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Study Of Outcome And Postoperative Complications Of Submucosal Resection Of Septum And Septoplasty.

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ABSTRACT

This study aimed to compare the outcomes and complications of SMR and Septoplasty in patients with symptomatic DNS. A prospective, single-center study was conducted at Aarupadai Veedu Medical College. A total of 50 adult patients (average age: 30.78 years) were randomly divided into two groups: Group A (SMR, n=25) and Group B (Septoplasty, n=25). Postoperative symptoms, anterior rhinoscopy, diagnostic nasal endoscopy findings, and complications were assessed. Both SMR and Septoplasty effectively relieved symptoms such as nasal blockage, headache, nasal discharge, postnasal drip, and hyposmia. There were no statistically significant differences between the two groups in symptom relief ($p > 0.05$). Cold spatula tests showed unequal fogging in 12% of patients, with no significant difference between the groups ($p > 0.05$). Persistent septal deformities were observed in 12% of patients, with no significant intergroup variation ($p > 0.05$). Postoperative complications, including bleeding, crust formation, synechiae, septal hematoma, septal perforations, and residual deviation, did not significantly differ between the two groups ($p > 0.05$). Both SMR and Septoplasty are effective in relieving symptoms associated with DNS, with comparable outcomes and complication rates. The choice of procedure should be tailored to individual patient characteristics and surgeon expertise. Further research with larger sample sizes and longer follow-up is needed to confirm these findings.

Keywords: Deviated Nasal Septum, Submucous Resection, Septoplasty

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INTRODUCTION

Nasal septal deviation is a prevalent anatomical variation of the nasal cavity that can lead to a multitude of clinical symptoms, including nasal obstruction, recurrent sinusitis, epistaxis, and even sleep-disordered breathing [1]. Submucosal resection of the septum (SMR) and septoplasty are two well-established surgical procedures aimed at correcting septal deviations and alleviating these associated symptoms [2]. These procedures are among the most commonly performed otolaryngological surgeries globally, reflecting their significance in improving patients' quality of life [3].

Submucosal resection of the septum, also known as the Killian's operation, involves the removal of a portion of the deviated septum while preserving the mucosal lining, ultimately reestablishing the nasal airway's patency. On the other hand, septoplasty is a surgical technique that focuses on reshaping the septum by straightening and repositioning it to enhance nasal function [4, 5].

Over the years, the safety and efficacy of these surgical approaches have been a subject of considerable interest and scrutiny within the medical community. This has led to numerous studies investigating their outcomes and postoperative complications. Understanding the outcomes and potential complications of these procedures is paramount for both healthcare providers and patients, as it guides treatment decisions, informs surgical techniques, and aids in patient counselling and informed consent [6].

In this study, we aim to comprehensively examine the outcomes and postoperative complications associated with SMR and septoplasty.

MATERIAL AND METHODS

The present study was conducted in the Department of Otorhinolaryngology at Aarupadai Veedu Medical College, Puducherry, for two years duration. The study aimed to investigate the outcomes and postoperative complications of two surgical procedures for correcting deviated nasal septum (DNS): Submucous Resection (SMR) and Septoplasty. The study was designed as a prospective, single-center, interventional study.

Sample Size

During the study period, a total of 50 patients with symptomatic DNS were admitted to Aarupadai Veedu Medical College, Pondicherry, and included in the study. The patients were randomly divided into two groups: Group A (SMR, 25 patients) and Group B (Septoplasty, 25 patients).

Inclusion Criteria:

- Patients aged between 18 to 45 years.
- Patients diagnosed with symptomatic Deviated Nasal Septum (DNS).

Exclusion Criteria: Patients who did not meet the inclusion criteria were excluded from the study. The exclusion criteria were as follows:

- Patients above 45 years and below 18 years of age.
- Patients with a history of allergic rhinitis, upper respiratory tract infections, untreated diabetes, hypertension, or bleeding diathesis.
- Patients with associated external nasal deformities.
- Patients who did not provide informed consent for participation in the study.
- Patients with congenital anomalies of the head and neck region.

Data collection was performed through a series of clinical evaluations and investigations, as outlined below:

Clinical Evaluation

Detailed history-taking and clinical examinations were conducted for all selected patients. This included the performance of a Cold Spatula Test, anterior rhinoscopy, and posterior rhinoscopy. The type of DNS deviation (C shaped, S shaped, anterior dislocation, spurs, or septal thickening) was documented based on the involvement of cartilaginous or bony parts of the septum.

Radiological Investigations

X-ray of the paranasal sinuses (PNS) in Water's view and chest X-ray were performed for all patients. In cases where indicated, a computed tomography (CT) scan of the paranasal sinuses was conducted to rule out any sinus pathologies.

Laboratory Investigations

Routine blood investigations included complete blood count (CBC), bleeding time, clotting time, serological tests, and blood grouping.

Diagnostic Nasal Endoscopy

All patients included in the study underwent diagnostic nasal endoscopy, allowing for a comprehensive assessment of the nasal cavity and establishing a correlation between clinical features and radiological findings.

Surgical Procedure

After completing the preoperative anesthesia assessment, patients were divided into two groups randomly, with one group undergoing septoplasty and the other group undergoing SMR.

RESULTS

Totally 50 adults with symptomatic deviated nasal septum were selected and were randomly divided into two groups of 25 each. Group A underwent SMR and Group B underwent septoplasty.

In our study, 50 cases of age group between 18 and 45 years were included. In the group of patients who underwent septoplasty, the average age was 31.6 years and in the SMR group, the average age was 30.4 years and the overall average age was 30.78 years.

In the present study, 20 males (40%) and 30 females (60%) were included. Male to female ratio was 2:3.

Table 1: Post Operative Symptomatology

Symptoms	Septoplasty Post Op	SMR Post Op	P value	Significant or not
Nasal block	2	1	0.60	No
Headache	0	0	0	No
Nasal discharge	0	0	0	No
PND	0	0	0	No
Hyposomia	0	0	0	No

Out of 50 patients, 3 patients were having Nasal block, of which 2 patients belonged to Septoplasty group and 1 patient belonged to SMR group.P value >0.05(0.60),hence the statistical difference is insignificant. Headache was relieved in all the patients belonging to both the groups. Nasal discharge was complained by none of the patients in both the groups. Postnasal drip was not seen in any

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of the patients who underwent either SMR or septoplasty. Hyposmia was relieved in both SMR and Septoplasty group.

Table 2: Post Operative Anterior Rhinoscopy and Diagnostic Nasal Endoscopy Findings

Findings		Septoplasty Post op	SMR Post op	Total	Percentage	P-Value
CST	Reduced fogging	2	1	3	12	1
Persistent Septal deformities (deviation/spur)		2	1	3	12	1

Cold spatula test showed unequal fogging in 3 patients (12%). Two patients who were having unequal fogging belonged to septoplasty group and one patient belonged to SMR group.

P value >0.05(1), hence the statistical difference is insignificant. Persistent septal deformities like septal deviation/spur were seen in 2 patients in septoplasty group and 1 patient in SMR group. P value >0.05(1), hence the statistical difference is insignificant.

Table 3: Post Operative Complications

Complications	SMR		Septoplasty		Total No. of cases	Percent age	P-value
	Number of cases	Percent age	Number of cases	Percent age			
Bleeding	3	12	1	4	4	8	0.61
Crust Formation	3	12	1	4	4	8	0.61
Synechiae	4	16	2	8	6	12	0.67
Septal Haematoma	2	8	0	0	2	4	0.48
Septal Perforations	2	8	0	0	2	4	0.48
Residual deviation	1	4	2	8	3	6	0.54
Secondary atrophic rhinitis	0	0	0	0	0	0	-
Saddling	0	0	0	0	0	0	-
Columellar Retraction	0	0	0	0	0	0	-

In this study, 3 patients (12%) in SMR group had intraoperative or postoperative excessive bleeding where as only 1 patient (4%) in septoplasty group had this complication. P value >0.05(0.61), hence the statistical difference is insignificant. Crust formation was seen 3 (12%) patients in SMR group and 1 in septoplasty group. P value >0.05(0.61), hence the statistical difference is insignificant. Synechiae was seen in 4 patient (16%) in SMR and 2 (8%) in septoplasty developed synechiae. P value >0.05(0.67), hence the statistical difference is insignificant. Septal haematoma was seen in 2 patients in SMR group and no patient was seen with septal haematoma in septoplasty group. P value >0.05(0.48), hence the statistical difference is insignificant Septal perforation was seen in 2 patients in SMR group and no patient was seen with septal perforation in septoplasty group. P value >0.05(0.48), hence the statistical difference is insignificant. Residual deviation was seen in 1 patient in SMR group and 2 patients in septoplasty group. P value >0.05(0.54), hence the statistical difference is insignificant.

DISCUSSION

The present study aimed to investigate and compare the outcomes and postoperative complications of Submucous Resection (SMR) and Septoplasty in patients with symptomatic Deviated Nasal Septum (DNS). Our study included 50 adult patients aged between 18 and 45 years, with 60% being female and 40% male, yielding a male-to-female ratio of 2:3. The average age for patients undergoing septoplasty was 31.6 years, while for those in the SMR group, it was 30.4 years, with an overall average age of 30.78 years.

Regarding postoperative symptomatology, we found that nasal block was the most common complaint among the patients. However, there was no statistically significant difference in the occurrence of nasal block between the septoplasty and SMR groups, with $p > 0.05$ (0.60), indicating that both procedures were equally effective in relieving this symptom. Headache, nasal discharge, postnasal drip (PND), and hyposmia were reported to be relieved in all patients from both groups, suggesting successful outcomes in symptom relief.

Cold spatula tests showed unequal fogging in 12% of the patients, with a slightly higher incidence in the septoplasty group (8%) compared to the SMR group (4%). However, this difference was not statistically significant ($p > 0.05$, 1), indicating that both procedures had a similar impact on fogging asymmetry. Persistent septal deformities, such as deviation or spur, were observed in 12% of the patients, with an equal distribution in both groups, and again, no statistical significance was found ($p > 0.05$, 1). These findings suggest that both septoplasty and SMR had comparable effects on correcting septal deformities [6, 7].

Postoperative Complications

In terms of postoperative complications, bleeding was the most common complication observed in our study. However, there was no statistically significant difference in the incidence of bleeding between the septoplasty and SMR groups ($p > 0.05$, 0.61). Crust formation, synechiae, septal hematoma, septal perforations, residual deviation, and other complications such as secondary atrophic rhinitis, saddling, and columellar retraction were infrequent and showed no significant differences between the two groups [8-10].

The findings of our study align with previous research that has also reported similar outcomes and complication rates for septoplasty and SMR. Both procedures effectively relieved symptoms such as nasal blockage, headache, nasal discharge, PND, and hyposmia, with no significant difference in their effectiveness. Additionally, the rates of postoperative complications, including bleeding, crust formation, synechiae, septal hematoma, septal perforations, and residual deviation, were comparable between the two groups.

It is important to note that the choice between septoplasty and SMR should be based on individual patient characteristics, including the specific nature of the septal deviation and the surgeon's expertise. The lack of significant differences in outcomes and complications observed in our study suggests that both procedures can be considered viable options for the surgical management of symptomatic DNS [11].

Our study has several limitations, including its relatively small sample size and the limited follow-up period of three months. Long-term follow-up and larger sample sizes are needed to further validate these findings and assess any potential differences that may emerge over time. Additionally, patient-reported outcomes and quality of life assessments could provide valuable insights into the subjective experiences of patients undergoing these procedures.

CONCLUSION

In conclusion, our study demonstrates that both septoplasty and SMR are effective in relieving symptoms associated with deviated nasal septum, with comparable outcomes and complication rates. The choice between these surgical techniques should be tailored to the individual patient's condition and the surgeon's expertise. Further research with larger sample sizes and longer follow-up periods is warranted to confirm these findings and provide more comprehensive insights into the management of symptomatic DNS.

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