

Use of Nonabsorbable Sponge Alone vs Nonabsorbable Sponge along with Wax Plate as Intranasal Splints in Nasal Surgeries: A Comparative Study

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ABSTRACT

Background: Nasal packing and splints have been used to control bleeding in epistaxis and endonasal procedures using various materials for internal stabilization and as spacers to prevent synechiae and restenosis.

Aims and objectives: The aim of this study was to compare the results of using wax plates as nasal splints along with non-absorbable sponge for anterior nasal packing following nasal surgeries.

Materials and methods: A total of 60 patients were selected for various nasal surgeries involving the septum such as conventional and endoseptoplasty, septorhinoplasty, functional endoscopic sinus surgery with septoplasty, and posttraumatic nasal bone fracture correction. They were randomly classified into two groups: for group I patients ($n = 30$), post-surgery wax plate was used as an intranasal splint along with anterior nasal packing, whereas for those in group II ($n = 30$), only anterior nasal packing was used.

Result: In this study, 28.33% ($n = 17$) of the patients were in the age group of 15–30 years, 41.66% ($n = 25$) were in the age group of 31–45 years, and 30% ($n = 18$) were in the age group of 46–60 years. In total, 60% ($n = 36$) of the patients were males and 40% ($n = 24$) were female. The number of synechiae cases noticed in group II ($n = 9$) was found to be statistically significant when compared to that of group I ($n = 1$), p value = 0.006 (<0.05).

Conclusion: Wax plate is an ideal intranasal splint for nasal surgeries because of its low cost, easy availability, and low rate of synechia formation.

Keywords: Nasal packing, Nasal splint, Wax plate.

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INTRODUCTION

Nasal packing is an important step for any nasal procedure in order to prevent bleeding and mucosal edema, to obtain proper flap apposition, and to assist in better healing. Packing materials act by applying pressure on damaged vessels and help in thrombus formation and organization. Nasal adhesions or synechiae is one of the few complications encountered in nasal surgeries.^{1,2} The intranasal splints (INSs) play a major role in preventing the contact with the raw surfaces, thereby preventing synechiae formation. In 1955, for the first time, nasal splints were used in intranasal surgery by Salinger and Cohen³ Recently, INSs made of silicon are also used as an alternative to nasal packing. Several types of materials have been used in the past, such as strips of X-ray film and the polyethylene tops of coffee cans, drug and intravenous fluid containers, silicon or soft splints, magnet-containing silicone rubber INSs, Guastella/Mantovani septo-valvular splint, etc.⁴ In the last 20 years, six randomized controlled trials (RCTs) compared the outcomes of septal surgery with and without the use of INSs.⁵ Silicon is the most widely used INS.⁶ But in this study we used wax plates as splint material because it is soft and economical.

AIMS AND OBJECTIVES

To study the efficacy of the use of wax plate as an INS in nasal surgeries in reducing the incidence of synechiae formation in the postoperative period and thereby advocate its use along with anterior nasal packing (ANP).

MATERIALS AND METHODS

This is a prospective observational study done between August 2015 and March 2017 in the Department of ENT and HNS at Sriram

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Chandra Bhanj Medical College, Cuttack, India. Sixty patients were selected from those who were admitted for surgeries involving the septum such as conventional and endoseptoplasty, septorhinoplasty, functional endoscopic sinus surgery (FESS) with septoplasty, and posttraumatic nasal bone fracture correction and were randomly placed into two groups: group I and group II with the following inclusion and exclusion criteria.

Inclusion Criteria

- Age-group (>15 , <60 years).
- Patients with no history of previous nasal surgery.
- Those who were convinced for follow-up.

Exclusion Criteria

- Age-group (<15 , >60 years).

- Patients with diabetes mellitus, hypertension, tuberculosis, bleeding disorder, renal and hepatic insufficiency, pregnancy, allergy to nonsteroidal anti-inflammatory drugs.
- Those undergoing revision surgery.
- Surgeries which required the use of electrocautery or coablation with diseases such as rhinosporidiosis, vascular masses, malignancies.
- Diagnostic nasal endoscopy suggesting synechiae.
- Those with cystic fibrosis.
- Past history of autoimmune diseases.

For all patients detailed, general and systemic examination were conducted, and specific investigations such as nasal endoscopy, X-ray nose and paranasal sinuses (PNS), and CT-scan of nose and PNS were done as required and along with that informed consent was taken prior to surgery.

In group I patients ($n = 30$), postsurgery wax plate was used as INS along with ANP, whereas for those in group II ($n = 30$), only ANP was used. For both groups, nonabsorbable sponge (MeroceTM) was used for ANP. The wax plates of appropriate size were prepared and placed bilaterally on both sides of the nasal septum, followed by the placing of antibiotic impregnated ANP (MeroceTM). In all patients, the nasal pack was removed on the 2nd postoperative day and the wax plate was removed on the 10th postoperative day. All the patients were discharged on the third postoperative day with oral antibiotics, antihistamines, and saline nasal douches. They were asked to come for follow-up in the 1st week, 4th week and then monthly for 3 months postoperatively.

The outcomes variable were studied in both the groups and the results were noted with special respect to bleeding, synechiae formation, pain and discomfort, infection, and epiphora and were compared. The outcomes were studied in both the groups and the results were analyzed, tabulated, and compared.

RESULTS

In our study 28.33% ($n = 17$) of the patients were in the age-group 15–30 years, 41.66% ($n = 25$) were in the age of 31–45 years, and 30% ($n = 18$) were in the age of 46–60 years (Table 1). Besides 60% ($n = 36$) of the patients were males and 40% ($n = 24$) were females (Table 2). In group I, 23.33% ($n = 7$) underwent septoplasty, 20% ($n = 6$) underwent nasal fracture reduction, 26.66% underwent endoseptoplasty, 23.33% ($n = 7$) underwent FESS + septoplasty, and 6.66% ($n = 2$) underwent rhinoplasty. In group II 30% ($n = 9$) of the patients underwent septoplasty, 36.66% ($n = 11$) underwent nasal fracture reduction, 16.66% ($n = 5$) endoseptoplasty, 13.33% ($n = 4$) FESS + septoplasty, and 3.33% ($n = 1$) underwent rhinoplasty (Table 3). Postoperative discomfort was measured in all the patients in the study using the 10-point visual analog scale (VAS) in the 3rd postoperative week.

Table 1: Age distribution in both the groups

Age distribution	Group I ($n = 30$)	Group II ($n = 30$)
15–30 years ($n = 17$) 28.33%	8 (26.66%)	9 (30%)
31–45 years ($n = 25$) 41.66%	12 (40%)	13 (43.33%)
46–60 years ($n = 18$) 30%	10 (33.33%)	8 (26.66%)

Table 2: The gender distribution in both the groups

Gender distribution	Group I ($n = 30$)	Group II ($n = 30$)
Males ($n = 36$) 60%	16 (53.33%)	20 (66.66%)
Females ($n = 24$) 40%	14 (46.66%)	10 (33.33%)

Table 3: Distribution of different surgical procedures in both the groups

Surgical procedures	Group I ($n = 30$)	Group II ($n = 30$)
Septoplasty ($n = 16$) 26.66%	7 (23.33%)	9 (30%)
Nasal fracture reduction ($n = 17$) 28.33%	6 (20%)	11 (36.66%)
Endoseptoplasty ($n = 13$) 21.66%	8 (26.66%)	5 (16.66%)
FESS + septoplasty ($n = 11$) 18.35%	7 (23.33%)	4 (13.33%)
Septorhinoplasty ($n = 3$) 5%	2 (6.66%)	1 (3.33%)

Table 4: Distribution of different complications

Complications	Number of patients (group I) affected ($n = 30$)	Number of patients (group II) affected ($n = 30$)	<i>p</i> value
Bleeding	0	0	–
Infections	1 (3%)	0	0.5
Discomfort	7 (23.3%)	4 (13.3%)	0.253
Synechiae	1 (3%)	9 (30%)	0.006*
Epiphora	1 (3%)	0	0.5

* p value < 0.05 is statistically significant

Both groups were observed for various complications such as bleeding, infection, discomfort, synechiae formation, and epiphora in the follow-up period, and the results were tabulated (Table 4) and compared using SPSS software. In both groups, no case of postoperative bleeding was encountered, but one case of infection and epiphora were seen in group I, which was not seen in group II (statistically insignificant, value $p = 0.5$). Discomfort was reported in seven cases in group I and four cases in group II but found to be statistically insignificant. ($p = 0.253$). However the number of synechiae cases noticed in group II ($n = 9$) was found to be statistically significant when compared to group I ($n = 1$), p value = 0.006 (<0.05).

DISCUSSIONS

Investigations by Pirsig on more than 2,000 patients show that the use of nasal splinting for 4–7 days could avoid intranasal adhesions in almost all cases.⁷ Roberto et al. had found out its efficiency to prevent post-surgical adhesion once any of the patients who underwent septoplasty with turbinectomy (0% in splinted vs 10.6% in non-splinted group).⁸ Nabil-ur Rahman concluded that complications are related to the type of procedure performed, and adhesions are common complication if INS is not provided.⁹ White and Murray concluded that adhesion may be prevented by insertion of nasal splint.¹⁰ Schoenberg et al. found a low risk of adhesion early in the first week postoperatively when INSs were used, and the highest incidence of intranasal adhesions occurred in nonsplinted patients who had surgery to both walls of their nasal cavity (3.6% in splinted vs 31.6% in nonsplinted).¹¹ Campbell et al. inserted a nasal splint into one side of the nose of 106 patients undergoing a variety of intranasal procedures, and all adhesions occurred on the nonsplinted side and more commonly when the bilateral wall procedures had been performed (8% in splinted vs 26% in nonsplinted), and they concluded that splints were justified for bilateral wall procedures but that their increased morbidity did not justify their use in single wall procedures. In the present study, we used a unique



Fig. 1: Wax plate

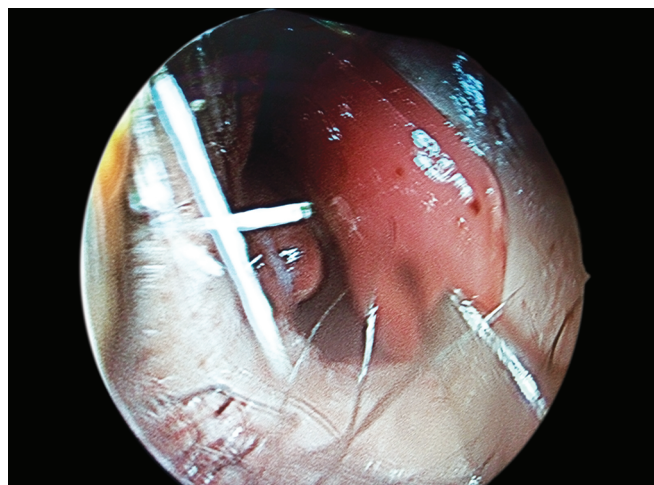


Fig. 2: Insertion of wax plate into the nasal cavity

material, namely, wax plate as INS, which is economical, soft, tolerable discomfort, easily malleable, and more importantly can be tailored made to size that fits the nostril (Figs 1 and 2). In the present study also, the wax splinted group showed significantly ($p < 0.05$) lower synechia, i.e., only 3% incidence vs 30% in nonsplinted group (Table 4). These results are comparable with that of Campbell et al and Schoenberg et al.¹² It can also be removed very easily with minimal discomfort and so can be used in all septal surgeries to reduce the overall complication especially prevention of synechia formation.¹³

CONCLUSION

Although in the present study the results were comparatively insignificant, the low cost, easier availability, and lower synechia rates associated with wax plates make this an ideal material to be used as INSs in nasal surgeries.

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