

Original Research Article

A comparative study of synechiae formation in endoscopic septoplasty with and without intranasal splints

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ABSTRACT

Background: Septoplasty is the treatment of choice for deviated nasal septum. Deviated nasal septum can be C shaped or S shaped leading to unilateral or bilateral nasal obstruction. Septal spur may also require surgery. Sometimes deviated nasal septum may block osteomeatal complex leading to chronic sinusitis. For the evaluation of nasal cavities preoperatively computed tomography (CT) paranasal sinuses and diagnostic nasal endoscopy is done. Diagnostic nasal endoscopy done after two weeks of surgery. The objective of the study is to compare the efficacy of intranasal splints in the prevention of nasal synechiae following septoplasty.

Methods: 100 patients undergoing septoplasty under general anesthesia from March 2018 to March 2019 were enrolled. Patients with nasal septal deviation and aged between 18-50 years were included in the study. All surgeries were performed by consultant ear, nose and throat (ENT) surgeons under general or local anesthesia. Institutional ethical committee approval was obtained for the study. Informed consent was obtained from all patients. Patients with age under 18 years or over 50 years were excluded for the study.

Results: Septoplasty with intranasal splints reduce the formation of synechiae in 48 patients.

Conclusions: Usage of intranasal splints indicates a decrease in the postoperative formation of synechiae after septoplasty.

Keywords: Septoplasty, DNS, Spur, Synechiae, Diagnostic nasal endoscopy, CT PNS

INTRODUCTION

A deviated nasal septum is labelled when the septum is not in midline and cause symptoms like nasal obstruction, chronic nasal congestion, sinusitis, repeated ear infections, or nose bleed. Nasal septum surgery is one of the most common surgical procedures performed in the field of otorhinolaryngology.

Septoplasty is the corrective surgery for these symptomatic septal deviations. Surgical complications of Septoplasty are relatively uncommon. However, there is possibility of haemorrhage, infection, septal perforation and intranasal adhesions. Formation of adhesions between septum and lateral nasal wall of nose is a common problem after nasal surgery.¹

Nasal adhesions form as a result of contact between raw surface of operated nasal septum and the lateral nasal wall. This results in partial or complete nasal obstruction of affected side. Prevention of post-operative nasal adhesions is an important aspect of nasal surgery.

To prevent the formation of these adhesions, meticulous nasal toilet has been advocated. In addition, plastic or silicone splints are placed alongside of nasal septum to prevent contact between raw surface of septum and lateral nasal wall. Intranasal splints are also helpful in maintaining postoperative septal instability.²

Use of nasal splints to prevent nasal adhesion formations following septal surgery has been documented in literature. This study would help us in determining

whether the use of nasal splints for prevention of nasal adhesions after septal surgery would be beneficial or not.

Our study will account for the outcome of septoplasty with intranasal splints to formulate a set plan for using splints for septal surgery patients, so that they may benefit both in terms of morbidity as well as cost effectiveness.

Aims

Aims of the study were to assess the improvement in the formation of synechiae and adhesion following septoplasty with intranasal splints; to assess the formation of synechiae without intranasal splints; and to assess the efficacy of usage of X-ray films as intranasal splints.

METHODS

The study was conducted in ENT department of Malla Reddy Institute of Medical Sciences. Patients with DNS were included in the study. Risk benefit ratio and ethics were discussed. Period of study is taken from March 2018 to March 2019.

Study design

Setting

The study was conducted at a tertiary referral hospital.

Period of study

The period of the study was from March 2018 to March 2019.

Study design

The design of the study was randomized control trial.

Type of study

The study was a comparative type of study.

Sample size

The size of the sample was 100.

Inclusion criteria

All patients of DNS and septal spur with age group 18 and 50 years are included in the study.

Exclusion criteria

Exclusion criteria were age group <18 years and >50 years patients with previous nose surgeries.

Written informed consent shall be taken after explaining the merits/complications of tympanoplasty. All the

necessary blood and radiological investigations shall be carried out for the purpose of surgery.

Instruments of septoplasty

Chisels, elevators, forceps, hooks, knives, osteotomes, punches, rasps, retractors-hand held and fiberoptic, scissors, speculum, suction tubes, and trocars were used in the study.

Operative technique

All the surgeries were performed by ENT surgeons under local or general anesthesia. The septum was infiltrated with 2% lignocaine with adrenaline 1: 2, 00,000. Killians or Freer's incision is made on one side of nasal septum. The septum is approached by elevating perichondrial and periosteal flap. The deviated part of septum is corrected by various methods, such as: scoring on the concave side, cross-hatching or morselizing, shaving, and eedge excision.

Further manipulations like realignment of nasal spine, separation of septal cartilage from upper lateral cartilage strip in the columella or the dorsum of nose may be required.

Trans-septal sutures are put to close mucoperichondral flaps.

In group 1 patients INS were placed and then anterior nasal packing done. In group 2 only anterior nasal packing was done.

X-ray films used as splints were placed on both sides of septum and were fixed by stay suture to avoid slippage of the splint. Both the nostrils were packed with soframycin soaked gauze pack. Nasal pack was removed after 48 hours of surgery and nasal splints were removed one week postoperatively.¹⁰ All patients were given antibiotics, analgesics and nasal spray for one week. DNE done for inspection of the nasal cavities on the day of removal of splints and two weeks from the date of surgery. On both occasions nasal cavities are being assessed for the formation of nasal adhesions.



Figure 1: Septoplasty with nasal splint (X-ray).

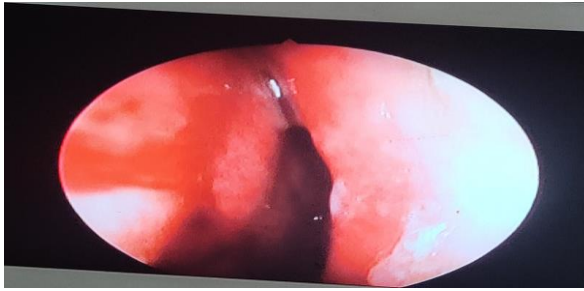


Figure 2: Septoplasty without nasal splint.

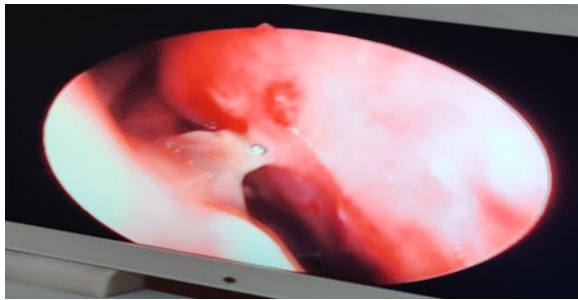


Figure 3: Picture of synechia after surgery.

Data analysis procedure

Data was analyzed by “Open epi”. Frequency and percentage was used to describe qualitative data like formation of post-operative nasal adhesions.

To compare the groups for nasal adhesion frequency, Chi square test was applied. A p value 0.05 was considered statistically significant. The final data representation comprises of pie charts, cross tabulation and tables.

RESULTS

A total of 100 cases fulfilling the inclusion and exclusion criteria were enrolled to compare the efficacy of intranasal splints in the prevention of nasal adhesions following septal surgery.

The study was divided into two groups in which, 50 patients with intranasal splints with soframycin soaked anterior nasal pack were included in group 1 and in another group of 50 patients, only soframycin soaked anterior nasal pack was used postoperatively. The results were

evaluated on aspects of adhesion formation in each group and results have been tabulated below in detail.

Chi square test was used to obtain information and analyze data.

In group 1, 48 patients (96%) had not developed synechia formation and 2 patients (4%) developed synechia.

In group 2, 35 patients (70%) had no synechia formation and 15 patients (30%) had developed synechia following surgery.

A p value was calculated as 0.05 or 5% showing a significant difference.

Table 1: Synechia formation in group 1 and 2.

Synechia formation	Group 1 (%)	Group 2 (%)
Yes	2 (4)	15 (30)
No	48 (96)	35 (70)
Total	50	50

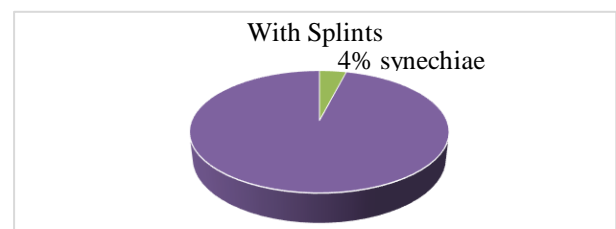


Figure 4: 4% of patients developed synechia where as in 96% their was no formation of any synechia.

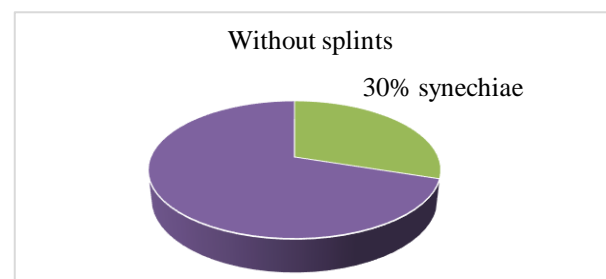


Figure 5: 30% of patients developed synechia where as in 70% their was no formation of any synechia.

Table 2: Age wise distribution in group ‘1’ and group ‘2’.

Group	20 years (or) less	21-30 years	31-40 years	41-50 years
Group 1	2	20	24	4
Group 2	6	26	14	4

Table 3: Gender wise comparison in in group 1 and 2.

Gender	Group 1	Group 2
Male	26	22
Female	24	28

Our study shows that the nasal splint increases comorbidities such as pain and discomfort in post-surgical period.⁷ On the other hand it presented high efficiency to prevent post-surgical synechiae formation in patients who underwent septoplasty.

DISCUSSION

Synechiae is an adherence between the two mucosal surfaces in the nasal cavity which may cause nasal obstruction which will lead to rhinitis and rhinosinusitis.

And this also increases the hospital visits and loss of man days.

In order to avoid such adhesions, nasal splints have been developed. Our patients were divided into two groups. The first one were treated with nasal splint and the second one without nasal splint.

In 1988, some authors proved the increase of synechiae incidence in septoplasty when associated to turbinectomy presenting as 36% rate.⁸ The use of nasal splint is only justified when it really presents advantage to the patient.⁹

According to results of our study, only 2 out of 50 patients developed nasal adhesions with splints and without splints 15 out of 50 patients. These results are comparable to other international studies which also states a significant lower rate of nasal adhesion in splinted patients than in non-splinted patients.

Deniz et al suggested that nasal splints were effective in reducing the incidence of nasal synechiae formation.³

Schoenberg et al found a low incidence of adhesions in first week postoperatively when intranasal adhesions occurred in non-splinted patients who had surgery to both walls of nasal cavity (3.6% in splinted versus 31.6% in non-splinted).⁴

Roberto et al found that nasal splints were effective in preventing adhesion formation in patients undergoing septoplasty with turbinectomy (0% in splinted and 10.6% in non-splinted groups).⁵

Rahman concluded that the complications were related to the type of procedure being performed and adhesions were common complication if intranasal splint were not provided.⁶ Splints should be visualized depending upon procedure being performed. X-ray splints are cost effective and easily available.

CONCLUSION

Intranasal adhesions are relatively common after septoplasty. According to study use of nasal splints for 4 to 7 days could avoid intranasal adhesions in almost all cases.¹¹ Therefore, it can be considered as the preferred technique in septoplasty. To make it more authentic we will require a larger sample study.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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