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TRANS-SEPTAL SUTURING IN SEPTOPLASTY

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Abstract:

Objective: *To compare the effectiveness of trans-septal nasal suturing with nasal packing techniques during septoplasty for deviated nasal septum.*

Study Design: *Randomized control trial study*

Place And Duration: *This study was conducted in ENT Department, Naseer Teaching Hospital Peshawar from October 2017 to October 2018.*

Patients And Methods: *A total of 362 patients having symptomatic DNS were included. Group A (181) underwent septoplasty with trans-septal suturing and group B underwent septoplasty with anterior nasal packing.*

Results: *In this study mean age was 30 years with standard deviation ±1.26. 70% patients were male and 30% patients were female. Nasal Adhesions among patients in two groups was analyzed as in trans-septal suturing group n=5(3%) patients had adhesions and 176(97%) patients had no adhesions while in Nasal packing group n=4(2%) patients had adhesions and 177(98%) patients had no adhesions.*

Conclusion: *Trans-septal suturing and nasal packing following septoplasty has no significant difference in terms of formation of nasal adhesions.*

Key Words: *Septoplasty, nasal packing, trans-septal suturing.*

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INTRODUCTION:

Septoplasty is one of the most common surgical procedure in otolaryngology. It is customary to pack the nose as a part of nasal surgery to stop bleeding, enhance apposition of mucosal flaps and prevent nasal adhesion formation. But common problems with nasal packing are pain during introduction and removal of pack, bleeding after removal due to mucosal damage, synechia formation and pain and discomfort in post operative period. Synechia formation was found to be highest among the cases with conventional gauze pack (14.9%).1 Systemic complications induced by nasal packing include decreased sleep quality, respiratory problems and decreased oxygen saturation, in addition to circulatory system problems, and toxic shock syndrome [2].

An alternative method i.e. trans-septal suturing is used to attain the advantages of nasal packing and prevent its complications such as septal hematoma, bleeding and synechiae formation. Placing knots for interrupted sutures in the posterior and middle part of the nasal septum can be technically difficult, a continuous suturing technique for approximating the mucosal flaps following septal surgery is advised. Trans septal suturing might be a significantly comfortable, cost-effective and reliable alternative to nasal packing. [3]

The rationale behind doing this study is to compare the effectiveness of trans-septal suturing with nasal packing in patients with deviated nasal septum undergoing septoplasty. Both techniques were studied with regard to nasal adhesion formation because post operative adhesions are associated with many complications like nasal obstruction and olfactory dysfunction which is further distressing to the patients.

PATIENTS AND METHODS:

This study was designed as a randomized control trial in ENT department of Naseer teaching hospital, Peshawar from October 2017 to October 2018. All the patients above 18 years of age presenting with symptomatic DNS were planned for septoplasty and included in the study. The purpose and benefits of the study were explained to all patients and a written informed consent was obtained. Patients who had history of nasal surgery or traumatic fracture of nasal bones and patients with idiopathic septal perforation were excluded to minimize bias in the study results. All the patients underwent septoplasty under general anesthesia by the same surgeon. Patients were divided in two groups i.e. A and B by lottery method. In group A (181) patients trans-septal suturing using catgut 3/0 was performed after completion of procedure and in group B (181) patients anterior nasal packing was performed. Nasal pack was removed in group B patients 24 hours after surgery. All patients in group A and B were followed up in OPD till 14th post operative day to determine intervention effectiveness in terms of absence of adhesions. All the above mentioned information including name, age gender and address were recorded in a pre designed proforma.

Data was analyzed in SPSS version 14.0. Mean ± SD was calculated for quantitative variables like age. Frequencies and percentages were calculated for categorical variables like gender and effectiveness. Chi square test was used to compare the effectiveness of trans-septal suturing with nasal packing. P value of < 0.05 was considered significant. Effectiveness was stratified among age and gender to see the effect modifications. All results were presented in the form of table.

RESULTS:

Age distribution among 362 patients was analyzed as n=163(45%) patients were in age range 20-30 years and n=199(55%) patients were in age range 31-40 years. Mean age was 30 years with standard deviation ±1.26. (as shown in table No 1). Gender distribution among 362 patients was analyzed as n=253(70%) patients were male and n=109(30%) patients were female. (as shown in table No 2).

Nasal Adhesions among patients in two groups was analyzed as in trans-septal suturing group n=5(3%) patients had adhesions and 176(97%) patients had no adhesions while in Nasal packing group n=4(2%) patients had adhesions and 177(98%) patients had no adhesions. (as shown in table No 3). Efficacy of trans-septal suturing and nasal packing was analyzed as trans-septal suturing technique was effective in n=176(97%) patients while nasal packing technique was effective in n=177(98%) patients. (as shown in table No 4). Association of Efficacy of trans-septal suturing and nasal packing with age distribution was analyzed as in 176 effective cases of trans-septal suturing technique, 79 patients were in age range 20-30 years and 97 patients were in age range 31-40 years. While in 177 effective cases of nasal packing technique, 80 patients were in age range 20-30 years and 97 patients were in age range 31-40 years. (as shown in table No 5). Association of Efficacy of trans-septal suturing and nasal packing with gender distribution was analyzed as in 176 effective cases of trans-septal suturing technique, 122 patients were male and 53 patients were female. While in 177 effective cases of nasal packing technique, 124

patients were male and 54 patients were female. (as shown in table No 6).

TABLE NO 1. AGE DISTRIBUTION (n=362)

Age distribution	Frequency	Percentage
20-30 years	163	45%
31-40 years	199	55%
Total	**362**	**100%**

Mean age was 30 years with standard deviation ±1.26

TABLE NO 2. GENDER DISTRIBUTION (n=362)

Gender distribution	Frequency	Percentage
Male	253	70%
Female	109	30%
Total	**362**	**100%**

TABLE NO 3. NASAL ADHESIONS (n=362)

Nasal Adhesions	Trans Septal Suturing (Group A)	Anterior Nasal Packing (Group B)	Total
Yes	5(3%)	4(2%)	9
No	176(97%)	177(98%)	353
Total	**181**	**181**	**362**

Chi Square Test was applied in which P value was 0.736

TABLE NO 4. Efficacy of Trans Septal Suturing Versus Anterior Nasal Packing (n=362)

Nasal Adhesions	Trans Septal Suturing (Group A)	Anterior Nasal Packing (Group B)	Total
Effective	176(97%)	177(98%)	353
Not effective	5(3%)	4(2%)	9
Total	**181**	**181**	**362**

Chi Square Test was applied in which P value was 0.736

TABLE NO 5. ASSOCIATION OF EFFICACY OF TRANS SEPTAL SUTURING VERSUS ANTERIOR NASAL PACKING IN AGE DISTRIBUTION (n=362)

Efficacy	Trans Septal Suturing (Group A)		Anterior Nasal Packing (Group B)		Total
	20-30 years	31-40 years	20-30 years	31-40 years	
Effective	79	97	80	97	353
Not Effective	2	3	2	2	9
Total	**81**	**100**	**82**	**99**	**362**

Chi Square Test was applied in which P value was 0.972

TABLE NO 6. ASSOCIATION OF EFFICACY OF TRANS SEPTAL SUTURING VERSUS ANTERIOR NASAL PACKING IN GENDER DISTRIBUTION (n=362)

Efficacy	Trans Septal Suturing (Group A)		Anterior Nasal Packing (Group B)		Total
	Male	Female	Male	female	
Effective	122	53	124	54	353
Not Effective	4	1	3	1	9
Total	**126**	**54**	**127**	**55**	**362**

Chi Square Test was applied in which P value was 0.601

DISCUSSION:

Septoplasty is one of the most widely used surgical methods for correction of septal deviation. [4] Nasal packing after septoplasty has been used to approximate septal mucoperichondrial flaps mechanically, to prevent bleeding and septal haematoma, to support the septum, to stabilize the repositioned cartilage and bone fragments, and to prevent synechiae between the septum and lateral nasal wall. [5] Numerous packing materials are available including ribbon gauze, fingerstall packs, polyvinyl acetate sponge, cellulose sponges, and carboxymethyl-cellulose. [6] However it was since forced that not only is nasal packing ineffective in this regard it can actually causes these complications like adhesion formation and septal perforation. Recent studies conclude that trans-septal suturing technique is a valid alternative to intranasal packing following septal surgery [5] and even septoplasty can be performed safely without postoperative nasal packing. [7]

Many of the complications associated with nasal packing are no longer present with trans-septal suturing like cardiovascular changes, continued bleeding, nasal injury, hypoxia, foreign body reaction or infection. The major disadvantage of nasal packing i.e. patient's discomfort, usually necessitating hospital stay and the need to administer antibiotics, is minimal with septal suturing. One of the most deleterious complications of nasal surgery is the formation of synechia. Their presence leads to persistence of nasal obstruction which often leaves the patient and the doctor dissatisfied.

So we conducted a study to compare nasal packing and trans-septal suturing with regard to nasal adhesion formation. Our study showed that nasal packing was slightly effective than trans-septal suturing technique. In group B with nasal packing, 4 patients (2%) developed nasal adhesions while in group A with trans-septal suturing 5 patients (3%) developed nasal adhesions but this difference between two groups was not statistically significant (p value > 0.05). A similar study revealed no significant difference between the two groups in the incidence of bleeding, septal hematoma, adhesion formation, and local infection 7 days postoperatively but the packing group reported a moderate to high level of pain during removal of the packing. So they suggested that nasal packing after septoplasty is actually a source of patient discomfort and other signs and symptoms. [8]

A similar technique of septal suturing after nasal septoplasty without nasal packing was used in 226 consecutive surgical procedures and reviewed retrospectively. Complications like postoperative episodes of bleeding, infections, septal hematomas, septal perforations or synechia were not noted. A recurrence of the septal deviation occurred in only one patient. Patients reported almost no discomfort. Moreover, the septal surgery procedure could be carried out as a day-case surgery. Readmission of a patient was never necessary. Based on these observations they concluded that septal suturing technique is a valid alternative to intranasal packing following septal surgery. [5]

In Iran, Naghibzadeh et al. stated that the frequency of bleeding after septoplasty without nasal packing is very low and nasal packing should be reserved only for those who bleed more during surgery or develop septal hematoma. Septoplasty can be safely performed without postoperative nasal packing. Nasal packing had no significant benefits that would compensate its usage. Septal suture is one of the procedures that can be used as alternative method to nasal packing. [9] In another study, patients who underwent nasal packing sustained significantly more epiphora, headache and sleep disturbances. Moreover, grades of pain expressed by patients in the nasal packing group during the first 24 hours postoperatively and during the removal of the pack were significantly more than that in the non-packing patients group. There were no significant differences between both groups regarding incidence of hematoma, epistaxis or adhesions. [10]

A prospective, comparative, interventional study was conducted to evaluate the role of intranasal septal splints and to compare the results of this type of support with those of conventional nasal packing. No patient in the splint group had an intranasal adhesion at follow-up, while 4 (13.3%) in the packing group did ($p < 0.05$). [11] In one study out of 62 patients who were non-splinted the incidence of synechia formation was 52% while it was drastically reduced to 18% in 62 splinted patients. This study has proven that intranasal splints had significant role in preventing intranasal adhesions. [12] In our study, we splinted both the groups due to which the frequency of adhesion formation was very less in both groups.

Trans-septal suturing is simple and reliable and can be safely performed after septoplasty. Although the operating time may increase slightly, the technique is painless and comfortable and reduces postoperative anxiety caused by nasal packing [13]. The surgeons who perform nasal packing as a routine after septal surgery, have the fear of postoperative bleeding and hematoma formation. Pain and headache is

significantly reduced in trans-septal suture group. A recent study has revealed a significantly severe pain during the removal of the nasal packing when compared to the nasal septal chain suture removal ($P < 0.001$), but there was no difference in the bleeding ($P = 0.460$) [14]. Overall, nasal septal sutures significantly improve patient comfort during the postoperative period, when compared to nasal packing, with an earlier return to nasal respiration.

CONCLUSION:

Trans-septal suturing and nasal packing following septoplasty has no significant difference in terms of formation of nasal adhesions, so trans-septal suturing can replace nasal packing after septoplasty because it has less postoperative pain and patients return to normal daily life in short period of time.

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