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Original Article

Intranasal pressure splints - a reliable alternative to nasal packing in septal surgery

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Abstract:

Objective: To compare the outcome of nasal packing and intranasal pressure splints in patients undergoing septoplasty.

Study design: Randomized controlled trial.

Place and Duration of Study: The study was carried out at otorhinolaryngology department of Combined Military Hospitals, Bahawalpur and Murree from June 2010 to November 2011.

Methods: A total of 160 patients aged 15 to 50 years, undergoing septoplasty, were included in the study and distributed in two equal groups. Group A with nasal packing, was compared with group B in which nasal splints were placed and no nasal packing was done. Post operative morbidity in terms of pain, headache, epiphora, dysphagia and sleep disturbance along with post operative complications including nasal bleed, septal hematoma and synechiae formation were assessed over a follow up period of four weeks.

Results: Patients in which nasal packing was done had significantly more post operative pain ($p < 0.05$) and a significantly higher incidence of headache, epiphora, dysphagia and sleep disturbance on the night of surgery ($p < 0.05$). There was no significant difference between two groups with respect to nasal bleeding, septal hematoma and synechiae formation.

Conclusion: Pressure splints around nasal septum are effective alternative to nasal packing. With the use of these splints, nasal packing can be easily avoided following septal surgery, thus minimizing post operative discomfort of the patient.

Key words: *Septoplasty; nasal packing; intra-nasal splints*

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Introduction:

Septoplasty is one of the commonest nasal surgeries performed by otorhino-laryngologists. Nasal packing following septoplasty was started due to the fear of post operative complications like bleeding and septal hematoma and many surgeons still believe it to be true[1]. However it is a source of considerable patient discomfort and can lead to complications like mucosal trauma leading to adhesion formation. This has lead to controversy of its use[2, 3]. People have

successfully tried alternatives like through and through suturing of septal flaps[4].

We, in this study, have used an easier and relatively more reliable alternative by placing pressure splints along the nasal septum following septoplasty.

Methods:

This clinical trial was carried out at the department of otorhinolaryngology of Combined Military Hospitals, Bahawalpur and Murree. Our objective was to compare the incidence of post operative morbidity in patients undergoing septoplasty with and without nasal packing and also to compare the incidence of post operative complications in both the groups. The variables included post operative pain, headache, epiphora, dysphagia and sleep disturbance on the night of surgery. On the follow ups patients were assessed for nasal bleeding, septal hematoma and synechiae formation.

Study population included all patients between ages 15 to 50 years of age who underwent septoplasty at the said institutions from June 2010 to November 2011. Exclusion criteria included a history of bleeding disorder, diabetes, revision surgery on the nose and those requiring turbinate surgery in addition to septoplasty.

Study sample included 160 patients, equally divided into two groups, group A (n=80) who had nasal packing and group B (n=80) in whom pressure splints were placed. Randomization was achieved using Random number table. Routine pre operative laboratory tests were done and a written informed consent was obtained from each patient.

Septoplasty was performed using standard technique. Nose was prepared with topical decongestant spray and 2% lidocaine with 1:100,000 adrenaline infiltrated submucosally. Operation was started after 7 min. Killians incision was given by cautery. Cautery instead of knife was used as a modification. We found it extremely useful because not even a single drop of blood comes in the way while elevating the flap. Mucoperichondrial flap was raised and standard septoplasty performed. At the end incision was closed by 3/0 catgut. It was found that incision with cautery, in all 160 patients, healed perfectly and was as good as an incision by knife. In non packing group a plastic splint was placed on each side of septum. Plastic splint was made using a sterilized empty bottle of normal saline. It was fashioned in an oval shape. Size was kept according to the size of the nasal cavity of the patient. Generally a size of 6cm x 2cm was used. One splint was placed on each side of nasal septum. 1/0 silk was used to apply a through and through suture at the anterior end of the splints to fix both the splints together. Another suture was applied posteriorly in the middle of the splints. This modification was made to distribute the pressure of the splints evenly along the entire length of the nasal septum. A cotton wick was placed in both nasal cavities for 5 to 10 minutes and then removed. In the packing group, nasal packing was done uniformly using glove-finger packs. Patients were observed for 5 to 6 hours and if there was no bleeding they were discharged. Identical oral antibiotics and analgesics were prescribed to each patient for 7 days.

First post operative visit was on the day after surgery and after that one week, two weeks and one month after surgery. Nasal packs were removed after 24 hours while splints were removed 01 week after surgery.

Data Collection:

Before administering the analgesics patients were asked to rate the degree of pain on a visual analogue score (VAS) of 1 (minimal) to 10 (unbearable). On the first post operative

day a questionnaire was given to the patient to record the degree of headache, epiphora, dysphagia and sleep disturbance on the night on VAS designed separately for each symptom. On next follow up visits a thorough examination of nose was done to see nasal bleeding, crusts, clots, septal hematoma and synechiae formation.

Statistical Analysis:

Data was analyzed using SPSS version 16. Quantitative variables were presented by central indices (mean and standard error of mean) and qualitative variables were presented by frequency tables (frequency and percentage). Independent sample T-test was used to compare quantitative variables and chi-square test to detect significant association between qualitative variables. P value of 0.05 or less was considered significant. In each variable where VAS was used, a score of 5 or less was considered not significant while that of 6 or more was considered significant.

Results:

Patients in nasal packing group had significantly more post operative pain and a significantly higher incidence of headache, epiphora, dysphagia and sleep disturbance on the night of surgery. No significant difference between two groups was seen with respect to complications including nasal bleeding, septal hematoma and synechiae formation.

Pain: In nasal packing group, 68 patients (85%) scored pain as being above 5 at VAS, indicating significant pain. Whereas in the group B only 18 patients (22.5%) mentioned significant pain.

Headache: 72 patients (90%) in the packing group experienced post operative headache compared to only 12 (15%) in the non packing group. ($p < 0.05$)

Epiphora: All 80 patients in packing group complained of epiphora compared with 10 patients (12.5%) in non packing group ($p<0.001$).

Sleep disturbance: 64 patients (80%) in the packing group had less than 6 hours sleep on the night of surgery compared with only 13 patients (16.2%) in non packing group ($p<0.05$).

Dysphagia: In nasal packing group 50 patients (62.5%) complained of discomfort while swallowing, whereas in non packing group no patient mentioned such complaint.

Bleeding: None of the patients in the study had such significant bleeding which would require repacking of nasal cavity. However patients in packing group experienced mild bleeding at the time of removal of nasal packs. No bleeding was observed at the time of removal of nasal splints.

Septal hematoma: 4 patients (5%) in packing group developed septal hematoma which required incision and drainage, whereas only 1 patient (1.25%) in non packing group developed this complication.

Synechiae formation: Synechiae developed in 9 patients (11.2%) in packing group and none in the other group in which pressure splints were placed.

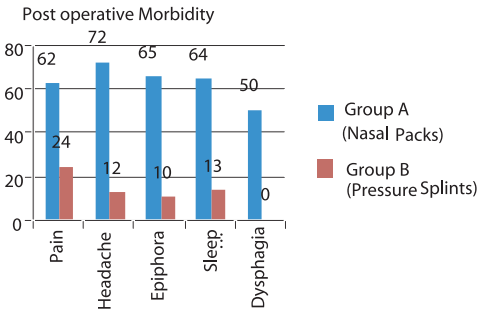

Figure 1:

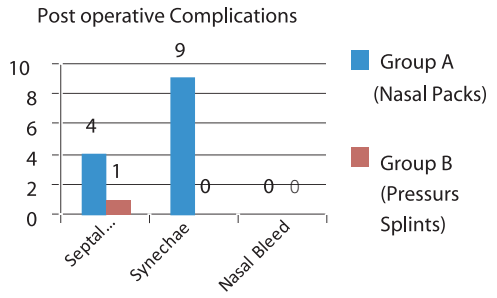

Figure 2:

Discussion:

History of nasal packing is as old as that of septal surgery i.e around 1800[5]. However due to the morbidity and discomfort related with nasal packing lot many studies have been carried out in an attempt to decrease these effects. Both the duration of nasal packing[6] and the material to be used was the subjects of different studies[7]. Some studies reported that nasal packing leads to cardiovascular changes, nasal injury, hypoxia, foreign body reaction or infection. Patients discomfort and need for hospitalization were the main disadvantages of nasal packing. In this study significantly high levels of pain, headache, epiphora, dysphagia and sleep disturbance were observed in packing group[8, 9].

The apparent advantage of nasal packing is perhaps that it helps achieve good flap apposition. This effect can be easily and more effectively achieved by using pressure splints. In some other studies same purpose was achieved using quilting sutures[10].

It was also hypothesized that nasal packing may prevent synechiae formation. In the study incidence of synechiae formation was rather higher in packing group (11.2% vs. 0%). This is because packing makes the mucosal surface raw on the septum as well as the turbinates making it more susceptible to synechiae formation. Another study in 2003 has also reported a 7% incidence of synechiae following nasal packing. In this series keeping pressure splints for 7 days and that gave adequate time for nasal mucosa to heal and thus prevent synechiae formation.

Use of cautery instead of knife to give initial incision of septoplasty was a great experience. It gives an absolutely blood less field and one can easily focus all his attention on raising the muchoperichondrial flap. No untoward effect of its use was seen in the final outcome, as far as healing is concerned. Literature search showed that no one has mentioned this type of incision before.

Conclusion:

Pressure splints around nasal septum are effective alternative to nasal packing. With the use of these splints nasal packing can be easily avoided following septal surgery, thus minimizing post operative discomfort of the patient. Cautery can be safely used instead of knife to give initial incision of septoplasty.

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