

Comparison between Anterior Nasal Space (ANS) Packing Versus Trans-septal Suturing Method after Septoplasty

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Abstract

Objective: The trans-septal suturing method has been developed in septoplasty as an alternative to packing. This study was carried out to compare the postoperative results of trans-septal suturing with the Anterior Nasal Space packing technique on selected variables of interest (pain, hemorrhage, complications, perforation & hematoma).

Method: This was a Cross sectional comparative study carried out in department of Otolaryngology-Head and Neck Surgery of Sir Salimullah medical college and Mitford hospital, Dhaka. The study involved 60 patients who underwent septoplasty. Following surgery, patients were randomly divided into two groups, one with trans-septal suturing and the other with ANS packing. Patients were interviewed to record pain levels using a visual analogue scale. Postoperative symptoms and complications were compared.

Result: A total of 60 nasal operations were evaluated in the postoperative period considering pain, bleeding, hematoma, nasal synechiae and septal perforation. The results for hemorrhage, hematoma, synechiae and perforation were not statistically different ($p > 0.05$) between groups. In contrast, the level of postoperative pain in patients undergoing trans-septal suturing was significantly less than in the group who received Anterior Nasal Space Packing ($p < 0.05$).

Conclusion: Patients with ANS packing had significantly more pain and nasal discomfort as assessed one week after intervention. Therefore, the trans-septal suturing technique may be considered the preferred option to provide higher patient satisfaction.

Key words: Septoplasty, Trans-septal suturing, Nasal packing.

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Introduction

Deviated Nasal Septum (DNS) is one of the most common nasal structural defects and a prevalent problem among the general population worldwide.¹ Septoplasty is one of the most widely used techniques in patients with septal deviation. It is one of the most common operations performed in Otorhinolaryngology department.

Packing the nose after septoplasty is common practice to ensure stabilization of post-nasal septoplasty, and to prevent postoperative complications such as bleeding, adhesion formation, apposition of mucosal flaps, and subsequent septal haematoma and septal perforation.²⁻⁴

Until three or four decades ago, septoplasty was usually performed with a submucous resection (SMR) of the nasal septum.⁵ Scar formation and subsequent contraction of the fibrous tissues in the resected part of the septal cartilage were a frequent cause of saddling and retraction of the columella. Septal perforations were a common complication, in part due to drying of the opposing mucoperichondrium adjacent to the incision. Another drawback of this technique was that correction of pathology in the dorsal, caudal, inferior and posterior parts of the septum was not possible.⁶ These criticisms led to the emergence of the septoplasty operation.⁷

But the side effects of the ANS packing are obvious. After the operation the nasal-tight packing will give patients with

nausea discomfort, or even more than the surgical trauma pain. Sleep, diet and emotions have serious bad effect after packing.⁸ In addition, nasal packing may also cause patients with sleep disturbances, postoperative infection, toxic shock syndrome and others complications.⁹⁻¹⁰

Therefore, the nasal packing as a nasal septum after routine treatment measures have been questioned in recent years. Intranasal (septal) splints have been used as an alternative to nasal packing to prevent intranasal adhesions and maintain septal stability.¹¹ They have the advantage that they can stay in the nose and allow the patient to breathe through the nose, thus prolonging the time the septum is supported but similar to nasal packing, septal splints have indicated.

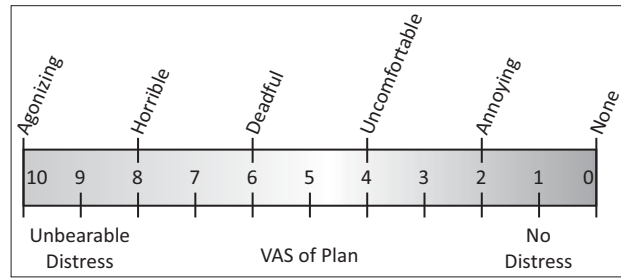
In order to prevent these problems, some surgeons use various techniques of suturing instead of nasal packing after septoplasty, but not enough evidence was found to support this practice. This study was a modest attempt to compare the outcomes of septoplasty in patients with postoperative packing and trans-septal suturing.

Material and Methods

The study was conducted between years 2019 to 2020 and included 60 patients who had deviated nasal septum and need surgery-septoplasty only. Patients were randomly divided into two groups. Routine preoperative investigations were carried out on patients before surgery, and systemic diseases were not present in any case. Routine preoperative investigations were carried out on patients before surgery, and systemic diseases were not present in any case. In total, 22 patients were operated under general anesthesia, while 38 were operated under local anesthesia. Choice of method of anesthesia was guided by the patient's general condition. After giving anesthesia, 2% Jesocaine with Adrenaline (lidocaine HCl 20 mg/ml, epinephrine hydrochloride 0.0125 mg/ml) was administered to all patients to aid hemostasis. A hemi transfixion freers caudal incision was used in all patients. All incisions were sutured using 3-0 catgut cutting body.

In the septal suture group (Group-I), the study used a separate suture technique, and sutures were placed according to elevated parts of the mucoperichondrium. Transfixion sutures (3-0 catgutcutting body) were made starting from the posterior side to achieve stabilization of mucoperichondrial flaps. Ethical issues were dealt adequate using a well structured consent form.

Anterior nasal space packing was applied to 30 patients (Group-II), and was removed after 48 hours. After surgery, broad-spectrum antibiotics were recommended to all patients for 7 days, and analgesic, nasal decongestant, nasal saline irrigation and anti-inflammatory treatment was used as needed. After 24 and 48 hours of surgery, patients were interviewed to assess the level of pain using a VAS (visual analogue scale; a scale between 1 and 10; 1 minimal, 10 unbearable).



In addition, on the first and seventh days and one month after surgery, patients were examined for bleeding, haematoma, and septal perforation synechiae. Statistical analyses were performed with the SPSS 16 program. For comparison purposes, the chi-square test and Student's t-test were used. $p < 0.05$ was considered statistically significant.

Results

Between years 2019 to 2020, a total of 60 patients, aged 17-55 years, underwent septoplasty. Patients were randomly divided into two groups. The first group (n = 30) had trans-septal suturing and the second group (n = 30) had anterior nasal space packing after surgery. Post-surgical pain, bleeding, synechiae, septal perforation and hematoma results are shown in Tables.

Table 1: Comparison of Post-operative pain between two groups (n=60).

Post-operative pain	Group-I (n=30) Mean±SD	Group-II (n=30) Mean±SD	p-value
Pain after 24 hours	3.48 ± 1.4	4.74 ± 1.94	<0.01
Headache after 24 hours	4.4 ± 1.5	5.4 ± 1.65	<0.05

Table 1 shows pain after 24 hours and headache after 24 hours among Group-I and Group-II is significantly different. p value is <0.01 and <0.05 respectively.

Table 2: Comparison of Post-operative hemorrhage between two groups (n=60).

Postoperative hemorrhage	Group-I (n=30)	Group-II (n=30)	p-value
Present	8	6	
Absent	22	24	>0.05
Total	30	30	

Table 2 shows that there is no significant difference regarding post-operative hemorrhage between two groups ($p > 0.05$)

Table 3: Postoperative complications (Nasal synechia) in patients undergoing septal suturing (Group-I) or nasal packing (Group-II).

Nasal synechia	Group-I (n=30)	Group-II (n=30)	p-value
Present	4	3	
Absent	26	27	>0.05
Total	30	30	

Table 3 shows the proportion of observations in the different categories in **Fisher Exact Test**, which define the contingency table is not significantly different than is expected from random occurrence ($P>0.05$).

Table 4: Postoperative septal perforation in patients undergoing septal suturing (Group-I) or nasal packing (Group-II)

Septal perforation	Group-I (n=30)	Group-II (n=30)	p-value
Present	9	12	
Absent	21	18	>0.05
Total	30	30	

Table 4 shows the proportions of observations in different columns of the contingency table do not vary from row to row. Post-operative septal perforation in between two groups are not statistically significant. ($P>0.05$)

Table 5: Postoperative septal hematoma in patients undergoing septal suturing (Group-I) or nasal packing (Group-II).

Septal Hematoma	Group-I (n=30)	Group-II (n=30)	p-value
Present	2	1	
Absent	28	29	$p>0.05$
Total	30	30	

Table 5 shows the proportion of observations in different categories in **Fisher Exact Test**, which define the contingency table is not significantly different than is expected from random occurrence ($P>0.05$).

Discussion

Nasal packing after septoplasty is often performed for suppression of bleeding, bleeding control, and mechanical pressure, but also to prevent hematoma formation after surgery. A review of the literature revealed no difference either in bleeding or in septal haematoma formation if different packing materials are used or if no packing is used.¹²⁻¹⁷ In our study, eight patients in Group-I and six patients in Group-II suffered post-septoplastic bleeding, but the difference between groups was not statistically significant. There was also no difference between the two

groups with regard to formation of haematoma. For mechanical and structural reasons, nasal packing irritates the nasal mucosa and adversely affects mucosal ciliary activity. In their study on sheep, Shaw and co-workers¹⁸ showed that nasal packing caused a 50-68% loss of mucosa cilia. As a consequence, intranasal infections can develop. Along these lines, Lee and Vukovic reported a case of pyogenic granuloma caused by nasal packing.¹⁹

The most serious complication due to infection is toxic shock syndrome.¹⁹ In parallel to these results, patients who underwent suturing preserved mucosal ciliary activity, but packing-dependent reactions were not observed. Consequently, the tendency for infection is reduced.

In a series of rhinoplasties, Camirand observed that no complications develop unless packing is applied inside the nose.¹⁷ Lemmens and Lemkens applied the suturing technique to 226 patients.⁹ It was reported that complications such as bleeding, septal haematoma and septal perforation, but synechiae were not recorded. In this study, four patients in Group-I and three patients in Group-II developed nasal synechiae. The incidence of septal perforation in Group-I was 9 (15%), whereas in Group-II, 12 (20%) cases were observed. Septal hematoma formation found in Group-I, 2 patients and Group-II, 1 patient. Significant differences were not found between the two groups with respect to the formation of synechiae and septal perforation, in agreement with literature findings.

Conclusion

The suturing technique used in septoplasty presents minimal pain and complications after surgery, and patients return to normal daily life in a very short period of time. Furthermore, postoperative bleeding was not an issue with this method. This study confirmed that the routine use of nasal packing was not justified, and also showed a positive impact on patient comfort after surgery for septoplasty using the suturing technique.

Conflict of interest: No conflict of interest.

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