinate hypertrophy	38	63.3
Congested mucosa	21	100
Spur	11	35
Discharge in osteomeatal complex	10	16.6
Presence of accessory ostia	6	10



Graph 1: Mean preoperative and postoperative symptom score

obstruction was present in 220 patients (100%). Another study conducted by Bothra and Mathur⁵ showed that nasal obstruction was the most common presenting symptom found in 90% of the patients.

In a similar study conducted by Mladina et al,⁶ left-side deviation (51.6%) was more common than right-side deviation (48.4%), which is similar to the present study. In a study by Sam et al⁷ they concluded that inferior turbinate hypertrophy was present in 55% of patients of deviated nasal septum, which is comparable to our study where inferior turbinate hypertrophy was present in 63.3% of patients.

Like in the present study where most number of patients belonged to types V and VI, Rao et al³ concluded that 63% of patients belonged to types V and VI where horizontal crest touches or not touches the lateral wall and there is prominent maxillary crest contralateral to the deviation with septal crest to the deviated side. A study conducted by Sam et al⁷ noted that accessory ostia was present in 8% of the patients, which is similar to the present study.

In the present study, statistically significant improvement was observed in the entire patient population with respect to the six clinical outcome measures. Statistical analysis was done using Wilcoxon signed rank test: Nasal obstruction (p<0.001), headache (p<0.001), nasal discharge (p<0.001), facial pain (p<0.001), and hyposmia (p<0.001).

Gandomi et al⁸ concluded that there was a significant improvement in mean nasal obstruction symptom evaluation score after 3 months after septoplasty. The p-value was <0.001 for nasal obstruction and hyposmia/anosmia, which is comparable to the present study. Stewart et al⁹ concluded that patients with nasal obstruction and septal deformity who undergo nasal septoplasty have very significant improvement in nasal obstruction (p-value <0.0001 at 3 months), which is similar to the present study. In a study by Satish and Sreedhar,¹ majority of patients who underwent septoplasty showed marked improvement in disease-specific symptoms, good quality of life (QOL), satisfaction, and decreased medication use. Severe preoperative nasal obstruction indicated a higher predicted improvement, p-values being <0.0001, <0.0002, <0.0001, and <0.0001 for nasal obstruction, loss of smell or taste, nasal discharge, and facial pain respectively. In a similar study conducted by Reddy-Kolanu,¹⁰ all the patients who replied to the questionnaire stated that the outcome of the surgery was satisfactory or more than satisfactory. Ninety percent felt that septoplasty was the correct procedure to address their complaint of nasal blockage. In a study conducted by Arunachalam et al,¹¹ 200 patients undergoing septal surgery used the Fairley nasal symptom score, the Nottingham health profile, a general health questionnaire, and clinical examination of nasal cavities to assess the outcome. Analysis of the outcomes in the 121 who attended the review patients revealed significant improvement in (a) nasal obstruction in 74%, facial pain in 72%, and catarrh in 64% of patients; p-value <0.001 for nasal obstruction, nasal discharge, and facial pain. Schwentner et al¹² found a significant improvement in nasal symptoms, sleep, practical problems, and overall medical state. They concluded that nasal septal surgery creates a lasting impact on patients' disease-specific QOL. Harley et al¹³ concluded that surgical correction of anatomic abnormalities of the septum and turbinate, particularly contact points, resulted in predictable improvement in patient-relevant outcome measures with regard to headache severity and frequency, nasal obstruction and level of patient frustration, irritability, and restlessness. Statistically significant improvements were observed in the entire population, headache (p<0.001), facial pain (p<0.01), and nasal obstruction (p<0.01).

CONCLUSION

Most patients in the study were refractory to medical therapy. We found that surgical correction of obvious anatomic deviation can significantly improve several clinical features including nasal obstruction, headache, facial pain, and nasal discharge.

Strengths of this study are its prospective design, use of validated subjective scale, and patient-based outcome assessment. The study also had a good follow-up rate.

This study shows that for an intervention to be valuable, it should have not only statistical significance but also clinical significance.

Bias regarding the different surgical skills and techniques was removed by performing the surgery using the conventional instruments and method and operation by two surgeons only.

Probable weaknesses of the study are no control group and short follow-up period. As there is no alternative treatment modality for deviated septum other than surgical correction, randomization was not done in our study.

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