

Original Article

Postoperative Comfort Score after Septoplasty among Patients Undergoing Nasal Packing *versus* Suturing of the Septal Flap by Modified Technique without Packing : A Randomized Controlled Trial

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Background : Septal surgery is one of the most common surgical procedures performed by an Otorhinolaryngeal surgeon since ancient times. Various modifications in the approach, changing concept of conserving septal cartilage, use of an endoscope and good antibiotics to control postoperative infection have played a key role in controlling the complication rates but still, one thing which is mostly practiced worldwide is nasal packing in the postoperative period which is a nightmare for many patients, as the pain threshold varies from patient to patient. It also causes dryness of mouth, throat irritation, facial heaviness, headache, excessive watering from eyes, aural fullness. There is a lack of proper evidence to prove whether nasal packing really decreases postoperative hemorrhage as the incision is properly approximated and sutured. The main reason for nasal packing was an approximation of nasal septal flap thereby reducing the chances of septal Haematoma and stabilization of septal flap in the midline. The present study has been taken to study and compare postoperative nasal packing and modified quilting suture of the septal flap without the nasal pack.

Material and Methods : This one-year prospective comparative study was conducted on 149 patients who underwent septoplasty with 3 months follow-up. One group had Postoperative nasal packing and the other had only modified septal flap suturing without the nasal pack.

Results : Out of the total of 149 patients, 88 underwent nasal packing in the postoperative period and 61 patients had undergone suture of the nasal septal flap without nasal packing. A statistically significant value of VAS score was found in the non-packing group of 61 patients, where the average postoperative VAS score was 1.46 against 3.7 among the packing group of 88 patients. An unpaired t-test was applied and a value of 15.431 was obtained with a p-value less than 0.001. No cases presented with septal perforation in the postoperative period in patients without a nasal pack and there were 2 cases (2.2%) of septal perforation in the nasal packing group. There was no significant bleeding in the postoperative period in both groups of patients.

Conclusion : Stabilization of the nasal septal flap by modified quilting technique is better option after septoplasty with good comfort score.

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Key words : Deviated Nasal Septum (DNS) ,Septoplasty, Visual Analogue Scale (VAS).

Septal surgery is one of the most common surgical procedures performed by an Otorhinolaryngeal surgeon since ancient times. Nasal obstruction is one of the most common indications for the surgery for ages but with a better understanding of the nose and paranasal sinus anatomy and physiology, other indications have evolved like correction of septal spur as a cause for recurrent headache and epistaxis, as a part of Septorhinoplasty. Deviated Nasal Septum correction may be required as an adjunct to other surgeries if it is interfering with the access to the target sites like patients undergoing Endoscopic Sinus

Editor's Comment :

- The discomfort caused by postoperative nasal packing after septoplasty can be avoided by stabilizing the nasal septal flap with modified suturing technique as described.
- The technique also prevents postoperative nasal synechiae with no incidence of septal haematoma and nasal bleeding.

Surgery (ESS), Endoscopic Dacryocystorhinostomy. In the modern era of minimum invasive intracranial surgery, Septum acts as a gateway to ventral skull base surgery.

For ages, Septal surgery is not without complications like Septal perforation, Septal haematoma, Septal deformity and rarely Toxic Shock Syndrome (TSS). Various modifications in the approach, changing concept of conserving septal cartilage, use of an endoscope, and good antibiotics to control postoperative infection have played a key

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role in controlling the complication rates but still, one thing which is mostly practiced worldwide is nasal packing in the postoperative period which is a nightmare for many patients, as the pain threshold varies from patient to patient. It also causes dryness of mouth, throat irritation, facial heaviness, headache, excessive watering from eyes and aural fullness. There is a lack of proper evidence to prove whether nasal packing really decreases postoperative hemorrhage, as proper decongestion and local infiltration of lignocaine with adrenaline is given before incision, avascular sub perichondrium plane is made for the surgery and lastly, an incision is properly approximated and sutured. The main reason for nasal packing is an approximation of nasal Septal flap thereby reducing the chances of Septal Haematoma and stabilization of Septal flap in the midline¹.

The present study has been taken to put light on the various aspects of Septal surgery and an emphasis has been given on the replacement of the postoperative nasal packing with modified quilting suture of the Septal flap to give nasal breathing and a pain-free postoperative period.

MATERIALS AND METHODS

This Prospective Randomized Control study was conducted in the Department of Otorhinolaryngology, Rohilkhand Medical College and Hospital, Bareilly after obtaining approval from the institutional ethical committee.

A detailed entry of all the patients who underwent Septal surgery for various reasons was made in a proforma generated by Epi info version 7.0 from 1st October, 2018 to 30th September, 2019 and have completed at least 3 months follow up. The result was statistically analyzed using the software provided with Epi info.

A total of 149 patients of either sex above the age of 18 years, who underwent only Septal surgery after obtaining written informed consent for various indications during this period of one year and have completed at least 3 months postoperative follow were included in the study and relevant data were obtained and entered in the form generated in the software. The objective of the study was to find the comfort score in the postoperative period and also to analyze complications in the two groups. The patients who had a history of Diabetes Mellitus, Hypertension and bleeding disorder were excluded from the study as well as any patient who underwent Sinus surgery, Turbinate surgery or Dacryocystorhinostomy along with Septal correction were also excluded from the study.

Once selected for the Septal surgery, all the

patients underwent routine blood tests along with diagnostic nasal endoscopy. All the patients in the study underwent Septoplasty under Sedation with Pentazocine 15 mg and Promethazine 25 mg Intramuscular (IM) 30 minutes prior to surgery. In pre-operative preparation, the nose was topically decongested with Cotton pledget soaked in 4% lignocaine with adrenaline in the concentration of 1:30000 for at least 15 minutes. During the procedure and in the postoperative period thorough monitoring of vitals was made.

Just before the start of the Operation randomization was done as per the random number table by a Computer system software, one group underwent nasal packing with Medicated Ribbon gauze and the other group of patients underwent modified suturing of the nasal Septal flap with 3-0 vicryl, ½ circle round-bodied without nasal packing. The needle chosen was 3-0 because of its appropriate length, neither too long nor too short and this much length is good enough to easily catch with forceps. A long needle causes much trauma to the lateral nasal wall whereas a smaller size is sometimes lost within the flap. A round body needle is relatively less traumatic when compared with a cutting needle. Vicryl was preferred as it usually takes 60 to 90 days for complete absorption and by that time septal flaps heal completely. Septal splints were not used in any of the cases in this study.

Postoperative pain was assessed using the Visual Analogue Scale from 0 to 10 where 0 was no pain to 10 was unbearable pain.

Our technique of modified suturing of the nasal Septal flap (Fig 1-6)

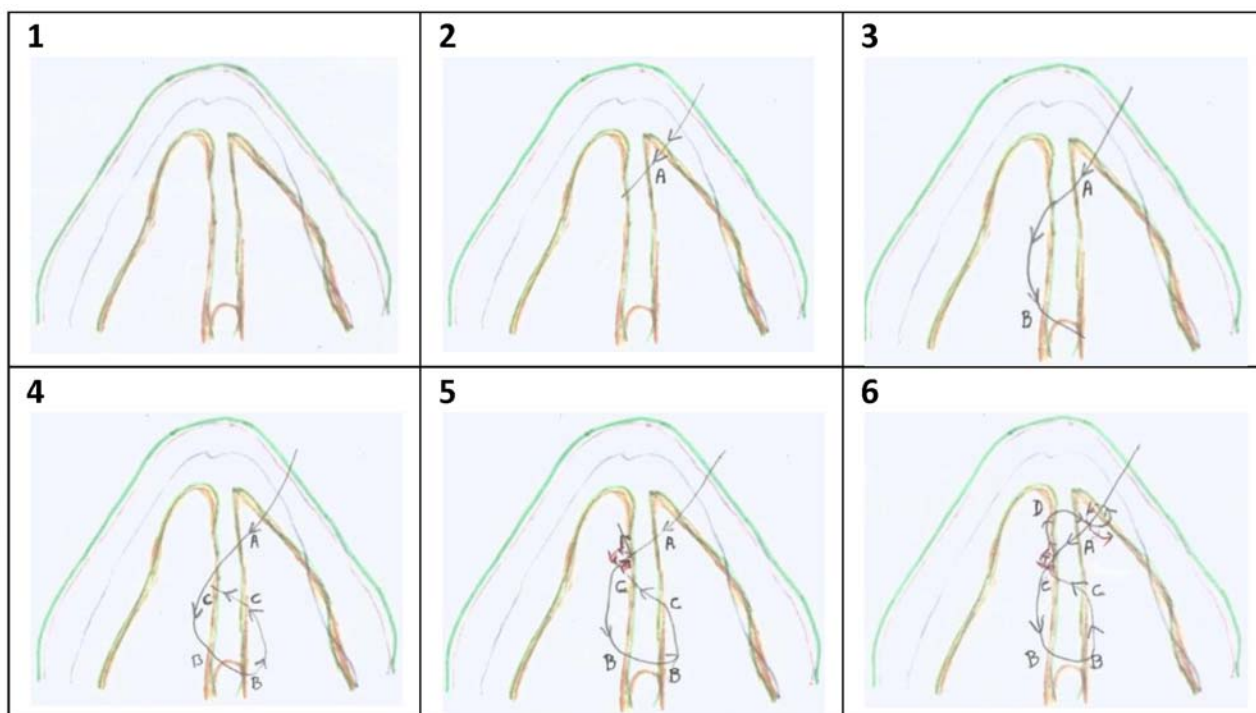
Step 1 : Using 3-0 Vicryl mounted on a cutting needle, first it is inserted along the caudal end of the septum on the opposite side of deviation, marked as point "A" in the figure.

Step 2 : Suture is passed in the upper half of the Septum around the mid-point of the septum in an anterior-posterior direction, marked as point "B" in the diagram.

Step 3 : Around the mid-point of the distance between "A" and "B" the needle is passed on the other side in an oblique direction, marked as point "C" in the diagram.

Step 4 : A single knot is made around point "C" to make the stability of the suture along with obliterating the space between the septal flaps.

Step 5 : The needle is passed near the caudal end at point "D", which lies near to point "A". A final double knot is made and the final suture is finally stabilized on the same side where suturing started.



Figs 1 to 6 — (1) An Orientation of the Nasal septum as seen from above. (2) Needle inserted near the caudal end at point A, (3) On the opposite side, the suture is passed in an oblique direction at point B which is around the middle of the septum in the Antero-Posterior direction, (4) The suture is again passed to the other side at point C, which is at the midpoint of AB distance, (5) At point C, a single knot is made to make the suture stable, (6) At point D, which lies near the caudal end close to point A level, the suture is passed to the other side and a double knot is made at point A.

Note : If there is caudal dislocation then, points "A" and "D" are made near the caudal end close to anterior nasal spine for extra stability.

Statistical Analysis :

Statistical Analysis was done by software Epi info version 7.0. A datasheet was formed and all the patients' data were entered into the software along with all the follow-up records. Statistics were applied by the same software. Mean value and Standard Deviation (SD), percentage and unpaired student t-test was used to compare two groups in quantitative data and Chi-square to compare two independent qualitative variables.

OBSERVATIONS AND RESULTS

Out of the total 149 patients, 64 were females and 85 were males with 21–30 years as the most common age group who underwent Septal surgery (Table 1). Nasal obstruction (89.26%) was the main indication for the surgery followed by Headache (66.44%) and Recurrent Epistaxis (20.81%) (Table 2).

The cartilaginous part of the Nasal Septum was the most common Deviated part of the nasal septum in 138 (92.6%) patients followed by the Bony Part in

Table 1 — Table showing percentage of patients in different age groups

Age Group	Percentage
11-20	28.19
21-30	46.98
31-40	20.13
41-50	4.03
51-60	0.67

Table 2 — Table showing percentage of patients undergoing surgery for various clinical presentations

Presenting Complaints	Percentage with SD
Nasal Obstruction	89.26±0.31
Headache	66.44±0.47
Recurrent Epistaxis	20.81±0.41
Hyposmia	7.38±0.26
Snoring	6.71±0.25
As a part of other operation	8.72±0.28

116 (77.8%) Patients with associated Maxillary crest prominence was seen in 58.48% of patients and 14.1% were with Caudal Dislocation.

Out of the total of 149 patients, 88 underwent nasal packing in the postoperative period and 61 patients had no nasal packing, and suturing of the nasal Septal flap was done as described in the methodology (Fig A).

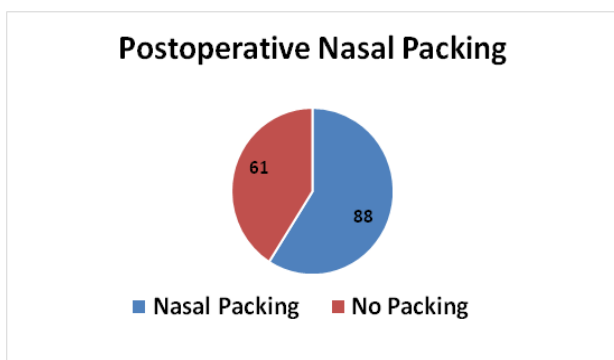


Fig A — Pie chart showing the number of patients in the two groups

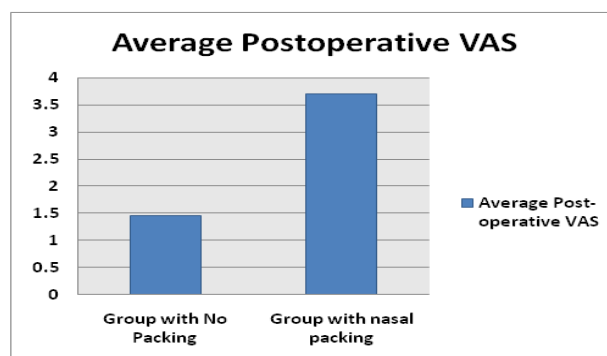


Fig B— Graph showing average VAS in the two groups

There was a statistically significant result in terms of postoperative pain score (VAS) in the two groups of Nasal packing and others with no packing. Here in this study, VAS score up to 2 was considered as low pain and above 2 was considered a more pain score. In the non- packing group of 61 patients, the average postoperative VAS score was 1.46 against 3.7 among the packing group of 88 patients. An unpaired t-test was applied and a value of 15.431 was obtained with a p-value less than 0.001 (Table 3 and Fig B).

In the follow-up period of 3 months, there were 5 (5.6%) patients who were not relieved of nasal obstruction and were attributed due to synechia as a result of nasal packing whereas, there were no cases of synechia in the non-packing group though the result was not statistically significant. No cases presented with Septal perforation in the postoperative period in patients without a nasal pack and there were 2 cases (2.2%) of Septal perforation in the nasal packing group.

There was no significant bleeding in the post-operative period in both groups of patients.

In the present study, none of the patients presented with Septal hematoma or abscess, postoperative nasal bleeding and external nasal deformity.

DISCUSSION

Septoplasty is one of the most common Otorhinolaryngeal procedures with nasal obstruction as one of the most common indications for surgery. In the postoperative period, various types of nasal packing and splints are used for the control of nasal bleeding and flap apposition like medicated ribbon gauze, Polyvinyl alcohol sponge (Merocel) with and without

airway, silicon splints, etc. These nasal packs act as a foreign body and cause discomfort to the patient and especially pain in the postoperative period. They also act as a source of infection in the nose and paranasal sinus as they affect the mucociliary activity of the sinus mucosa and lead to stasis of the mucus secretions.

In our study, seventy-five percent of Septoplasty were done in the younger age group that too within 30 years of age. The reason for this can be attributed to the cessation of development of the nasal septum around 18 years of age and so patients with nasal Septal deviation usually become symptomatic after this age and seek medical advice and treatment at an early stage. So, a symptomatic deviation is manifested in the second or third decade of life. Alotaibi AD, *et al*² also found a similar result with 74.8% of the study population presenting within the third decade of life.

A study done by Peric A, *et al*³ found a significant association between headache and spur and also found statistically significant improvement in headache following surgery. In our study, we have also found a significant association between headaches and spurs, and the same showed a statistically significant improvement in VAS score.

In our study, 5 cases (5.6%) of nasal synechia were found in the nasal packing group as against no case in the non-packing group, a similar finding was observed in the study done by Awan MS, *et al*⁴ who found nasal synechia in 18.2% of cases among patients undergoing nasal packing with no case of synechia in non- packing group. The probable reason can be attributed to injury to the nasal mucosa of the lateral and medial wall of the nasal cavity at the same level either during surgery or caused or aggravated by tight packing of the nasal cavity, as there are no standard guidelines on how much tight one should pack. However, the reason for not being statistically significant can be due to less sample size. These

Table 3 — Table showing comparison in the two groups in terms of Visual Analogue Scale (VAS) for pain

Group	VAS		
	Mean±SD	t-value	P value
With nasal packing	3.74±0.903	15.431	<0.001
Without nasal packing	1.28±1.030		(highly significant)

patients presented with persistent nasal obstruction at their subsequent visit and needed release of nasal synechiae at 3 months postoperative visit.

Septal perforation is caused by injury of both nasal septal flaps at the same level accompanied by loss of bone or cartilage. It was very common when Submucous Resection (SMR) was mostly done for septal deviation but with Septoplasty, the rate has gone to a very lower level and if the injury is found intra-operatively they are repaired simultaneously. Our study has got no significant results in terms of incidence of Septal perforation in the two groups and it goes in hand with the study done by Walikar B N, *et al*⁷ and Eski E, *et al*⁶. Thus, our study concludes that nasal packing has no significant influence on causing Septal perforation.

In our study, "p" value of VAS score in two groups of less than 0.001 was obtained which was highly significant statistically thereby concluding significant lower postoperative pain in the non-packing group in comparison to the group with nasal packing. The studies done by Naghibzadeh B, *et al*⁷, Walikar BN, *et al*⁶ and Mane RS, *et al*⁸, have also observed a statistically significant less postoperative pain score in patients who did not undergo nasal packing post-operatively.

CONCLUSION

Nasal Packing after Septal surgery can be easily avoided in the postoperative period as it may be replaced by stabilization of the nasal septal flap by modified quilting technique which obliterates the dead

space, thereby preventing septal Haematoma. It also may maintain the septum in midline position with no post-operative discomfort without any undue complication.

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