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Postoperative pain comparison of nasal pack with trans-septal suturing after septoplasty

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ABSTRACT

**BACKGROUND & OBJECTIVE:** Septoplasty, first introduced in the late modern period, has undergone several refinements and remains one of the most frequently performed nasal surgeries, alongside inferior turbinioplasty, endoscopic sinus surgery, and rhinoplasty. Postoperative pain management remains a significant consideration, particularly regarding the use of nasal packing versus transeptal suturing. This study aimed to compare pain perception between patients who received nasal packing and those who underwent transeptal suturing after septoplasty.

**METHODOLOGY:** A quasi-experimental study was conducted in the Department of ENT at Aziz Fatimah Hospital, following approval by the Ethical Research Committee, from October 2023 to March 2024. A total of 84 patients were enrolled and divided equally into two groups. Group A received polyvinyl alcohol nasal packing, while Group B underwent trans-septal suturing using Vicryl® 3-0 absorbable sutures. Postoperative pain was assessed using the Visual Analogue Scale (VAS) after 48 hours during hospital stay and again on day 7 during follow-up.

**RESULTS:** Of the 84 participants, 29 (34.5%) were female and 55 (65.5%) were male, with ages ranging from 18 to 54 years (mean  $24.20 \pm 6.937$ ). No statistically significant difference in postoperative pain was observed between the two groups, with p-values of 0.0836 at 48 hours and 0.356 at day 7.

**CONCLUSION:** The study concludes that nasal packing and transeptal suturing are comparable in terms of postoperative pain after septoplasty, with no significant difference between the two methods.

**KEYWORDS:** Nasal Packing, Septoplasty, Trans Septal Sutures, Postoperative Pain.

INTRODUCTION

During the 19th century, septoplasty was first performed, but it was subsequently modified<sup>[1]</sup>. Septoplasty is a well-established nasal surgery, as the majority of surgical procedures performed in rhinology are for the correction of deviated nasal septum, inferior turbinate reduction, endoscopic sinus surgery, and rhinoplasty<sup>[2]</sup>. The post-surgical nasal packing reduces the likelihood of post-surgical bleeding, recurrence of chronic septal deviation, and newly formed mucosal adhesions. After septoplasty, it is often standard procedure to place gauze saturated with white petroleum jelly and soaked in polyvinyl alcohol into the nasal cavity. Several complications may arise, including pain, respiratory issues, difficulty breathing, and discomfort upon removal of the nasal packs<sup>[3]</sup>.

Nasal packing serves several purposes, including stabilizing the septum and preventing the formation of adhesions from septal hematomas. Recent research suggests that nasal packing has several drawbacks related to pain. Since the removal of packing can cause pain to the patient by applying great pressure inside the nasal cavity, several types of materials are used for nasal packing, including liquid paraffin, antibiotic packs, polyfax packs, pneumatic balloons, lubricated ribbon gauze, merocele, and glove finger packs<sup>[4]</sup>. Literature evidence suggests that nasal packing in septoplasty may cause several problems, including an increased postoperative hospital stay and a higher risk of bleeding. Even with the possible bleeding control advantages, there is a greater risk of postoperative discomfort, allergies, toxic shock syndrome (TSS), sleep disturbance, and mucosal injury<sup>[5]</sup>.

**How to cite this:** Awais M, Tariq K, Farooq MU, Sagheer U, Mahrukh, Imam HSH. Postoperative pain comparison of nasal pack with trans-septal suturing after septoplasty. *Journal of University Medical & Dental College*. 2025;16(4):1168-1171.



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Transseptal suturing has been proposed as an efficient and safe alternative to nasal packing, with the added benefit of causing less discomfort among septoplasty patients. With a slight increase in the mean operative time, the concept of trans-septal suturing is more successful in achieving hemostatic stabilization<sup>[6]</sup>. A randomized controlled trial conducted in the Ear, Nose, and Throat (ENT) division of Allied Hospital demonstrated that trans-septal suturing was significantly more effective than traditional nasal packing<sup>[4]</sup>.

A randomized controlled experiment was conducted, dividing 72 subjects into two groups: Group A ( $34.12 \pm 7.53$ ) and Group B ( $36.43 \pm 9.21$ ). 48 hours after surgery and 7 days after surgery, pain was evaluated using the visual analogue pain scale. Group A reported a mean score of pain as  $6.50 \pm 1.38$  after 48 hours, while Group B reported  $2.66 \pm 1.35$ . After 1 week, the pain scores for Group A were  $2.22 \pm 1.89$ , and for Group B,  $0.72 \pm 1.36$ . With a P value of  $<0.001$ ,<sup>[7]</sup> poorly controlled postoperative pain was found to be statistically significant. Poorly managed postoperative pain can have a spectrum of negative consequences, including increased morbidity, patient dissatisfaction, and delayed recovery. Because pain perception is subjective and can be affected by several elements, managing postoperative pain is difficult. Commonly done nasal septal surgeries with the potential of major postoperative discomfort are septoplasty and submucous resection<sup>[8]</sup>.

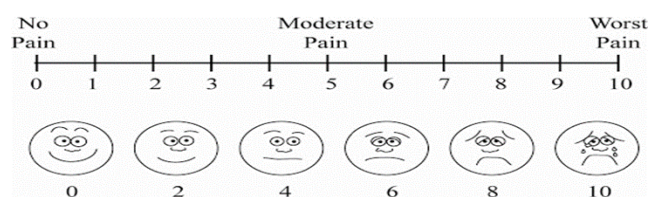
These days, septoplasty is among the most often performed procedures on otorhinolaryngology floors. Traditional nasal packing, used to achieve hemostasis and stabilize the septum, can cause the patient pain, inflammation, and breathing problems. Trans-septal suturing following septoplasty is a more helpful approach than nasal packing for lowering post-operative discomfort. Following this observation, a study was planned to investigate differences in pain perception between patients receiving nasal packing and those receiving transeptal suturing.

## METHODOLOGY

A quasi-experimental study was conducted at the Department of ENT at Aziz Fatima Hospital, Faisalabad, with approval from the Ethical Research Committee (IEC/204-23) from October 2023 to March 2024. A sample size of 84 (42 in each group) was calculated at a 95% confidence level, a 5% significance level, and 80% power. Patients of both genders, aged 18 to 40 years, facing a deviated nasal septum and willing to undergo septoplasty were included in this study. Patients with a history of associated nasal pathology, such as nasal polyps, sinusitis, tumors, or bleeding disorders, were excluded from the study. Patients were divided into two groups, each comprising 42 patients, using non-probability convenience sampling. Polyvinyl alcohol nasal packing was done for the group A patient after septoplasty, while trans-septal suturing was performed in group B patients by using Vicryl® 3-0 absorbable suture material.

The participants were informed of all possible outcomes of the procedure, and all relevant ethical considerations were addressed before enrolling the patient in the study. Informed

written consent was taken, and a detailed history and clinical examination were made. All the procedures were performed by the same consultant to ensure uniformity. The principal investigator records all the data himself. Patients were asked to measure postoperative pain by using the Visual Analogue Scale. (VAS). It has a 10cm line, representing 0 ('no pain') and 10 (worst pain). The level of pain was measured by asking the patient to place a mark on the line. Pain was assessed after 48 hours in the ward and after 7 days while keeping the patient on follow-up. The patient's contact number was also recorded to ensure effective follow-up.



Analysis was done after data collection using SPSS 27. Mean and standard deviation were calculated for the age of patients, while frequencies and percentages were calculated for qualitative variables such as gender and severe post-operative pain. The Shapiro-Wilk test was used to check the normality of the data. An Independent t-test was used to compare the mean pain scores between the two groups, and a P-value of  $\leq 0.05$  was considered statistically significant.

## RESULTS

**Table-I: Frequency of pain in both groups after nasal packing and trans septal suturing.**

VAS	Nasal Packing		Trans-septal Suturing	
	After 48 hours n (%)	After 7 days n (%)	After 48 hours n (%)	After 7 days n (%)
0	0(0.0)	12(28.6)	0(0.0)	15(35.7)
1	1(2.4)	22(52.4)	0(0.0)	22(52.4)
2	0(0.0)	6(14.3)	1(2.4)	3(7.1)
3	2(4.8)	1(2.4)	3(7.1)	2(4.8)
4	17(40.5)	1(2.4)	12(28.6)	0(0.0)
5	14(33.3)	0(0.0)	20(47.6)	0(0.0)
6	6(14.3)	0(0.0)	4(9.5)	0(0.0)
7	2(4.8)	0(0.0)	2(4.8)	0(0.0)
<b>Total</b>	<b>42</b>	<b>42</b>	<b>42</b>	<b>42</b>

Table-I shows the frequency of pain in both groups. Most patients experienced a VAS of up to 5 in both groups, and only two patients from each group reported a VAS of 7. At 48 hours, both groups experienced pain; however, the patients with nasal packing had slightly higher pain levels. After 7 days, pain was significantly reduced in both groups, with the trans-septal suturing group showing better comfort and lower pain scores overall.

Table-II showed that there were 29 (34.5%) females and 55 (65.5%) males among the total of 84 patients. 65 (77.38%) patients were in the age group of 18 to 30 years, and 19 (22.62%) were 30 years and above.

**Table-II: Demographic characteristics of participants.**

Variable	Categories	n (%)
Gender	Male	55(65.50)
	Female	29(34.50)
Age (years)	18-30	65(77.38)
	30 and above	19(22.62)

**Table-III: Association of pain with nasal packing and trans-septal suturing after Septoplasty.**

Variable	Nasal packing Mean $\pm$ SD	Trans-septal suturing Mean $\pm$ SD	P- value
Pain after first 48 hours	4.64 $\pm$ 1.100	4.69 $\pm$ 1.00	0.836
Pain after 7 days	0.98 $\pm$ 0.869	0.81 $\pm$ 0.773	0.356

Table-III showed that there was no statistically significant difference between nasal packing and transeptal suturing after septoplasty in terms of postoperative pain (p-values 0.836 and 0.356).

### DISCUSSION

Historically, nasal packing has been employed in septoplasty to prevent bleeding, perforation, hematoma, and to support the cartilage. The Trans-septal suture technique has been used as a sustainable substitute as well after septoplasty. Postoperative pain significantly influences patients' willingness to undergo surgery, because patients often remember their surgical experience as a nightmare because of the pain and suffering they experienced during the post-operative period.

In this study, postoperative pain was assessed in two groups: one with nasal packing and the other with transseptal suturing, using a visual analogue scale. In this study, there were 29 (34.5%) females and 55 (65.5%) males among the total of 84 patients. Patient ages ranged from 18 to 54 years, with a mean age of 24.20 $\pm$ 6.937 in both groups. Another study showed that the mean age of patients was 28.44 $\pm$ 6.16 years, ranging from 18 to 40 years. The study group consisted of 40.2% females and 59.8% males, with comparable gender distribution and mean age<sup>[9]</sup>. This showed that the minimum age was 18 years in both studies. It was also found that 67.7% of the participants were female and 32.2% were male. The mean age was 32.41 $\pm$ 12.37 years with a range of 18–57 years<sup>[10]</sup>. But another study had 33 males and 27 females, which showed that males are more vulnerable to trauma than females, similar to this study<sup>[11]</sup>.

This study had insignificant results in both procedures, with p-values of 0.0836 and 0.356. Similar results were shown in the study, where no statistically significant difference was found between nasal packing and trans-septal suturing, with a p-value of less than 0.05. Postoperative complications were more frequent after both procedures<sup>[12]</sup>. Transseptal suturing is superior to nasal packing in managing pain, as also evident in another study, which clearly demonstrated that it is a safe and effective technique<sup>[13]</sup>. Another study conducted yielded similar results, with a p-value  $\leq$  0.001<sup>[5]</sup>. Similarly, it was found that patients with nasal packing after septoplasty experienced more pain than with trans septal suturing<sup>[14,15]</sup>.

The study involved a total of 78 patients, with 39 patients in each group. Patients in the trans-septal group report fewer symptoms compared to those in the nasal packing group<sup>[16]</sup>. Another study concluded that transseptal suturing is superior to nasal packing after septoplasty<sup>[17,18]</sup>. As nasal packing and trans septal procedures have insignificant p-values. Amer et al. also concluded that a statistically significant difference was observed between the groups regarding the VAS score of Pain<sup>[19]</sup>. Ali et al concluded that there was no significant association between the two procedures after septoplasty<sup>[20]</sup>.

### RECOMMENDATIONS

Surgeons ought to consider each patient's requirements when tailoring their technique and weighing advantages and hazards. More study in this field could aid in clarifying optimal postoperative care standards for these operations.

### CONCLUSION

The study determined there was no statistically significant difference in postoperative pain between nasal packing with trans-septal sutures and septoplasty.

**ACKNOWLEDGEMENT:** None.

**CONFLICT OF INTEREST:** None.

**GRANT SUPPORT AND FINANCIAL DISCLOSURE:** None.

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#### Authors Contributions:

**Muhammad Awais:** Substantial contributions to the conception and design of the work.

**Khansa Tariq:** The acquisition and analysis of data for the work.

**Muhammad Umar Farooq:** Interpretation of data for the work.

**Uzma Sagheer:** Drafting the work.

**Mahrulkh:** Reviewing it critically for important intellectual content.

**Humayun Suqrat Hasan Imam:** Final approval of the version to be published.

Submitted for publication: 2-07-2025

Accepted after revision: 28-10-2025