

Original Article

Comparing hemostatic and adhesion prevention effects of different types of nasal packings used post-septoplasty viz medicated gauze packing, glove finger packing and merocel packing

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Abstract:

Aim: To compare the adhesion prevention and hemostatic effects of different types of nasal packing viz. medicated gauze packing, glove finger packing and merocel packing.

Study Design: Prospective Study, in which 105 patients were, enrolled with effect from September 2011 to March 2012.

Methods: This study was done in postgraduate department of ENT - HNS in Govt. Medical College, Srinagar. 105 patients undergoing septoplasty were randomly distributed in three groups, Group A, Group B, and Group C. Group A patients were packed postoperatively with medicated gauze packing, Group B with glove finger packing and Group C with merocel packing. Patients were then examined and regularly observed and followed for post-septoplasty hemorrhage and adhesions.

Results: The average number of cotton balls used to clean the blood soakage on day one was 10 in Group A, 13 in Group B and 15 in Group C. On comparing the results of medicated gauze packing with merocel packings, the difference was not statistically significant ($p < 0.20$), though apparently conventional anterior nasal packing (ANP) appeared to be better hemostatic than other types of packings.

At 4 weeks postoperatively, the number of patients who developed adhesions were 10 (28.6%) in Group A, 8 (22.9%) in Group B and none (0 %) in Group C. On comparing the results of merocel packing with conventional ANP with highest rate of adhesion formation, the difference was statistically significant ($p < 0.002$).

Also on an average minimal number of paracetamol tablets (Dosage Strength 500 mg) were consumed by patients whose noses were packed with merocel (8 tablets) as compared to conventional ANP (13 tablets) and glove finger (8 tablets) over a period of one week.

Conclusions: Hemostatic effects were best observed with medicated gauze packing, though the difference was not statistically significant. Adhesion formation which is one of the most important determinants of success of septoplasty is best prevented by merocel packing. If good expertise is observed during septoplasty with proper sterilization technique, post-septoplasty hemorrhage is quite uncommon and adhesion prevention becomes the single most important factor. Merocel packing should thus be carried out in almost all cases. In cases where postoperative bleeding is suspected, classical medicated gauze packing should be done. The morbidity associated with postoperative pain was minimal with merocel packing.

Key words: *Septoplasty; merocel; glove finger packing; adhesions*

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Introduction:

Septoplasty is one of the common operations performed in ENT theatres. Among the known complications of septoplasty are postoperative hemorrhage, adhesion formation¹, and postoperative pain. Nasal packing postoperatively is done to prevent nose bleeding and is thought to reduce adhesions though effect of conventional nasal packing on adhesion formation or prevention is debatable. The use of Merocel nasal packs can control bleeding in cases of epistaxis in about 91.5 percent of cases². The use of Merocel packing postoperatively neither impairs nor promotes wound healing in the postoperative period³. However, it is hemostatic and can prevent adhesion formation. As is known if proper technique is followed during septoplasty, complications can be avoided including moderate to severe epistaxis⁴. Many authors believe that nasal packing postoperatively is not needed if proper technique is followed and should thus be avoided to prevent significant morbidity associated with nasal packing^{5, 6}. Some authors argue that packing should be reserved for cases where there is concern about persistent haemorrhage⁷. Though these arguments carry enough weightage, packing of nasal cavities postoperatively is usually done in almost all parts of the world. Intranasal splints used to prevent adhesions are also used widely but there have been concerns regarding its use as well and in a no. of studies it has been seen that it has no effect in preventing adhesions and can lead to significant postoperative pain⁸. Different types of nasal packing methods and materials are used to prevent many of the known complications of septoplasty. This study is undertaken to compare the advantages and disadvantages of three types of packings viz medicated gauze packing, glove finger packing and merocel packing.

Methods:

A total of 105 patients were randomly assigned in three Groups A, B and C. Postoperative patients in Group A were packed with Classical Medicated Gauze packing. Group B patients were packed with Glove finger packs. This packing is done by cutting the middle finger of the glove, inserting long to medium sized Killian's nasal speculum in it and rubbing some soframycin ointment over it. Then this speculum is inserted in the nasal cavity and opened to open the glove finger inside nasal cavity. Medicated gauze is then filled in the glove finger. In Group C, patients were simply packed with merocel.

All the septoplasties were done under local anesthesia so that in the immediate postop period patients can maintain sitting posture which to a certain extent ensures that if patient bleeds, it does so anteriorly from where it can be measured or quantified.

In all the three groups, patients were provided with cotton balls to clean the blood tinged soakage and keep these cotton balls preserved for quantification. Each cotton ball was roughly the size of an average sized walnut. Patients who needed repacking were left out from the study because in them bleeding could not be quantified according to the protocol of our study.

Packing was removed after 48 hours and for these 48 hours patients were put on i.v. antibiotics and systemic decongestants. Postoperatively patients were followed at following week/s for adhesion formation and bleeding:

- 1 week
- 2 weeks
- 4 weeks

Inclusion Criteria:

1. Patients undergoing septoplasty in the age range of 18 to 60 years.

2. Patients of both sexes were included in the study.

Exclusion Criteria:

1. Elderly patients above 60 years and children under 18 years of age.
2. Patients with revision Septoplasties.
3. Patients with systemic disorders like Collagen disorders, diabetes where poor healing is suspected.
4. Patients with bleeding or coagulation disorders.
5. Patients lost to follow up.
6. Patients who needed repacking post-septoplasty.

Results:

In the immediate postoperative period, patients were intimately observed for the bleeding. The no. of cotton balls used were counted. Care was also taken to quantify the amount of soakage that each cotton ball had and accordingly the no. of cotton balls used was adjusted by addition or subtraction from the no. of cotton balls actually used. Following table lists the average no. of cotton balls used in three groups on day 1 & 2.

Table-I
Number of cotton balls used.

Day	Group A	Group B	Group C
Day 1	10	13	15
Day 2	5	7	7

As is evident, on day 1, conventional gauze packing was apparently better hemostatic than glove packing which was better than merocel packing. Applying Chi square test between conventional packing and merocel packing is as under:

- Mean no. of cotton balls used in conventional ANP (Observed), $O = 10$
- Mean no. of cotton balls used in merocel packing (Expected), $e = 15$
- $\chi^2 = (o-e)^2/e$
 $= (15-10)^2/10$
 $= 2.5$
- Here degrees of freedom, $n = 1$
- Computing 'p' value from Chi square distribution, $p < 0.20$

As is evident, the difference is not statistically significant even though conventional ANP appeared to be better in controlling bleeding from nose.

Table-II

At 4 weeks postoperatively, following no. (percentage) of patients developed adhesions.

Group A	Group B	Group C
10 Patients (28.6%)	8 Patients (22.9%)	0 Patient (0%)

Application of χ^2 test between conventional ANP and merocel packing:

- Number of patients developing adhesions, $o = 0$ (Merocel packing)
- Number of patients developing adhesions, $e = 10$ (Conv. packing)
- $\chi^2 = (o-e)^2/e$
 $= (0-10)^2/10$
 $= 10$

Here p value comes out to be, 0.002 (degree of freedom is 1). Thus the difference is statistically significant and the reason why merocel packing should be done in all cases following septoplasty. For pain management all patients were put on t.i.d dosage of 500 mg paracetamol tablets on first two days and then on S.O.S basis thereafter. Pain assessment was done by calculating the no. of tablets consumed in the first postoperative week. Following table depicts the same.

Table-III
Pain management outcome:

Group A	Group B	Group C
13 Tablets	10 Tablets	8 Tablets

Thus minimal pain was seen with merocel packing, which is also the reason why postoperatively patients should be packed with merocel.

Discussion:

This study revealed that adhesion formation which happens to be one of the most important factors in preventing the successful outcome of surgery is best prevented by merocel packing. It is thus advised to use merocel packing in all patients undergoing septoplasty. This besides offering the freedom from adhesions also offers freedom from secondary hemorrhage on account of adhesions and avoids morbid pain that is associated with the procedure of releasing adhesions.

Hemostatic effects are best observed with conventional medicated gauze packing although the results were not statistically significant on Chi square test. If septoplasty is done by a skillful surgeon using proper infiltration technique (1:100000 adrenaline) and proper sterilization technique, the risk of moderate or severe epistaxis is remote and adhesion prevention becomes the most important factor to be dealt with. It is thus advised to use merocel packing in all septoplasties if minimal bleeding is suspected postoperatively. But if the suspicion of moderate to severe epistaxis is high as with a significantly traumatic surgeries, malnourished children, hypertensives on erratic treatment etc. conventional ANP is advisable.

Additionally, postoperative pain due to nasal packing is of lower intensity as well as duration with the use of merocel packing when compared with other types of packing⁸. Thus considering the advantages of merocel packing in preventing adhesions, and the significantly lower postoperative pain, and

avoidance of revision procedures to release adhesions; it is advised to use this packing in all patients undergoing septoplasty.

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