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Original Research Article

A comparative study on the surgical outcome of submucous resection and septoplasty

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ABSTRACT

Introduction: Surgery on a deviated septum has seen several modifications since its inception, starting from radical septal resection to the preservation of the possible septal framework. Deviated nasal septum (DNS) leads to nasal obstruction is a common problem encountered by the Otolaryngologist. Many surgeries are available for correcting septal disorders. The aim of our study is to compare the surgical outcome of submucous resection and septoplasty.
Methods: This prospective comparative single institutional interventional study was conducted in the department of otorhinolaryngology, Aarupadai Veedu Medical College between October 2015 to September 2017 to compare the submucous resection and septoplasty. Total of 50 patients who randomly divided into two groups and the treatment protocol and follow up protocol was followed and the outcome results were statistically analysed and discussed.
Results: Out of 50 patients 25 patients had sub mucosal resection and 25 patients had septoplasty. All the 50 patients had nasal obstruction followed by headache present 35 patients, nasal discharge in 6 patients, postnasal drip in 7 patients and hyposmia in 7 patients. Based on endoscopy finding c shaped DNS 43 patients, 7 patients had s-shaped DNS, 7 patients had spur. Based on postoperative symptoms, the nasal block was present in 3 patients.
Conclusion: From this study, we concluded that deviated nasal septum is more common in females of age group 30 years with the most common symptoms is nasal obstruction. Symptom relief is comparatively equal in both the surgeries but the complication is more common in sub mucosal resection.

Keywords: Submucosal resection, Septoplasty, Deviated nasal septum, Otolaryngologist

INTRODUCTION

The nasal septum or septum nasi is a structure which consists of cartilaginous or osseous parts and separates the two halves of the nasal cavity. The septum is made up of three parts: columellar septum, membranous septum and septum proper. The deviated nasal septum is one of the common conditions in ENT outpatient department.[1] Septal deformity is of two kinds, which may occur independently, or together are anterior cartilage deformity of the quadrilateral septal cartilage, caused by direct trauma or pressure at any age and combined septal deformity involving all the septal components, caused by compression across the maxilla from pressures occurring during pregnancy or parturition.[2] It plays a critical role in nasal obstruction symptoms, the aesthetic appearance of the nose, increased nasal resistance, and sometimes snoring.[1] Types of deviated nasal septum includes septal thickening, spurs, deviation and dislocation.

Surgical management of the deviated nose is a challenging problem even for experienced rhinologic surgeons, and aesthetic and functional failures in correcting this problem are not uncommon.[3] The proper

management of this condition requires a thorough preoperative or intraoperative analysis of the shapes and relationships of the anatomical components of the nasal skeleton, and the surgical manoeuvres should be executed in a precise manner.[4]

Different indications for these surgical procedures are: nasal airway obstruction secondary to septal deformity, persistent or recurrent epistaxis where septal deviation/spur is the cause, evidence of sinusitis secondary to septal obstruction, prerequisite for functional endoscopic sinus surgery (FESS) associated with DNS obstructing the middle meatus and headache secondary to septal mucosa touching mucosa of the lateral wall of the nose.

The submucous resection (SMR) was first described by Freer in 1902 and by Killian in 1904. The preservation of bilateral mucoperichondrial flaps and cartilaginous supports were considered essential in their technique.[5,6] The major complications of this procedure are septal perforation, saddling of nose and retraction of the columella and residual deviation.[7] All the deviations posterior to the line can be approached by submucous resection method, but the same approach should not be used in the anterior aspect of the septum as it leads to complications. These led to the emergence of the septoplasty operation introduced by Cottle and Loring in 1946.[8] It involves correction of the DNS with minimal removal of the septal cartilage and/or bone.

Each surgical procedure has its limitations and cannot deal with all the variants of the deformities of the nasal septum. The importance and technical difficulties of septal surgery are often underestimated. The purpose of our study is to compare the surgical outcomes of SMR of the septum and septoplasty.

Aim

The aim of our study was to compare the submucosal resection versus septoplasty in the management of deviated nasal septum.

METHODS

This prospective comparative single institutional interventional study was conducted in the department of otorhinolaryngology, Aarupadai Veedu Medical College between October 2015 to September 2017. Patients were grouped randomly into two groups of 25 each, one group underwent septoplasty and the other group underwent SMR. Inclusion criteria; age between 18 to 45 years who are diagnosed with symptomatic Deviated Nasal Septum and exclusion criteria; age above 45 years and below 18 years, patients with allergic rhinitis, upper respiratory tract infections, untreated diabetes, hypertension and bleeding diathesis, patient with associated external nasal deformity, the patient who don't give consent for the study and patients with congenital anomalies of head and neck region.

Detailed history taking and clinical examination were performed in the cases selected for the study. Cold spatula test was done followed by anterior rhinoscopy and details were noted. Depending on the involvement of cartilaginous or bony parts of the septum, deviated nasal septum was classified as C shaped, S-shaped, anterior dislocation, spurs or Septal thickening. Posterior rhinoscopy was done in all patients to rule out other pathologies. Routine blood investigations, including complete blood count, bleeding time, clotting time, X-ray para nasal sinus (PNS)-Water's view and chest X-ray were done in all patients. In indicated patients, Computed Tomography PNS was done to rule out pathologies of para nasal sinuses. Diagnostic nasal endoscopy was done in all the patients included in the study. A correlation was established between clinical features and radiological findings. The patients were assessed postoperatively at 1st week, first month and at 3 months for subjective relief of nasal symptoms and postoperative complications in both groups present.

RESULTS

Out of 50 patients, 25 patients in group A had submucous resection and 25 patients in group B had septoplasty. In group A 2 patients age between 11-20 years, 12 patients between 21-30 years, 6 patients between 31-40 years and 5 patients between 41-50 years. In group B 4 patients between 11-20 years, 10 patients between 21-30years, 7 patients between 31-40 years, 4 patients between 41-50 years.

Table 1: Cross-tabulation between age distributions.

S.no	Age (in years)	Number of patients	
		Group A (SMR)	Group B (Septoplasty)
1.	11-20	2	4
2.	21-30	12	10
3.	31-40	6	7
4.	41-50	5	4
Total		25	25

Out of 50 patients, 25 patients in group A had submucous resection and 25 patients in group B had septoplasty. In group A 25 patients had nasal obstruction, 15 patients had headache, 2 patients had nasal discharge, 2 patients had postnasal drip and 5 patients had hyposmia. In group B 25 patients had nasal obstruction, 20 patients had headache, 4 patients had nasal discharge, 5 patients had postnasal drip and 2 patients had hyposmia.

Out of 50 patients, 25 patients in group A had sub mucous resection and 25 patients in group B had septoplasty. In group A 9 patients had right sided C-shaped deviated nasal septum, 12 patients had left sided

deviated nasal septum, 4 patients S- shaped deviated nasal septum, 3 patients had spur. In group B, 12 patients had right sided C-shaped deviated nasal septum, 10 patients had left sided deviated nasal septum, 3 patients S- shaped DNS, 4 patients had spur.

Table 2: Cross-tabulation between pre-operative symptoms.

Preoperative symptoms	Number of patients	
	Group A (SMR)	Group B (septoplasty)
Nasal obstruction	25	25
Headache	15	20
Nasal discharge	2	4
PND	2	5
Hyposmia	5	2
Epistaxis	0	0

Table 3: Cross-tabulation between preoperative diagnostic endoscopy findings.

Postoperative symptoms	Number of patients	
	Group A (SMR)	Group B (septoplasty)
Nasal obstruction	2	1
Headache	0	0
Nasal discharge	0	0
PND	0	0
Hyposmia	0	0
Epistaxis	0	0

Out of 50 patients, 25 patients in group A had submucous resection and 25 patients in group B had septoplasty. In group A 2 patients had nasal obstruction postoperatively and 1 patient in group B.

Table 4: Cross-tabulation between post-operative symptoms.

Diagnostic endoscopy findings		Number of patients	
		Group A (SMR)	Group B (septoplasty)
C-shaped	Right-sided	9	12
	Left-sided	12	10
S-shaped		4	3
Spur		3	4
Anterior dislocation		0	0

Out of 50 patients, 25 patients in group A had submucous resection and 25 patients in group B had septoplasty. In group A 1 patient had reduced fogging and 1 patient had persistent septal deformities. In group B 2 patients had reduced fogging and 2 patients had persistent septal deformities.

Out of 50 patients, 25 patients in group A had submucous resection and 25 patients in group B had septoplasty. In group A 3 patients had bleeding, 3 patients had crust formation, 4 patients had synechiae, 2 patients had septal haematoma, 2 patients had septal perforations and 1 patient had residual deviation. In group B 1 patient had bleeding, 1 patient had crust formation, 2 patients had synechiae and 2 patients had residual deviation.

Table 5: Cross-tabulation between postoperative diagnostic endoscopy findings.

Diagnostic endoscopy findings		Number of patients	
		Group A (SMR)	Group B (septoplasty)
CST	Reduced fogging	1	2
Persistent septal deformities (deviation/spur)		1	2

Table 6: Cross-tabulation between complications.

Complications	Number of patients	
	Group A (SMR)	Group B (septoplasty)
Bleeding	3	1
Crust formation	3	1
Synechiae	4	2
Septal haematoma	2	0
Septal perforations	2	0
Residual deviation	1	2
Secondary atrophic rhinitis	0	0
Saddling	0	0
Columellar retraction	0	0

DISCUSSION

In our present study of 50 cases the age of the patients was varying between 18 years to 45 years and in the group who underwent septoplasty, the average age was 31.6 years (range was 18-45 years) and in the SMR group, the average age was 30.4 years (range was 18-45 years) and the overall average age was 30.78 years. Thus, the results of our study were not significantly different from various studies.

A study done by Ahmad et al showed the maximum number of patients were seen in the age group of 21-30 years.[9] Leena et al. observed that most commonly affected subjects belonged to the 2nd and 3rd decades of life in both sexes.[10] There were 37 and 36 subjects from 10-20 years and 21-30 years, respectively.

In our present study, all the 50 patients had presented with the most common symptoms of nasal obstruction (100%) followed by headache (70%), nasal discharge (12%), postnasal drip (14%), hyposmia (14%) in both the group. The least common symptoms of epistaxis (0%) are not present in any patients.

In a study done by Leena et al, it is stated the most prevalent complaint in the patients of deviated nasal septum among study subjects was nasal obstruction (74%), followed by nasal discharge (41%), headache (20%), postnasal drip (8%), bleeding (3%).[10]

In a study done by Ahmad et al it was observed that most common presenting complaint in patients of deviated nasal septum among study subjects was nasal obstruction (76%), headache (48%), nasal discharge (50%), postnasal drip (12%), bleeding (16%).[9]

In our study deviated nasal septum was the most common finding present in all the patients in which C-shaped deviation present in (86%) among these right-sided is (42%) and left-sided is (44%) followed by S-shaped deviated nasal septum (14%), spur (14%).

In our present study, postoperative symptoms like nasal block only present in 3 patients. Other symptoms like headache, nasal discharge, postnasal drip, hyposmia and epistaxis were not seen in any of the patients in both the group.

In comparison to the present study, in the study performed by Teklal et al out of the 53 patients, 2 patients had nasal block, post nasal drip and persistent external deformity in both SMR and Septoplasty group.[11] The nasal discharge was present in 3 patients in both the SMR group and septoplasty group. Headache was observed in 5 patients in SMR group and 8 patients in septoplasty group. Epistaxis was observed in 1 patient who underwent septoplasty.

In our study, postoperative anterior rhinoscopy and diagnostic endoscopy findings show reduced fogging (12%) and persistent septal deviation (12%).

In our present study complications seen in both the group includes excessive bleeding (8%), crust formation (8%), synechiae (12%), septal haematoma (4%), septal perforation (4%), residual deviation (6%).

In comparison to the present study, in the study performed by Teklal et al, bleeding and crust formation was observed in 3 patients each in SMR group and 1 patient each in septoplasty group.[11] Septal perforation and septal hematoma was observed in 2 patients each in SMR group.

CONCLUSION

From this study, we concluded that deviated nasal septum is more common in females of age group 30 years with the most common symptoms is nasal obstruction and C-shaped deviation is a more common form of nasal septum deviation. Symptom relief is comparatively equal in both the surgeries but the complication is more common in sub mucosal resection.

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