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Comparison of Anterior Nasal Packing versus Quilting Sutures after Septoplasty in Controlling Postoperative Bleeding

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ABSTRACT

Background: Septoplasty is commonly performed surgical procedure for correction of deviated nasal septum. Postoperative bleeding is frequent complication which may affect recovery and patient comfort. Different techniques like anterior nasal packing and quilting sutures are used to control bleeding after surgery. **Objective:** To compare anterior nasal packing and quilting sutures after septoplasty in controlling postoperative bleeding. **Study Design:** Randomised controlled trial. **Duration and Place of Study:** This study was conducted from 10th June 2024 to 10th December 2024 in Department of ENT, Combined Military Hospital Muzaffarabad. **Methodology:** Total 60 patients of both genders aged 18–40 years were included and randomly divided into two groups with 30 patients in each group. Group A underwent septoplasty followed by anterior nasal packing while Group B underwent quilting sutures. Postoperative bleeding was assessed within 48 hours and defined as blood loss ≥50 mL. Data was analysed using IBM SPSS version 26. **Results:** Mean age was 29.67±6.93 years in Group A and 29.63±6.47 years in Group B. Postoperative bleeding occurred in 3 (10.0%) patients in anterior nasal packing group and 7 (23.3%) patients in quilting sutures group (p=0.299). Majority patients had no bleeding, 27 (90.0%) in Group A and 23 (76.7%) in Group B. Significant association was observed in patients aged ≤30 years (p=0.012). **Conclusion:** Anterior nasal packing and quilting sutures showed comparable results in controlling postoperative bleeding. Anterior nasal packing showed better haemostasis while quilting sutures provided acceptable outcomes.

INTRODUCTION

Septoplasty is a common surgical procedure done to correct deviation of nasal septum which can cause nasal obstruction, breathing difficulty and recurrent sinus problems.[1] It is usually considered safe and effective operation but still some complications can occur after surgery. One of the most frequent complication is postoperative bleeding which can vary from mild oozing to more significant haemorrhage requiring intervention.[2] Control of bleeding after septoplasty is very important because it can affect patient comfort, prolong hospital stay, and may lead to other problems like septal haematoma or infection.[3]

Anterior nasal packing is traditionally used method for controlling bleeding after septoplasty.[4] It involves placement of gauze or synthetic material inside nasal cavity to apply pressure on septal mucosa and stop bleeding.[5] This method is widely used because it is simple and effective in most cases. However, it is associated with many disadvantages such as patient discomfort, pain, difficulty in breathing, and sleep disturbance.[6] Removal of pack can also cause anxiety and sometimes re-bleeding.

Quilting sutures are another technique used after septoplasty where sutures are placed through septal mucosa on both sides to approximate the flaps and eliminate dead space.[7] This method helps in stabilising septum and reducing accumulation of blood, thus decreasing risk of bleeding and haematoma formation.[8] It also avoids need of nasal packing, so patient comfort is better and recovery is more smooth. Patients usually have less pain and can breathe more easily after surgery.[9]

There are few studies conducted within the local environment about the efficacy of anterior nasal packing and quilting sutures after septoplasty among the residents of Azad Kashmir. The reason for this is that most medical decisions are based on foreign literature which may not be relevant to the patients' characteristics. Differences between patient characteristics, surgical approaches, and availability of resources might influence outcomes. The objective of this study is to compare anterior nasal packing and quilting sutures after septoplasty in controlling postoperative bleeding.

METHODOLOGY

This randomised controlled trial was carried out in the Department of ENT at Combined Military Hospital Muzaffarabad from 10th June 2024 to 10th December 2024. Ethical permission was taken from the institutional review board of the hospital before start of study and study was conducted according to standard ethical principles. The sample size was calculated by using WHO sample size calculator, taking 80% power of test and 5% level of significance, while expected frequency of postoperative bleeding between anterior nasal packing and quilting sutures was 40.0% versus 0.0%.[10] Total 60 patients were included, with 30 patients allocated in each group.

Inclusion Criteria

Patients of both genders having age between 18 and 40 years and diagnosed with deviated nasal septum were considered. Deviated nasal septum was taken as deviation of cartilaginous and/or bony septum causing narrowing of nasal passage with naso septal angle ≥10°.

Exclusion Criteria

Patients having uncontrolled systemic illness such as hypertension, those using drugs affecting platelet function or coagulation, history of previous nasal surgery, patients having chronic rhinosinusitis not responding to medical treatment, and those requiring additional nasal procedures such as turbinoplasty, septorhinoplasty or endoscopic sinus surgery were excluded.

Written informed consent was taken from all patients before data collection. Baseline demographic details were recorded including age and gender of all patients. Detailed clinical history was obtained and ENT examination was performed in each patient to confirm diagnosis and eligibility for procedure. All selected patients were randomly allocated into two groups by lottery method. Group A patients underwent septoplasty followed by anterior nasal packing using ribbon gauze of 20 cm length impregnated with antibiotic ointment under aseptic conditions. Group B patients underwent septoplasty followed by quilting sutures. All procedures were performed by senior consultant to minimise bias and standard postoperative care was given to all patients. Patients were followed for 48 hours after surgery for assessment of bleeding.

Postoperative bleeding was assessed after completion of procedure and during follow-up period of 48 hours. It was taken as positive when nasal blood loss was ≥50 mL within 24 hours. Blood loss was measured by placing nasal sponges in pre-weighed container and weighing them after every 6 hours, then converting weight into volume. Blood collected in calibrated container was also measured. Any additional haemostatic requirement or persistent bleeding symptoms were managed as per hospital protocol.

All collected data were entered and analysed by using IBM SPSS version 26. Numerical variable such as age and Post-Operative Bleeding was expressed as mean ± standard deviation. Categorical variables including gender, severity of nasal septum deviation and postoperative bleeding were presented as frequency and percentage. Chi-square test was applied to compare frequency of postoperative bleeding between both groups and p value ≤0.05 was taken as statistically significant. Stratification was done for age, gender and severity of nasal septum deviation to control effect modifiers and post-stratification chi-square test was applied with p value ≤0.05 considered significant.

RESULTS

The study included a total of 60 patients, equally divided into two groups of 30 each. In the anterior nasal packing group (Group A), the mean age was 29.67 ± 6.93 years, whilst in the quilting sutures group (Group B), the mean age was 29.63 ± 6.47 years. Regarding gender distribution, males were predominant in both groups, with 18 (60.0%) males and 12 (40.0%) females in Group A, and 21 (70.0%) males and 9 (30.0%) females in Group B. With respect to severity of nasal septal deviation, moderate deviation was more common in both groups, being present in 18 (60.0%) patients in Group A and 19 (63.3%) in Group B, whereas severe deviation was noted in 12 (40.0%) and 11 (36.7%) patients in Group A and Group B respectively (Table-I).

Table I

Patient Demographics in Both Groups

Variables	Anterior Nasal Packing n=30	Quilting Sutures n=30
	Mean ± SD	Mean ± SD
Age (years)	29.67 ± 6.93	29.63 ± 6.47
Postoperative Bleeding (ml)	27.27 ± 17.82	39.50 ± 32.17
Gender	**n (%)**	**n (%)**
Male	18 (60.0%)	21 (70.0%)
Female	12 (40.0%)	9 (30.0%)
Severity of Nasal Septal Deviation		
Moderate	18 (60.0%)	19 (63.3%)
Severe	12 (40.0%)	11 (36.7%)

Postoperative bleeding was recorded in 3 (10.0%) patients in Group A and 7 (23.3%) patients in Group B, with no statistically significant difference between the two groups (p=0.299, Fischer Exact Test). The majority of patients in both groups did not experience postoperative bleeding, with 27 (90.0%) in Group A and 23 (76.7%) in Group B remaining free of this complication (Table-II).

Table II

Comparison of Postoperative Bleeding between the Two Groups (n=60)

Postoperative Bleeding	Group A (Anterior Nasal Packing) n=30 n (%)	Group B (Quilting Sutures) n=30 n (%)	P value
Yes	3 (10.0%)	7 (23.3%)	
No	27 (90.0%)	23 (76.7%)	0.299*
Total	30 (100%)	30 (100%)	

***Fischer Exact Test**

When postoperative bleeding was analysed in relation to demographic variables, a statistically significant association was found in patients aged ≤30 years, where bleeding occurred in 0 (0.0%) patients in Group A compared to 5 (35.7%) in Group B (p=0.012). In patients aged >30 years, bleeding was recorded in 3 (23.1%) in Group A and 2 (12.5%) in Group B, with no significant difference (p=0.632). Among male patients, bleeding was observed in 2 (11.1%) in Group A and 6 (28.6%) in Group

B (p=0.247), whilst in female patients it was recorded in 1 (8.3%) and 1 (11.1%) in Group A and Group B respectively (p=1.000). In patients with moderate septal deviation, bleeding was seen in 2 (11.1%) in Group A and 6 (31.6%) in Group B (p=0.232), and in patients with severe deviation, it was noted in 1 (8.3%) and 1 (9.1%) in Group A and Group B respectively (p=1.000) (Table-III).

Table III

Association of Postoperative Bleeding with Demographic Variables

Demographic Variables	Group	Yes n (%)	No n (%)	P-value
Age (years)	**≤30**			
	A	0 (0.0%)	17 (100.0%)	0.012*
	B	5 (35.7%)	9 (64.3%)	
	>30			
	A	3 (23.1%)	10 (76.9%)	0.632*
	B	2 (12.5%)	14 (87.5%)	
Gender	**Male**			
	A	2 (11.1%)	16 (88.9%)	0.247*
	B	6 (28.6%)	15 (71.4%)	
	Female			
	A	1 (8.3%)	11 (91.7%)	1.000*
	B	1 (11.1%)	8 (88.9%)	
Severity of Nasal Septal Deviation	**Moderate**			
	A	2 (11.1%)	16 (88.9%)	0.232*
	B	6 (31.6%)	13 (68.4%)	
	Severe			
	A	1 (8.3%)	11 (91.7%)	1.000*
	B	1 (9.1%)	10 (90.9%)	

*Fisher's Exact Test

DISCUSSION

In present study the overall rate of postoperative bleeding was lower in the anterior nasal packing group at 3 (10.0%) as compared to quilting sutures group at 7 (23.3%), though this difference was not statistically significant (p=0.299). This suggest that anterior nasal packing may provide a mechanical tamponade effect that physically compress the mucosal surfaces and limit oozing from raw surgical areas, which is thought to reduce chances of haemorrhage in early postoperative period. A notable and statistically significant finding was seen in younger patients aged ≤30 years, where none of the patients in Group A had bleeding (0.0%) as compared to 5 (35.7%) in Group B (p=0.012). This could be because younger patients tend to have more reactive mucosal vasculature and relatively higher tissue perfusion pressure, which may make them more prone to bleeding when mechanical compression is not applied through packing. In patients with moderate septal deviation, bleeding was more frequent in Group B at 6 (31.6%) compared to Group A at 2 (11.1%), although this did not reached statistical significance (p=0.232). Moderate deviations often involve more extensive mucosal undermining during surgery, and in absence of packing, the raw mucosal surfaces may bleed more.

The present findings showed postoperative bleeding in 3 (10.0%) patients with anterior nasal packing and 7 (23.3%) with quilting sutures, with no significant difference (p=0.299), although a higher numerical frequency was noted in suturing group. Similar pattern was observed by Maisam Ali S *et al.* [11] where bleeding was significantly higher with quilting sutures (31.37%) compared to packing (11.76%, p=0.016), indicating that packing may provide better haemostasis. Likewise, Adeel MU *et al.* [12] also reported lower bleeding scores in packing group (1.27±0.45 vs 1.82±0.60; p<0.001), supporting present trend despite lack of statistical significance. This could be due to tamponade effect of packing which directly compresses septal vessels, whereas sutures rely on mucosal approximation only, thus less effective in immediate haemostasis.

However, contrasting findings were noted by Agrawal N *et al.* [13] where bleeding was significantly higher in packing group (32% vs 4%, p<0.05), and Haq AU *et al.* [14] who reported both techniques equally effective for bleeding control. Such variation may be explained by differences in surgical technique, suture method, surgeon experience and definition of bleeding. In addition, smaller sample size in present data (n=60) may limit statistical power compared to larger trials like Adeel MU *et al.* [12] (n=384), leading to non-significant results despite observable difference.

With respect to age stratification, significant association was noted in ≤30 years where bleeding occurred in 0 (0.0%) in packing versus 5 (35.7%) in suturing (p=0.012), while no difference in older group. Comparable stratified data is scarce in cited studies, but overall younger population dominance reported by Awais M *et al.* [15] (mean age 24.20±6.93) and Khan NH *et al.* [16] (mean 22.7±4.9) suggests that mucosal vascularity and healing response in younger patients may predispose to more bleeding with sutures. This may explain significant difference in this subgroup.

Regarding gender, bleeding was slightly higher in males [2 (11.1%) vs 6 (28.6%)] than females [1 (8.3%) vs 1 (11.1%)], though not significant. Similar male predominance was reported by Adeel MU *et al.* [12] (66.7% males) and Ikram A *et al.* [17] (59.8% males), but none demonstrated gender-based bleeding difference, suggesting gender may not be a strong independent factor.

In terms of severity of deviation, moderate cases showed higher bleeding in suturing group [6 (31.6%) vs 2 (11.1%)], while severe cases had similar low rates [1 (8.3%) vs 1 (9.1%)]. Although direct comparison is limited, Prakash MD *et al.* [18] and Bajwa RA *et al.* [19] reported no major difference in bleeding between groups, indicating that severity of deviation may not significantly influence haemostasis outcome, and surgical handling may play more critical role.

This study was conducted at a single centre, which may limit the generalisability of the findings. The relatively small sample size (n=60) may have reduced the statistical power to detect significant differences. The short follow-up period restricted assessment of long-term outcomes and late complications. Potential variation in surgical technique and operator experience could have influenced the results. Only limited variables were

analysed, and possible confounding factors were not fully controlled.

CONCLUSION

Our study has concluded that anterior nasal packing and quilting sutures show comparable outcomes in controlling postoperative bleeding. Quilting sutures showed higher frequency of bleeding but without significant difference. Anterior nasal packing still provides better haemostasis in early postoperative period. Both techniques can be used safely, but choice depends on surgeon preference and patient comfort.

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