ORIGINAL ARTICLE

SUBMUCOUS RESECTION VERSUS SEPTOPLASTY: COMPLICATIONS AND FUNCTIONAL OUTCOME IN ADULT PATIENTS

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ABSTRACT

Background: Submucous resection and septoplasty are common procedures for the treatment of deviated nasal septum. This study was conducted to find out the functional outcome and frequency of complications with both methods.

Methodology: This descriptive observational study was carried out from 1st January 2007 to 31st December 2009, in Department of Otolaryngology, Head & Neck Surgery, DHQ Teaching Hospital, D.I.Khan. Two hundred & twenty patients of both genders and age more than 17 years with symptomatic deviated nasal septum were included in the study. Patients with associated external nasal deformity were excluded. Classical submucous resection was performed in 120(54.55%) while septoplasty in 100(45.45%) patients. Anterior nasal packing was done for 24 hours and bilateral splints for 10 days in all patients postoperatively. A record was maintained in outpatient department in which observations of these patients during follow-up visits were entered for one year.

Results: The functional results and complications of two procedures were assessed. Nasal obstruction was relieved in 89/120(74%) patients after SMR and 72/100 (72%) after septoplasty ($p>0.05$). The overall complication rate was 37/120(31%) in SMR and 24/100(24%) in septoplasty group($p>0.05$).

Conclusion: The study revealed no significant difference between the functional outcome and complication rates of the two procedures i.e. submucous resection and septoplasty for symptomatic deflected nasal septum.

KEY WORDS: Deviated nasal septum, Submucous resection, Septoplasty.

INTRODUCTION

Nasal septum forms the shape and privides support to the structure of the nose. It consists of three parts: columellar septum, membranous septum, and septum proper. The later is a osteocartilaginous framework, covered with nasal mucous membrane. Its principal constituents are, the perpendicular plate of ethmoid, the vomer, and quadrilateral cartilage with minor contributions from crest of nasal bones, nasal spine of frontal bone, rostrum of sphenoid, crest of palatine bones and the crest and anterior nasal spine of maxilla.[1]

The importance and technical difficulties of septal surgery are often underestimated. 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.[2,3] The major complications of this procedure are septal perforation, saddling of nose and retraction of the columella and residual deviation.[4] These led to the emergence of the septoplasty operation introduced by Cottle and Loring in 1946.[5] It involves correction of the deflected nasal septum (DNS) with minimal removal of the septal cartilage and/or bone.

The purpose of this study was to audit the outcome of patients undergoing SMR or septo-plasty for symptomatic deviated nasal septum.

MATERIAL AND METHODS

Two hundred and twenty cases of symptomatic DNS were selected from both genders having ages more than 17 years, who came to the outpatient and were admitted to the ENT unit from 1st January 2007 to 31st December 2009, for correction of obstructive deviated nasal septum. Patients with DNS as well as external nasal deformity who needed septorhinoplasty were excluded from study.

A total of 220 patients were included in this study with 164 (74.55%) males and 56 (25.45%)

females. For SMR 120 (54.45%) patients were selected while 100 (45%) patients were subjected to septoplasty.

The age range of the studied patients was from 18 years to 40 years.

In all patients anterior nasal packing was left in for 24 hours and bilateral nasal splints for 10 days.

A follow-up register was maintained in the OPD having entries of the patients included in the study. The observations and findings including the functional outcome and complications of these patients were recorded during follow-up visits up to one year.

RESULTS

Regarding preoperative symptoms, nasal obstruction was present in all the patients. (Table 1)

Nasal obstruction was relieved in 74% cases after SMR and 72% after septoplasty. Statistical analysis showed the difference between the two procedures is insignificant ($p>0.05$). Other symptoms such as headache, sneezing, rhinorrhoea, snoring and hyposmia were also relieved more frequently after SMR than septoplasty. (Table 2)

Saddle nose deformity occurred in 3 (2.5%) cases after SMR and 1(1%) after septoplasty. Col-

Table 1: Frequency of preoperative symptoms in submucous resection vs septoplasty patients.

Symptoms	SMR patients		Septoplasty patients	
	Number	Percentage	Number	Percentage
Nasal Obstruction	120	100	100	100
Headache	70	58	45	45
Rhinorrhoea	50	41	40	40
Sneezing	50	41	38	38
Snoring	40	33	35	35
Nasal speech	40	33	20	20
Dry/sore throat	35	29	20	20
Hyposmia	25	20	15	15
Epistaxis	10	8	10	10

Table 2: Functional result of submucous resection vs septoplasty.

Symptoms relieved	SMR patients		Septoplasty patients	
	Number	Percentage	Number	Percentage
Nasal Obstruction	89/120	74	72/100	72
Headache	45/70	64	26/45	58
Rhinorrhoea	16/50	32	12/40	30
Sneezing	15/50	30	10/38	26
Snoring	24/40	60	18/35	51
Nasal speech	26/40	65	12/20	60
Dry/sore throat	15/35	43	7/20	35
Hyposmia	15/25	60	8/15	53
Epistaxis	5/10	50	5/10	50

Table 3: Postoperative complication of submucous resection vs septoplasty.

Complication	SMR patients		Septoplasty patients	
	Number	Percentage	Number	Percentage
Crust formation	10/120	8.3	7/100	7
Altered dental sensation	8/120	6.6	5/100	5
Septal perforations	3/120	2.5	2/100	2
Septal haematoma	3/120	2.5	1/100	1
Saddling	3/120	2.5	1/100	1
Bleeding	2/120	1.6	3/100	3
Adhesions	3/120	2.5	1/100	1
Columellar retraction	2/120	1.6	2/100	2
Residual deviation/deformity	3/120	2.5	2/100	2
Total	37/120	31	24/100	24

umellar retraction with loss of tip projection was found in 2 (1.6%) cases after SMR and 2 (2%) after septoplasty. Residual deviation or deformity was found in 5 (2.25%) cases; 3 (2.5%) after SMR and 2 (2%) after septoplasty.

The post-operative complications are shown in Table 3. Statistical analysis showed the difference in complication rate of the two procedures is insignificant ($p>0.05$).

Crust formation was present in 8.3% cases after SMR and 7% after septoplasty. Altered dental sensations were complained by 6.6% subjects after SMR and 5% after septoplasty. The altered dental sensations were temporary but took eight weeks to recover. Three (2.5%) patients after SMR and 1 (1%) after septoplasty were discovered with septal haematoma. It resolved in all the subjects with drainage.

Three (2.5%) after SMR and 2 (2%) after septoplasty, were found to have septal perforation. They were, however, asymptomatic.

Two (1.6%) patients had epistaxis after SMR and 3 (3%) after septoplasty, requiring repacking.

DISCUSSION

The frequency of complications in our series was 25%, which is comparable with another local study by Muhammad IA.[6] Complications following SMR (31%) were seen more frequently than after septoplasty (24%).

Functional results of SMR were better than septoplasty. (Table 2) Nasal obstruction was relieved in 74% cases after SMR and 72% cases after septoplasty. We used nasal obstruction as a main outcome clinical parameter because it was present in all the patients (100%) from both groups. International literature shows better results for septoplasty (66%) than SMR (60%).[7] Better results of SMR in our study can be explained by the fact that we are relatively more experienced in performing SMR than septoplasty. Fjermedal[7] also quoted studies in the literature showing 25-35% of patients do not achieve satisfactory results in septal surgery. Jessen et al[8] found that while the long term objective nasal patency improved after septoplasty, long term sensation of nasal obstruction was not improved. Unfavorable airflow pattern due to post-operative anatomical changes was cited as a possible explanation. Barr[9] believes altered airflow pattern results in abnormal mucociliary function which causes the sensation of nasal obstruction.

Septal perforation occurred in 2.5% cases after SMR and 2% after septoplasty. Zia and Butt noted septal perforations in 2% of their cases,[10] while Haraldsson et al found septal perforations in 1.6% after septoplasty and 8% after SMR.[11] All the studies report incidence of septal perforation above the often quoted figure of 1%. These septal perforations are more common after SMR operation occurring due to opposing tear. If the perforation is duplicated contralaterally, one side should be closed.[12,13] Surgical experience would suggest that the chances of a perforation is higher with a revision case.

Cosmetic results of septoplasty were better than those of SMR. One patient after septoplasty and 2.5% after SMR developed a change in the

shape of the nose in the form of nasal bridge depression, while 1.6% patients after SMR & 1% after septoplasty developed columellar retraction. Phillips noted changes in 21% cases after SMR[14] and Samad et al found it in 8.5% cases after septoplasty.[15] Our results are better probably due to short follow up period (12 months) and we may see more cases in our further follow up period. The other reason may be that the shape of the nose was not specifically documented pre-operatively in most of our patients and we cannot directly attribute these deformities to the septal surgery. Saddle nose deformity is attributed to gradual absorption of a triangular cartilaginous fragment around the rhinion along the dorsum of the nose, especially when the fragment is inadvertently detached during surgery.[16] The usual columellar retraction results from tissue deficiency and dislocation of the leading edge of septum and often the anterior nasal spine from the midline.[6]

Adhesions were seen in 2.5% cases after and 1% after septoplasty in our series. In all the patients adhesions were released under local anesthesia during follow-up visits. Possible causes for adhesions formation could be blood clots, infection, surgery both on nasal septum and lateral wall of the nose, and post-operative slough and crust formation. In other local studies, adhesions were seen in 7% and 8% cases respectively.[6,10] Adhesions can best be avoided by control of infection, minimal trauma at the time of surgery, placement of intranasal splints, and use of liquid paraffin and decongestant nasal drops post-operatively. Shone and Clegg demonstrated that 11% of their cases developed adhesions and in their view, the possible etiological factors were synchronous surgery on the nasal septum and lateral wall, trauma to the nasal septum and the lateral wall due to nasal speculum or the nasal packs.[17]

Altered dental sensations in the upper incisors teeth were seen in 6.6% cases after SMR and 5% after septoplasty. In a local study, higher rates of altered dental sensation were noted in 11% cases after septoplasty and 31% after SMR.[17]

Crusting troubled 8.3% subjects after SMR and 7% after septoplasty in the follow-up examination which is less than in other studies.[11,12] There are two main reasons for crusting; septal perforation and surgery on the lateral wall (turbinectomy).

Our rate of 2.5% of residual or recurrent deformity is low when compared to that of 6% by Muhammad IA.[6] The inadequate mobilization that leaves tension and resilience of the septum may lead to recurrent displacement or deformity.[19] Recurrence of deflection or deformity after SMR may be due to angulation or deformity of the neochondrogenesis in the septal area after submucous cartilage resection.[20] Our rate of post-operative septal haematoma (1.8%) is low as compared to that of 6.9% by Fjermedal et al.[7]

There has been a general move among Otorhinolaryngologists towards a septoplasty where cartilage is preserved and away from the traditional SMR with extensive cartilage resection. It has been suggested that due to the conservative nature of a septoplasty, this may have a lower risk of complications. A study by Haraldsson et al[11] supports this view. In reality the majority of otorhinolaryngologists employ neither a classical SMR nor only septoplasty but a functional combination of the two.

CONCLUSION

The study revealed no significant difference between the functional outcome and complication rates of the two procedures i.e. submucous resection and septoplasty for symptomatic deflected nasal septum.

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