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Comparison of Septoplasty with and without Nasal Packing: Its Association with Post-Operative Nasal Adhesion Formation

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ABSTRACT

Objective: To compare the septoplasty with and without nasal packing in patients having deviated nasal septum in terms of frequency of post-operative nasal adhesion.

Patients and Methods: In this randomized control trial, total 180 patients of deviated nasal septum (DNS) associated with persistent nasal obstruction, breathing difficulty, sinonasal infections were enrolled and admitted in the department of ENT, Head and Neck Surgery, Pakistan Institute of Medical Sciences, Islamabad. Patients were randomly divided into "Group A" (Septoplasty with nasal packing) and "Group B" (septoplasty without nasal packing) by lottery method. Demographic data was recorded. Septoplasty was performed under general anaesthesia. Nasal splints were applied at the end of procedure. Packing was removed postoperatively from 'Group A' patients after 24 hours. Development of post-operative nasal adhesion was calculated superlatively for both the groups. Data was recorded and analysis was done using SPSS version 19. Chi square test was used to compare the two groups. P value < 0.05 was taken as significant.

Results: Our study comprised 180 patients which were divided into 2 groups equally (n=90 each). Patient's age ranged from 17– 45 years. Mean age was 22.77±6.038. Male to female ratio was 2:1. Total males were 125 (69.4%) and females were 55 (30.6%). In "Group A" 64 (71.1%) were male and 26 (28.9%) were female while in "Group B" 61 (67.8 %) were male and 29 (32.2%) were females. Septoplasty was done in all 180 patients out of which 125 (64 in Group A and 61 in Group B) were male whereas 55 (26 in Group A and 29 in Group B) were female. Nasal adhesion was seen in 13 (14.44%) patients of group A, while 3 (3.33%) patients of group B developed the same. P value was 0.005 which is statistically significant.

Conclusion: Septoplasty with nasal packing has more chances to develop nasal adhesion as compared to septoplasty done without packing.

Key words: Septoplasty, Nasal Packing, Nasal Adhesion.

Author`s Contribution
[1] Conception, synthesis, planning of research and manuscript writing Interpretation and discussion
[2,3] Data analysis, interpretation and manuscript writing, Active participation in data collection.

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Introduction

Deviation of nasal septum is a common problem which can be congenital, developmental, and traumatic. It can be present in any gender and age group, with predominance in males. Usually symptoms develop in adults and adolescent age. Different types of Nasal septal deformities are simple septal deviation, spur formation, with or without external deformity of the nose.[1] Septoplasty is a common surgical procedure for Deviated

Nasal Septum [2]. Septoplasty is a conservative method in which correction of the deviated part of nasal septum is accomplished with minimum loss of septal cartilage and possible septal framework is conserved. It is done to resolve obstruction of the nose, caused by deviated nasal septum.[3] Following septoplasty, nasal packing is routinely done to avoid hemorrhage and septal hematoma. [4] Pain and discomfort is a common problem after septoplasty with nasal packing which is increased during removal of the pack. It is reported that nasal packing can also cause nasal and periorbital edema, epiphora, sleep disturbance, dry mouth, allergy, toxic shock syndrome and increase the chances of cardiopulmonary problems e.g. cardiac arrhythmias, apnea, hypoxemia, hypotension.[5,7] Considerably less portoperative pain, headache, epiphora, dysphagia and sleep disturbance can occour in septoplasty without nasal packing. Nasal packing after septoplasty is considered unnecessary. Frequency of bleeding after septoplasty without nasal packing is very low. Surgery of septoplasty can be safely carried out without postoperative nasal packing.[6,8]

Studies have been done to compare the development of post-operative nasal adhesion in septoplasty with and without packing but showing variability of the results. Muhammad SA, Mughira I, showed percentage of Nasal Adhesion in packing group as 6.8% and 0% in non-packing group [6] and Ali Maeed S, Al-Shehri studied that percentage of nasal adhesion in non-packing group was 5.7% and 0% in packing group. [9] While percentage of nasal adhesion was same according to the study of Naghibzadeh B et al. [10] According to studies septal hematoma might be prevented by nasal packing, but these results need to be confirmed by studies with larger samples. [10] Jason G. et al, identified a total of 279 studies and systematically analyzed 17 meeting the inclusion criteria, to assess the relative rates of septal hematomas, synechiae and septal perforations associated with methods commonly used to manage the nasal septum after septoplasty. They concluded that this review fails to demonstrate a clear benefit among all of the post-septoplasty management techniques.[11] Due to variability of the results of development of nasal adhesion in the post-operative periods and failure to get clear benefit of the techniques of post-operative septoplasty, we carried out this research to compare septoplasty with and without nasal packing in terms of post-operative nasal adhesion development.

Patients and Methods

This randomized controlled trial was conducted at Department of ENT, Head and Neck Surgery, Pakistan Institute of Medical Sciences, Islamabad. Patients of both genders and age between 17 – 45 years, with Deviated Nasal Septum (DNS) who had persistent nasal obstruction, breathing difficulty and sinonasal infections were included in the study. Patients with upper respiratory tract infection, hypertrophied turbinates, requiring second procedure, diabetic, hypertensive and patients with bleeding diathesis, pregnant ladies and those who have previous history of nasal surgery were excluded from the study.

A total of 180 patients having DNS were enrolled in the study and admitted in the department of ENT. Patients were randomly divided into “Group A” (Septoplasty with nasal packing) and “Group B” (septoplasty without nasal packing) by lottery method. Demographic data was recorded. Relevant history was taken. Clinical and ENT examination was done and findings were noted. Baseline investigations and per-operative anesthesia fitness for surgery was done. Informed written consent with research inclusion consent was taken from all patients preoperatively. General anesthesia was given to all patients. Local anesthesia with 2% lignocaine & 1:200,000 adrenalines was infiltrated submucosally. Xylometazoline was sprayed in each nostril, 7 minutes prior to the incision. Standard septoplasty was done. Nasal splints were applied at the end of procedure. Nasal packing was done in “Group A” patients with lubricated petroleum based antibiotic ointment and it was avoided in “Group B” patients. Post operatively patients were nursed in semi sitting position. Soft diet was permitted in first post-operative day. Analgesics if required, in the form of Paracetamol injection, were given slow intravenously during Nil Per Oral (NPO) post-operative period and Tab Paracetamol 1000mg orally after NPO break. Antibiotics were given postoperatively for 7 days. Decongestant nasal spray and nasal douches with normal saline and baking soda was given post operatively to ‘Group A’ after removal of pack and to ‘Group B’ 6 hours after surgery. Nasal pack was removed in the ‘Group A’ after 24 hours

postoperatively. Nasal splints were removed after 1 week. Development of Post-operative nasal adhesions were calculated superlatively for both the groups at 30th day (post operatively). The data were recorded in SPSS version 19. Quantitative variable like age was presented by mean and standard deviation. The qualitative variables like gender and post-operative nasal adhesions were expressed by calculating frequencies and percentages. Nasal adhesions were compared between the two groups by applying chi-square test. p-value ≤ 0.05 was taken as statistically significant.

Results

Among 180 participants, 125 (69.4%) were males and 55 (30.6%) were females. Male to female ratio was 2:1. Mean age was comparable in both groups. In both Groups, male were more as compared to female (Table 1). Patients of Group A developed more nasal adhesions. p-value was statistically significant i.e. 0.005(Table 2).

Discussion

Septoplasty is a conservative method in which correction of the deviated part of the nasal septum is accomplished with minimum loss of septal cartilage with conservation of possible septal framework. It is done to resolve obstruction of the nose caused by deviated nasal septum. [3] This prospective, randomized controlled trial study was performed on 180 patients, age ranged between 15 – 45 years with mean age as 22.77 and standard deviation (SD) was 6.038. Male to Female ratio was 2.27: 1. The sample size of the "Group A" was (n) 90, age ranging from 15 – 45 years with mean age as 22.70 and SD was 6.773 while the sample size of the "Group B" was also (n) 90, age ranged from 17 – 45 years and the mean age was 22.84 ± 5.238, which is comparable with national and international research studies. Behroz et al reported the mean age as 22.44 years.[12] A research study conducted by Ardehali[4], he reported the mean age as 24.6 years. Another study was published by Awan, where the mean age of patients was 27.63 years in packing group and in no packing group the mean age was 25.34 years. [6] Ardehali[4] in his study published that the male patients were 78 and female were 27 and the male to female ratio was 2.88:1. While Awan reported in his study that in the packing group 27 were males and 17 were females and in non-packing group, 30 patients were males and 14 patients were females.[6]

In another study reported by Ardehali the postoperative septal hematoma was not detected in either group. Two (3%) patients had septal perforation in the packing group, and 01 (2%) patients in the non-packing group (p=0.56). 04 (7%) patients in the packing group had purulrnt nasal secretion while no secretions were seen in the non-packing group (p=0.08). In the packing group, 2 (3%) patients had mucosal adhesions, whereas there was only 1 (2%) patient with mucosal adhesion in the non-packing group (p = 0.56). There were 6 (10%) patients with residual deviation in the packing group and 5 (10%) patients with deviation in the non-packing group (p = 0.98). The comparison of postoperative pain and discomfort, revealed that the average VAS score was 5 in the packing group and 2.1 in the non-packing group (p = 0.01).[3]

A study conducted by Awan et al reported the adhesion formation. synechiae developed in 8 of the packing patients and none of the no-packing patients (18.2 vs. 0%; p > 0.05).[7] The present study showed that 15 patients had nasal adhesions after 4th postoperative week. There were 13 (14.44%) patients in group A and only 2 (2.22) patients were in group B (p = 0.005) which is comparable with other studies. In a study reported by Iqbal et al on 200 patients, the complication of septoplasty in which nasal packing was performed routinely; synechiae formed in 14 of these patients (7.0%).[13]

Table 1: Demographic characteristics of participants (n=180)

Variables	Group A (n=90)	Group B (n=90)
Gender		
Male; n(%)	64(71.1)	61(67.8)
Female; n(%)	26(28.9)	29(32.2)
Male:Female	2.46:1	2.10:1
Age		
mean±SD	22.70±6.77	22.84±5.24
minimum	17	17
maximum	45	45

Table 2: Post-operative nasal adhesions at 30th day between both groups (n = 180)					
Variable	Group A (n=90)		Group B (n=90)		p-value
	No. of Patients	Percentage	No. of Patients	Percentage	
Post-operative nasal adhesions	13	14.44	3	3.33	0.005

Adhesions can be prevented without packing by careful handling of the septal mucosa, by avoiding manipulation of the turbinates, and by meticulous placement of instruments in the surgical site.[14,15] According to Ardehali two (3%) patients had septal perforation in the packing group, and 1 (2%) patients in the non-packing group (p = 0.56) postoperatively.[4] Four (7%) patients in the packing group had infected nasal secretions and there were none in the non- the postoperative group (p = 0.08). Packing group showed, 2 (3%) patients had nasal adhesion, whereas there was only 1 (2%) patient with mucosal adhesion in the non-packing group (p = 0.56). There were 6 (10%) patients with residual DNS in the packing group and 5 (10%) patients with deflected septum in the non-packing group (p = 0.98). The evaluation of postoperative pain and discomfort, showed that the average VAS score was 5 in the packing group and in the non-packing group, the score was 2.1(p = 0.01).[4]

In Awan's experience, only 3 patients developed nasal adhesions and was drained by incision and drainage method in the packing group (6.8 vs. 0%; p > 0.05)[6] Siegel et al stated 77% upgrading in rhino logical symptoms following septoplasty,[50] and Iqbal et al revealed 69% results of septoplasty.[16] Makitie et al carried a study on 100 patients, he reported that septoplasty has 88% fruitful results in nasal block and also there is an improvement in dismissing nasal discharge, sneezing, recurrent headache and chronic rhinosinusitic.[17]

The septoplasty is a successful surgery to eradicate the bad symptoms of DNS. These symptoms are also seen in patients with a straight septum and equally, deviated septa without symptoms is also a joint finding. Bitzer et al, done septoplasty in 334 patients, in his study, he expressed the complete resolution of the symptoms in 10.6% while 45.2% were satisfied with the outcome, 36.5% were partly satisfied and 19.2% were dissatisfied.[18] Baumann et al, carried out research ten years after septoplasty, he expressed 84% of satisfaction. Literature shows satisfaction of the patients range from 70.5% to 86%. Jessen revealed 74% at nine months post-operative septoplasty and 69% were satisfied after nine years of septoplasty, while the percentage of patients reporting to be free of nasal obstruction was from 51% to 26%.[19,20] Considerably less postoperative pain, headache, epiphora, dysphagia, and sleep disturbance can occur in septoplasty without nasal packing. Nasal packing after septoplasty is considered unnecessary. Frequency of bleeding after septoplasty without nasal packing is very low. Surgery of Septoplasty can be safely carried out without postoperative nasal packing.[6,8]

Conclusion

Frequency of nasal adhesion is statistically significant in packing group. Septoplasty with nasal packing is unnecessary and is a cause of patient's discomfort. Septoplasty can be safely performed without nasal packing. Nasal packing should be reserved only for those who excessively bleed after the surgery or present with unreasonable bleeding or septal hematoma. More studies are recommended to generalize the results.

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