



A COMPARATIVE STUDY ON USE OF NON-ABSORBABLE SPONGE ALONE VERSUS NON-ABSORBABLE SPONGE ALONG WITH WAX PLATE AS INTRANASAL SPLINTS IN NASAL SURGERIES

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ABSTRACT

Nasal packing and splints has been used to control bleeding in epistaxis and endo-nasal procedures using various materials for internal stabilization and as spacer to prevent synechia and re-stenosis. A range of materials are used worldwide, absorbable and non-absorbable type's. Currently there is no standardised material to be used for this purpose. In this study we have compared the results of using wax plates as splint along with non-absorbable sponge for anterior nasal packing.

KEYWORDS : nasal packing, nasal splint, waxplate

Introduction:

Nasal packing is an important step following any nasal procedures in order to prevent bleeding, mucoasal edema, and proper flap apposition & to assist in better healing. Packing material act by applying pressure on damaged vessels & helps in thrombus formation and organisation. Nasal adhesions or synechiae is one of the few complications encountered in nasal surgeries^[1, 2]. The intranasal splints play a major role to prevent the contact of the raw surfaces, thereby preventing synechia formation. Nasal splints were used for the first time used in intranasal surgery by Salinger and Cohen in 1955.^[3] Intra nasal splints made of silicon is used as an alternative to nasal packing recently. 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 intranasal splints, Guastella/ Mantovani septo-valvular splint etc.^[4] In the last 20 years there have been six randomized controlled trials (RCTs) comparing outcomes of septal surgery with and without the use of intranasal splints.^[5] Silicon is most widely used intra nasal splint.^[6] But, in this study we have used wax plates as splint material being soft and economical.

AIMS AND OBJECTIVES

To study the efficacy of the use of wax plate as an intranasal splint in nasal surgeries in reducing the incidence of synechia formation in the post operative period and thereby advocate its use along with anterior nasal packing.

MATERIALS AND METHODS

This is a prospective observational study done in the time period between August 2015 and March 2017 in the Department of ENT at S.C.B Medical College, Cuttack. 60 patients were selected among those who were admitted for surgeries involving the septum like conventional and endoscopic septoplasty, septo-rhinoplasty, FESS with septoplasty, post traumatic nasal bone fracture correction were selected for the study and randomly placed into 2 groups: Group A & group B with following inclusion & exclusion criteria.

INCLUSION CRITERIA

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

EXCLUSION CRITERIA

1. Age group <15 & >60 years
2. Patients with Diabetes Mellitus, Hypertension, Tuberculosis,

Bleeding disorder, renal & hepatic insufficiency, pregnancy, allergy to NSAIDS

3. Those undergoing Revision surgery
4. Surgeries which required the use of Electrocautery or Coablation with diseases like Rhinosporidiosis, Vascular Masses, and Malignancies
5. Diagnostic Nasal endoscopy suggesting synechiae
6. Those with cystic fibrosis
7. Past history of autoimmune diseases

In all patients detailed general and systemic examination was conducted and specific investigations like Nasal Endoscopy, X-Ray Nose and PNS, CT-Scan of Nose and PNS were done as required and along with that informed consent was taken prior to surgery.

Patients in **Group A** (n=30), post surgery wax plate was used as intra nasal splint (INS) along with anterior nasal packing (ANP) whereas those in **Group B** (n=30), only anterior nasal packing was used. In both groups, non-absorbable sponge (MerocelTM) was used for ANP. The wax plates of appropriate size were prepared & placed bilaterally to both sides of nasal septum, followed by placing of antibiotic impregnated anterior nasal packing (MerocelTM). In all the patients the nasal pack was removed on the 2nd post-operative day and the wax plate was removed on the 10th post-operative day. All the patients were discharged on the 3rd post-operative day with oral antibiotics, anti-histaminics and saline nasal douches. They were asked come for follow up in the 1st week, 4th week & then monthly for 3 months post-operatively.

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

RESULTS

Table 1: Age distribution in both the groups

AGE DISTRIBUTION (YRS)	GROUP- A(n=30)	GROUP- B(n=30)
15-30 (n=17)28.33%	8 (26.66%)	9(30%)
31-45 (n=25)41.66%	12(40%)	13(43.33%)
46-60 (n=18)30%	10(33.33%)	8(26.66%)

Table 2: Sex distribution in both the groups

SEX DISTRIBUTION	GROUP- A(N=30)	GROUP- B(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 - A(n=30)	GROUP-B(n=30)
Septoplasty (n=16)26.66%	7(23.33%)	9(30%)
Nasal Fracture Reduction (n=17)28.33%	6(20%)	11(36.66%)
Endo-Septoplasty (n=13)21.66%	8(26.66%)	5(16.66%)
FESS+ septoplasty (n=11)18.35%	7(23.33%)	4(13.33%)
Septo-Rhinoplasty (n=3)5%	2(6.66%)	1(3.33%)

Table 4: Distribution of different complications

COMPLICATIONS	NO. OF PATIENTS (GROUP A) AFFECTED n=30	NUMBER OF PATIENTS (GROUP B) AFFECTED (n=30)	P 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

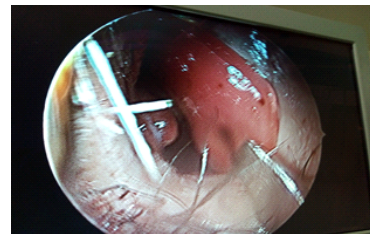
In our study 28.33 % (n=17) of the patients were in the age group 15-30 yrs., 41.66%(n=25) were in the age of 31-45 years and 30%(n=18) were in the age of 46-60 years.(Table 1). Besides 60%(n=36) of the patients were males and 40%(n=24) were females.(Table 2) In Group-A 23.33%(n=7) underwent septoplasty,20%(n=6) underwent nasal fracture reduction,26.66% underwent endo-septoplasty, 23.33%(n=7) underwent FESS+ septoplasty and 6.66%(n=2) underwent Rhinoplasty. In Group-B 30%(n=9) of the patients underwent septoplasty,36.66%(n=11) underwent nasal fracture reduction,16.66%(n=5) endo-septoplasty ,13.33%(n=4) FESS+ septoplasty and 3.33%(n=1) underwent rhinoplasty.(Table 3). Post-operative discomfort was measured in all the patients in the study using the 10 point-VAS in the 3rd post-operative week.

Both groups were observed for various complications like bleeding, infection, discomfort, synechiae formation, epiphora in follow up period and the results were tabulated(Table 4) and compared using SPSS software. In both groups no case of post operative bleeding was encountered but one case of infection & epiphora were seen in group A which was not seen in group B (statistically insignificant, value p=0.5).Discomfort was reported in 7 cases in Group A & 4 cases in Group B, but found to be statistically insignificant.(p =0.253).However the number of synechiae cases noticed in Group B(n=9) was found to be statistically significant when compared to group A (n=1),p value = 0.006 (< 0.05).

DISCUSSION

Investigations by Pirsig on more than 2000 patients could show that the use of nasal splinting for 4 to 7 days could avoid intranasal adhesions in almost all cases.^[7] Roberto et al. found the high efficiency to prevent post-surgical adhesion once any of the patients who underwent the 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 intranasal splint 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 post operatively when intranasal splints were used, and the highest incidence of intranasal adhesions occurred in non splinted patients who had surgery to both walls of their nasal cavity (3.6% in splinted vs. 31.6% in non splinted).^[11] Campbell et al inserted a nasal splint into one side of the nose of 106 patients undergoing a variety of intranasal procedures, all adhesions occurred on the non splinted side and more commonly when bilateral wall procedures had been

performed (8% in splinted vs. 26% in non splinted), 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 have used a unique material: wax plate as INS, which is economical, soft, tolerable discomfort, easily malleable,, and more importantly can be tailored made to size to fit to the nostril.In the present study also the wax splinted group showed significantly (p< 0.05) lower synechia i.e only 3% incidence vs 30% in non splinted group (table-4).These results are comparable with that of Campbell et al and Schoenberg et al.^[12] Besides wax plate's easier availability and low economic impact makes it an ideal material to be used as splints.(Fig.1, Fig.2) It can be customized according to patient's size and comfort. It can also be removed very easily with minimal discomfort so can be used in all septal surgeries to reduce overall complication especially prevention of synechia formation.^[13] (Fig.3)

**Fig. 1 Absorbable sponge (Merocel)****Fig.2 Preparing wax plate as intranasal splint****Fig.3 In-situ placement of waxplate**

CONCLUSION

Though in the present study the results were comparatively insignificant, the low cost, easier availability, lower synechiae rates associated with wax plates makes this an ideal material to be used as intranasal splints in nasal surgeries.

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