Short-Term Outcome of Septoplasty with or without Nasal Packing

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Abstract

Background: Although there is recommendation for the avoidance of packing following septoplasty, it has been practiced in our setting to avoid complications like bleeding and septal hematoma, probably due to lacking of a genuinely randomized study to justify this recommendation in our setting. This study evaluated the short-term outcome of septoplasty with or without anterior nasal packing in patients with symptomatic Deviated Nasal Septum (DNS).

Materials and methods: Sixty patients with DNS aged 18-40 were enrolled in this study and were randomly allocated into two groups: 30 Underwent Nasal Packing (NPG) and 30 did not follow septoplasty. In the no-packing group, trans-septal Quilting Suturing was done (QSG). Visual Analogue Scale and Nasal Obstruction Symptoms Evaluation (NOSE) scale were used to record pain and obstruction symptoms in the postoperative period up to 1-month following septoplasty.

Results: All patients reported a reduction of NOSE score, with a non-significant difference between both groups at one month (p=0.056). Patients in the NPG reported higher pain scores than the QSG group in the first 24 hours (8.30±0.53 vs. 3.60 ±0.68, p<0.001) and one week after surgery (6.00±1.34 vs. 1.87±1.96, p<0.001). Epiphora, headache, dysphagia and crust formation were also more commonly observed in NPG.

Conclusion: This study confirmed that packing of nose is unnecesssary following septoplasty and is a source of discomfort for the patients.

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Submitted on : 24.10.2024
Accepted on : 23.11.2024

Key words: Nasal packing; Septoplasty; Trans-septal quilting suture.

Introduction

Septoplasty is the only recognized treatment for DNS.[1] After septopalsty, nasal septum was conventionally packed with fixed with an expanded sponge or vaseline gauze. The rational behind this practice was to prevent postoperative bleeding, septal heamtoma formation and subsequent adhesion of the nasal septum. Moreover, packing is expacted to stabilise the internal structure of the nasal cavity and prevent a recurrence.[2,3] However, nasal packing may compromised nasal breathing and results in various postoperative complications and discomfort including, dry mouth, watering from the eyes, nasal pain, headache, vestibulitis, crusting, synechiae, ear blockage, throat irritation, difficulty swallowing, hypoxia, hypoxaemia, and secondary infection.[4] Additionally, it prolongs hospitalisations. In addition to these, the patient experiences severe agony during the removal of the pack. Patients vividly recall the agonising experience even though the discomfort is brief.[5]

On the other hand, nasal septal suturing can prevent the discomfort associated with packing and removal, repair the torn mucosa, stabilise the nasal septum cartilage and reduce mucosal oedema. It is a treatment frequently administered after septoplasty.[6,7] Nevertheless, certain studies have shown that nasal septal suturing is less effective than nasal packing in preventing postoperative adhesion, oedema and infection.[8,9] Several meta-analyses have evaluated the efficacy and advantages of the quilting suturing over nasal packing in preventing complications and suggested that the suturing method can be consider as an alternative to conventional nasal packing of the first-line treatment.[10,11]

Despite the consensus in the global literature today that packing could be avoided following septoplasty, to my best knowledge, no genuinely randomised study has been conducted in Bangladesh, especially in our settingto justify this recommendation here. This might attributed to the

usual practice of nasal packing following septoplasty in our setting. Considering this background, conducting a study to compare the outcome of anterior nasal packing with quilting trans-septal suturing without nasal packing was rational. If the results of this study reveal that quilting sutures are more patient-friendly and do not have any undesirable consequences, then they could be advocated as a preferable option for our patients requiring septoplasty.

Materials and methods

A prospectivestudy was conducted from October 2019 to September 2020 in the Department of Otolaryngology and Head Neck Surgery of Chittagong Medical College Hospital, Chattogram, Bangladesh. The study protocol was approved by the inistitutional review committee.

Patients with DNS aged between 18 and 45 who were candidates for septoplasty were enrolled. Patients with a history of nasal polyps, allergic rhinitis, or complete obstruction of a nostril due to DNS, previous septal and nasal turbinate surgery, medical problems, history of using aspirin, history of nasal drug abuse, or sniffers were excluded.

The sample size was calcualted using the equation for hypothesis testing the difference between two means.[12] Thirty patients were required in each group to have a 99% chance of detecting, as significant at the 5% level, an increase in the primary outcome measure (Pain score) from 4.28 in the experimental group to 6.84 in the control group and adjusted for 5% patients lost to follow-up.[13] After consenting, eligible individuals were recruited consecutively and randomly assigned to one of the two groups using a block randomization method with a block size of four.

All patients underwent septoplasty using Cottle's technique, and a splint made of plastic was placed on each side of the septum. In the Quilting Sutures Group (QSG) a 3-0 round body vicryl was used to quilt the septal flaps from posterior to anterior spaced by a centimetre and knot fixed on the side opposite of the incision before closing the caudal septal incision. In the other group (NPG) nasal packing was done uniformly using long ribbon gauze soaked in neomycin sulphate and bacitracin ointment, which was removed 24 hours after the operation. A cotton wick was placed in both nasal cavities for 5 to 10 minutes and removed in the quilting suture group.

Patients were discharged on 1st postoperative day. 'Before discharging, the patients were asked to rate their feeling of pain on the Visual Analogue Scale (VAS) from 1 (Minimal) to 10 (Unbearable) this was performed immediately after full recovery from anaesthesia. Then, the patients were asked to rate their pain on VAS, and the presence or absence of nasal bleeding was evaluated. In the second group of patients without a nasal pack, local examination was performed to evaluate and remove blood clots or crusts if present. Patients in both groups were asked about their complaints during the first 24 hours after surgery, they were evaluated for the presence or absence of epistaxis, headache, excessive lacrimation, swallowing difficulties, and sleep disturbances. The second postoperative visit was seven days after surgery. The nasal splint was removed and a local nasal examination was performed to evaluate the presence or absence of infection, septal hematoma, oedema, crusts, and granulation. Then, the patients were reevaluated at the end of the 2nd week and one month after surgery. Nasal obstruction was scored by the Nasal Obstruction Symptom Evaluation (NOSE) survey preoperatively and at the end of 1st month'.[14]

Statistical analyses were done to treat all methods using SPSS version 23.0. Missing values were replaced by forwarding the last observed values. Quantitative data were expressed as mean (Standard deviation) while qualitative data were presented as numbers (Percentage). A comparison was made between groups using Chi-square or Fischer's exact test for qualitatve data and an independent sample t-test for quantitative data. p value <0.05 was considered as statistical significance.

Results

Mean age of the patients of Anterior Nasal Packing group (ANP) was 23.4 (±5.1) years and in quilting suture group was 23.5 (±5.6). There were male predominance in both groups (66.7% in quilting group and 70% in ANP group). Majority of the patients in both group had associate hypertrophied inferior turbinate (HIT) (83.3% and 70% receptively in quilting and ANP group). Preoperative NOSE score was also similar in both groups with a mean value of 15.9 in quilting group and 15.4 in ANP group. Both the groups

were comparable at baseline in terms of age, sex, presence of HIT and preoperative nose scores (Table I).

Table I Baseline characteristics of the patients

Characteristics	Quilting suture group (n=30)	Nasal packing group (n=30)	p value
Age (Years)	23.5 (±5.6)	23.4 (±5.1)	0.962*
Sex			
Female	10 (33.3)	9 (30.0)	0.781†
Male	20 (66.7)	21 (70.0)	
HIT	25 (83.3)	21 (70.0)	0.222*
NOSE score	15.9 (±0.9)	15.4 (±1.0)	0.068†

Data are expressed as frequency (%) or mean (±Standard deviation). HIT: Hypertrophied Inferior Turbinate, *Independent sample t test, †Chi-square test.

Nasal pain was assessed by VAS score in the follow-up from recovery to 30 day following surgery. Table II shows that, mean VAS scores were significantly lower in QSG following septoplasty compared to patients in the NPG. A two-way repeated measure ANOVA test was performed to examine whether the intervention type (Quilting suture or ANP) had an effect on the postoperative nasal pain perception as assessed by VAS score.

Table II Mean pain score on VAS between nasal packing and trans-septal quilting suturing group at post operative period

Time point	Mean (±SD) of pain VAS score in Quilting suture group (n=30)	Nasal packing group (n=30)	p value*
At recovery	5.63 (±0.62)	8.63 (±0.67)	<0.001
After 24 hours	3.60 (±0.68)	8.30 (±0.53)	<0.001
After 7 days	1.87 (±1.96)	6.00 (±1.34)	<0.001
After 14 days	0.33 (±0.88)	4.23 (±1.61)	<0.001
After 30 days	0.07 (±0.37)	1.40 (±1.22)	<0.001

SD: Standard Deviation, VAS: Visual Analogue Scale, *Independent sample t test.

Nasal obstruction was assessed by NOSE scale in the follow-up from 7 day following surgery till 30 postoperative day. Table III shows that, mean NOSE scores were significantly lower in patients receiving quilting suture following septoplasty compared to patients where ANP was applied instead of quilting suture on 7th POD. However, on 14th POD and 30Th POD there was no significant difference in mean NOSE score between two groups.

Table III Mean NOSE score between two groups at post operative period

Time point	Mean (±SD) of NOSE score in Quilting suture group (n=30)	Nasal packing group (n=30)	p value*
After 7 days	7.47 (±0.82)	9.63 (±1.43)	<0.001
After 14 days	6.63 (±1.23)	7.27 (±1.36)	0.056
After 30 days	5.63 (±0.67)	5.23 (±0.89)	0.056

*Independent sample t test.

Table IV shows that, epiphora, headache and swallowing difficulty in NPG was significantly higher than that in QSG during the first 24 hours after septoplasty. Crust formation was similar in patients of quilting suturing group and anterior nasal packing group on 7th POD. However, on 14th POD crust was observed in significantly higher number of patients of anterior nasal packing group compared to quiltingsuturing group. On final follow up all of the patients in both groups were free from crust.

Table IV Postoperative complications and pain scores between two groups

Time point and complications	Quilting suture group (n=30)	Nasal packing group (n=30)	p value
Recovery			
Epiphora	7 (23.3)	23 (76.7)	<0.001*
Headache	13 (43.3)	25 (83.3)	0.003*
Swallowing difficulty	0 (0)	21 (70.0)	<0.001*
First 24 hours			
Epiphora	1 (3.3)	16 (53.3)	<0.001‡
Headache	3 (10.0)	22 (73.3)	<0.001*
Swallowing difficulty	0 (0)	17 (56.7)	<0.001*
After 7 days			
Headache	2 (6.7)	13 (43.3)	0.001*
Swallowing difficulty	0 (0)	4 (13.3)	0.112‡
Crust formation	15 (50.0)	22 (73.3)	0.063*
After 14 days			
Crust formation	3 (10.0)	12 (40.0)	0.007*

Data are expressed as frequency (%), *Chi-square test or ‡Fisher's exact test as appropriate.

Discussion

Considering the study's results, it could be demonstrated that quilting suture without nasal packing was more patient-friendly in terms of postoperative pain and discomfort than routine nasal packing following septoplasty. Moreover, no undesirable consequences like bleeding and hematoma were observed in any patients included.

Both groups were comparable in terms of their baseline demographic and clinical characteristics. The mean pain score in the recovery period and at 24 hours post-surgery was significantly higher in the NPG than the QSG. Also, the pain score remained significant in the 7th POD and 14th POD visits in the NPG than the QSG. The pain score in the QSG was almost negligible on the 7th POD (1.87). It is to be noted that the significantly high pain levels observed in the NPG over the early postoperative period make the use of routine nasal packing challenging to justify in our setting, and a similar observation was noted in earlier studies.[15-17]

In the present study, patients in the NPG had a significantly greater incidence of headache till the 7th POD. This can be attributed to the fact that packing stretches the nasal walls and causes pain that is perceived as a headache. The present study's findings agreed with those of another recently conducted research.[15-17] There was more epiphora in the NPG compared to the QSG. However, the results were statistically significant only in the 1st POD. Nasal packing blocks the nasolacrimal duct and causes epiphora. However, this is a temporary problem; it was described as a nuisance by most patients in the NPG in other studies, too.[15,16] The present study observed that difficulty swallowing was another common complaint in the NPG, though only in 1st POD. When the nasal passages are blocked, the air cannot travel anteriorly and is insufflated into the middle ear when a patient swallows (Toynbee manoeuvre). While the packing is in position, this unpleasant sensation leads to inadequate oral intake. Other studies also reported a comparable observation.[18,19]

Postoperative bleeding was not an issue in the present study. Some surgeons might consider nasal packing as a means of preventing septal hematoma.[3] Fortunately, in the current study, septal hematoma was not noted in any cases. The current study observed that 77.3% and 40% of the patients in the NPG developed crusts in the 7th and 14th POD. The crusting was less in the quilting group of patients (50% on the 7th POD and 10% on the 14th POD). Present study results agreed with the previous similar studies.[9,16]

Obstructive symptoms associated with DNS were expected to be relieved following septoplasty. The mean nasal obstruction score was higher in the NPG during follow-up on the 7th POD than the QSG, but was similar in both groups in the 14th POD and 30th POD follow-up. The NOSE scale is a valid, brief, and reliablesurvey to measure disturbances in quality of life concerning nasal obstruction.[14] The result of the present study agreed with the study of Fatahalla et al. where the difference between NOSE scores of both groups was non-significant at one month following septoplasty.[20]

Limitations

The observation period was only one month in the present study. So, the long-term effects were unknown. The assessment of variables with VAS or NOSE scores may be limited due to the subjectivity of the methods.

Conclusion

In conclusion, the study found a similar significant improvement in nasal breathing in both groups after septoplasty. Still, the level of pain, headache, dysphagia, and epiphora was significantly lower in the quilting group. These findings indicate that quilting sutures instead of anterior nasal packing are more patient-friendly without undesirable consequences like postoperative bleeding or septal hematoma.

Recommendations

The present study findings would stimulate change in some aspects of surgical practice during septoplasty at the study site and in Bangladesh. Avoiding traditional packing of the anterior nose following septoplastymade the patients more comfortable and compliant with the treatment. Nevertheless, a more elaborate multicentric study with a more extended follow-up period is recommended to evaluate the differences between these two procedures.

Contribution authors

SMAS-Conception, design, data collection, analysis, manuscript drafting & final approval.

KKU-Interpretation of data, data analysis, critical revision & final approval.

PKC-Data analysis, critical revision & final approval.

MUF-Data analysis, critical revision & final approval.
MC-Data interpretation, drafting & final approval.
MA-Data analysis, drafting & final approval.
SB-Data analysis, drafting & final approval.
PC-Interpretation of data, drafting & final approval.

Disclosure

All the authors declared no conflict of interest.

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