Comparative Study between Submucous Resection and Septoplasty to Manage Deviated Nasal Septum

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Research Article

Abstract: **Background:** Deviated nasal septum is one of the common conditions in ENT outpatient department. This may or may not present with the symptoms. Submucous resection and septoplasty are two common procedures for managing deviated nasal septum. **Objective:** We tried to find out the incidence, sex and age group affected due to deviated nasal septum. We also tried to compare submucous resection and septoplasty in terms of its outcome and complications. **Material and Methods:** this observational study was carried out on 62 patients of deviated nasal septum. After obtaining detailed history and examination patients were categorized in two groups- one for submucous resection and second for septoplasty. **Results:** The male to female ratio in our study was found to be 1.58:1. Maximum i.e. 38.71% patients were in the age group 21-30 years. Nasal obstruction was the commonest complaint followed by post nasal discharge (PND), nasal discharge, headache, external nasal deformity etc. 54.17% complications were found after SMR and 34.48% after septoplasty. **Conclusion:** The present studies showed that complication were more after SMR as compared to septoplasty. But the functional outcomes were same in both surgeries.

Keywords: septoplasty, resection, collumelar, rhinorrhoea.

Introduction

The nasal septum or septum nasi is a well known structure which consists of cartilaginous or osseous parts and separates the two halves of nasal cavity. This septum is made up of three parts: columellar septum, membranous septum and septum proper. The last one is osteo-cartilaginous framework which is covered by 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]. It has been quoted that the nasal septum is usually a midline structure till the age of 7 years and later on it deviates mostly to the right side[2]. While some authors consider the nasal septum as a figure representing the displacement of maxilla during growth and development, this suggestion has not been confirmed[3]. Deviated nasal septum (DNS) is quite common condition in the babies delivered by vaginal route in primi mothers. Moreover, intrauterine malpositions particularly breech (45%) and prolonged labor seemed to play a role in newborn DNS. The present study was carried out to study the functional outcome and complications of two important modalities to treat DNS i.e. submucous resection (SMR) and septoplasty.

Methods

This prospective study was conducted in the ENT department of our medical college during a period of one and half year, from June 2012 to December 2013. Total 62 patients were included in this study.

Exclusion criteria:

- Patients with definitive diagnosis of asymptomatic DNS
- Patients below the age of 12 years
- Patients with previous history of nasal surgery or trauma to nose

Some parameters were noted from each patient in systematic manner- age, sex, symptoms, history of nasal polyps, allergic rhinitis, past history of nasal trauma or surgery to nose, treatment plans, medications received, lifestyle modifications etc. Detailed information was collected from each patient regarding their symptoms like nasal obstruction, watery rhinorrhoea, nasal itching, sneezing etc. Using Killian nasal speculum, nasal examination was performed to note the septal deviation, hypertrophy of nasal conchae, cyanosis, paleness or hyperaemia of nasal mucosa, etc. The patients were divided in two groups- SMR and septoplasty. The results of both surgeries were compared in terms of relief of symptoms and complications. The collected data was analyzed using Microsoft Excel. The data was tabulated and analyzed.

Results

Out of 62 patients analyzed 38 (61.29%) were males and 24 (38.71%) were females (shown in figure 1).

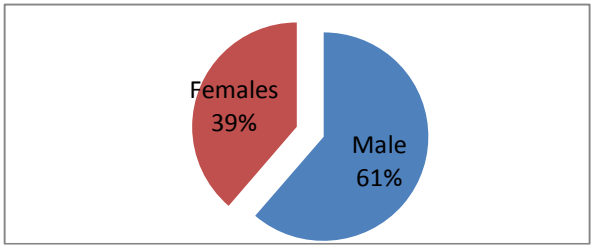

Figure 1: Showing sex wise distribution of patients

Table I is showing the distribution of the patients according to the age groups. Maximum i.e. 38.71% patients were in the age group 21-30 years.

Table 1: Shows distribution of patients according to the age groups.

Age groups	Number of patients	Percentage
12-20	17	27.42%
21-30	24	38.71%
31-40	12	19.35%
41-50	09	14.52%
Total	62	100%

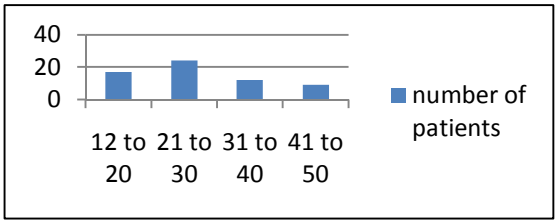

Figure 2: Showing age wise distribution of the patients

The presenting complaints of all the patients were recorded and analyzed. Out of 62 patients studied, 24 (38.71%) were selected for submucous resection (SMR) and 29 (46.77%) were selected for septoplasty operation. Rest 9 patients were managed conservatively. We found that the nasal obstruction was the commonest complaint followed by post nasal discharge (PND), nasal discharge, headache, external nasal deformity etc.

Table 2: Showing presenting complaints of patients and percentage

Complaints	SMR (n=24)	Septoplasty (n=29)
Nasal obstruction	23 (95.83%)	28 (96.55%)
PND	19 (79.17%)	19 (65.52%)
Nasal discharge	19 (79.17%)	21 (72.41%)
Headache	14 (58.33%)	17 (58.62%)
External deformity	9 (37.5%)	10 (34.48%)
Snoring	9 (37.5%)	11 (37.93%)
Epistaxis	2 (8.33%)	3 (10.34%)

The surgery performed for the cases of DNS was either submucous resection (SMR) or septoplasty. SMR was performed on 24 patients, septoplasty in 29 patients and remaining 9 patients were managed without any surgical intervention.

Table 3: Showing functional result of SMR against Septoplasty in terms of percentage

Complaints	SMR (n=24)	Septoplasty (n=29)
Nasal obstruction	21/23 (91.30%)	26/28 (92.86%)
PND	17/19 (89.47%)	17/19 (89.47%)
Nasal discharge	16/19 (84.21%)	18/21 (85.71%)
Headache	9/14 (64.29%)	9/17 (52.94%)
External deformity	7/9 (77.78%)	8/10 (80%)
Snoring	6/9 (66.67%)	7/11 (63.64%)
Epistaxis	2/2 (100%)	2/3 (66.67%)

The functional result of SMR and septoplasty is summarized in table III. It shows that nasal obstruction was relieved in more than 90% of cases in both groups. The effectiveness of one surgery over the other was difficult to express as the difference was not statistically significant. Table IV depicts the incidence of complications in two groups. 54.17% complications were found after SMR and 10.34% after septoplasty.

Table 4: Showing comparison of complications between SMR and Septoplasty

Complications	SMR (n=24)	Septoplasty (n=29)
Crust formation	3 (12.5%)	1 (3.45%)
Altered dental sensation	3 (12.5%)	1 (3.45%)
Septal perforations	2 (8.33%)	0
Septal haematoma	2 (8.33%)	0
Bleeding	3 (12.5%)	1 (3.45%)
Total	13 (54.17%)	3 (10.34%)

Discussion

The nasal septum plays a crucial role in both appearance and functioning of the nose. Deviated nasal septum (DNS) is quiet a common condition. Its incidence varies greatly, from 0.93% in Israel[6] to 14.3% in Poland[7]. Further it is noted that its incidence is higher in Caucasians as compared to Africans or Asians[8]. The male to female ratio in our study was found to be 1.58:1. The same ratios found in different studies are – 7.33:1 by Mahmood *et al.*[9], 69:31 by Rao *et al.*[10]. Bansal Mohan[4] also stated that males are affected more than females. But Rehman *et al.*[8] found females (64.80%) more affected than males (35.19%). The possible reason for male dominance may be more environmental exposure and trauma[9]. The largest numbers of patients (38.71%) in our series were found to be between 21-30 years. Rao *et al.*[10] found the maximum incidence between 2nd and 4th decade, Rehman *et al.*[8] found between second and fifth decade. Van der Veken *et al.*[11] noted that the prevalence of septal deviation in children increases from 16% to 72% in a linear fashion from 3 to 14 years of age. Nasal obstruction was the commonest complaint in most of the patients followed by PND and nasal discharge. Mahmood *et al.*[9], Bansal Mohan[4] and Iqbal *et al.*[12] also found nasal obstruction as the most common complaint. But most of the authors[4] agree that many of the patients of DNS do not have any complaints. We tried to compare SMR and

septoplasty in respect of symptomatic relief and complications. The submucous resection (SMR) was first described by Freer in 1902 and by Killian in 1904 while septoplasty was introduced by Cottle and Loring in 1946[12]. Functional results of SMR and septoplasty showed mixed results. Nasal obstruction and nasal discharge got more relief in septoplasty group as compared to SMR group. But the difference is not statistically significant. Headache, snoring and epistaxis got more effectively relieved in SMR group. Fjermedal *et al.*[13] had explained that 25-35% of patients do not achieve satisfactory results in septal surgery. Low and Willatt[14] advocated that SMR is relatively easy to perform and have similar complication & patient satisfaction rates like septoplasty, and should be retained in the surgical armamentarium for the deviated nasal septum as post-operative long term satisfaction rate was found to be 70%. We also advocate that partial turbinectomy should be done along with SMR and septoplasty for hypertrophied turbinates, so that it gives more functional results to improve symptoms. The complications occurred after surgeries are shown in table IV. Septal perforation was present in 8.33% cases of SMR and none of the cases of septoplasty in this study. Iqbal *et al.*[12] found septal perforation in 2.5 and 2% cases respectively. Haraldsson *et al.*[15] noted perforation in 8% and 1.6% respectively. Low and Willatt[14] found septal perforation in 2.7% of cases SMR. So our values of complication rate of SMR is same as Haraldsson *et al.*[15] but Iqbal *et al.*[12] found complication rate much lower than others. In present study, septal haematoma was present in 8.33% and zero cases of SMR and septoplasty respectively. Iqbal *et al.*[12] noted septal haematoma as 2.5 and 1% resp. Low and Willatt[14] recorded 1.3% cases of haematoma after SMR. So our values of septal haematoma are more as compared to others. We noted that the complications noted in our study are much less in septoplasty as compared to SMR group. This indicates that septoplasty could become the major treatment modality of treatment than SMR in respect of complications observed.

Conclusion

DNS is a common disorder affecting the nasal septum that may or may not present with the symptoms. But the treatment modalities are mainly either SMR or septoplasty. Our study claimed that both SMR and septoplasty have their own advantages and disadvantages but neither SMR nor septoplasty seems to be the best treatment modality. The chief advantage is that septoplasty can be used to treat DNS because of fewer complications.

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