Use of nasal packs and intranasal septal splints following septoplasty


Abstract. The aim of this study was to compare the efficacy of a trans-septum suturing technique with conventional nasal packing and intranasal splints in the classic septoplasty operation. The study is a prospective, randomized clinical trial. 114 patients underwent septoplasty for septal deviation and ensuing nasal obstruction. These patients were divided into two groups: packing (using intranasal septal splints and antibiotic meshes at the end of the operation) and non-packing (using four separate trans-septum through and through horizontal mattress sutures without any mesh or intranasal splint insertion). Randomization was performed using the four block randomization system. Patients who failed the regular follow-up were excluded, and the two groups were compared for postoperative bleeding, hematoma, perforation and synechiae. Patients were asked to record pain levels using a visual analogue scale. The authors found no significant statistical differences between the two groups in the parameters studied, but significantly higher pain levels were noted in the patients in the packing group. The final results confirmed that patients who underwent septoplasty, intranasal packing and septal splint insertion did not benefit more than those who had trans-septum through and through suturing.

Keywords: septal deviation; nasal obstruction; septoplasty; septal splint; nasal packing.

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Septoplasty is one of the most common operations in otolaryngology, alone or in combination with other procedures, such as inferior turbinoplasty, endoscopic sinus surgery and rhinoplasty.

Nasal packing is used primarily to control bleeding in all endonasal surgery. It is also used for internal stabilization following operations on the cartilaginous/bony skeleton of the nose. Apart from hemorrhage, packing is used to prevent complications of septal surgery including hematoma, infection, abscess formation, and perforation. There are no generally accepted standards regarding the materials that should be used for nasal packing, how long the packing should be left in place, or the indications for nasal packing. Many physicians do not use packing due to the low incidence of heavy bleeding following septoplasty. Of those who use packing, some remove it on the day after surgery, others remove it 5 days postoperatively. Most sources describe experience with different kinds of packing methods and packing materials. Materials are produced in several brands and authors have their preferences. The most common packing method is the use of nasal packing materials, such as: Telfa, paraffin gauze, Vaseline gauze, bismuth iodoform paraffin paste, glove fingers, silastic sheets, Oxycel, Surgicel, Gelfoam, Merocel, gauzes...
impregnated with different antibiotics, and fibrin glue.

Other packing methods are pneumatic balloons left in place for various amounts of time, septal splints, and through and through mattress sutures to approximate two mucosal septal flaps.

Some complications in endonasal surgery are induced by nasal packing, these are the result of increased swelling causing a disturbance in endonasal lymph and venous drainage. These complications are: mucosal injury and septal perforation; sleep respiratory disturbances; decreased arterial oxygen saturation during sleep; displacement and aspiration of various packing materials; allergy; toxic shock syndrome; eustachian tube dysfunction; and paraffin-induced granuloma. Nasal packs are uncomfortable while they are in place and cause pain and bleeding when they are removed. Many complications due to nasal packing have been noted, which raises questions about the wisdom of using this type of packing method.

**Materials and Methods**

The authors conducted a randomized clinical trial to evaluate the necessity for nasal packing and septal splint use after septoplasty. From 2002 to 2004, 114 patients enrolled in this study. The patients, for whom septoplasty was considered because of septal deviation and ensuing nasal obstruction, underwent a classic septoplasty operation performed by residents under the supervision of the senior author.

The groups (packing and non-packing) were designed using the four block randomization method. Surgery proceeded using the submucosal approach to the deviated segment of the septum via a closed approach starting with a hemitransfixion incision and correction of the deviated segment with minimal excisions, trying to reshape and mold the most deviated parts. In the final stages of the operation, after correction of the septal deviation and closure of the incision line, the surgeon was informed whether the patient had been allocated to the packing or non-packing group through the method of four block randomization. If the patient was enrolled in the packing group, intranasal septal splints were inserted into both nasal cavities and fixed by one 3-0 Nylon suture that crossed both septal flaps and splints, then tetracycline-soaked mesh was placed in both nasal cavities. If the patient was in the non-packing group, the septal flaps were closed by four separate through and through horizontal mattress sutures with 4-0 Vicryl. These sutures were placed in the accessible part of the septum to ensure closure of the gap between two mucosal flaps; no antibiotic meshes were used (Fig. 1).

On the first postoperative day, the patient was asked to determine the degree of pain using a VAS (Visual Analogue Score of 1 to 10 depending on pain severity). In the packing group, the tetracycline meshes were removed after 48 h and the splint was removed after 1 week. Follow-up consisted of revisiting the patients at the end of the first and third week, and the second, sixth and twelfth month after the operation. The complications of septoplasty were elicited during these examinations and were recorded in the patients’ medical files.

Patients who did attend follow-up were excluded from the study (the only exclusion criteria). This led to the loss of 9 patients. There were 57 patients in the packing group and 48 patients in the non-packing group for the final comparison. All analyses were done using SPSS 11 and the level of significance was always set at (0.05).

**Results**

After completion of follow-up, 105 patients were eligible for final analysis (9 of 114 patients were excluded because they did not attend follow-up). There were 57 patients in the packing group and 48 patients in the non-packing group. X² and Student’s t-tests were used to obtain information and analyze data. Descriptive approaches were used to evaluate the age and gender distribution.

78 patients were male and 27 female. The mean age was 24.6 years. Of the 105 patients studied, septal deviation was mainly in the form of septal spur in 80 patients and caudal septum displacement in 38 patients. 73 patients had anterior septal deviation, 62 had posterior deviation and 30 had both anterior and posterior deviation. Postoperative septal hematoma was not detected in either group. 2 patients (3%) had septal perforation in the packing group, and 1 (2%) in the non-packing group (p = 0.56). 4 patients (7%) in the packing group had purulent nasal secretions and there were none in the non-packing group (p = 0.08).

In the packing group, 2 patients (3%) had mucosal adhesion, whereas there was only one patient (2%) with mucosal adhesion in the non-packing group (p = 0.56). There were 6 patients (10%) with residual deviation in the packing group and 5 patients (10%) with deviation in the non-packing group (p = 0.98).

The comparison of postoperative pain and discomfort, revealed that the average VAS score was 5 in the packing group and 2.1 in the non-packing group (p = 0.01).

**Discussion**

All surgery is associated with pain, which may hinder the patient’s activities. Today, patients tend to return to their regular life and work soon after any type of surgery. Changing some routine surgical techniques may minimize the patients’ postoperative discomfort.

Intranasal packing is used to prevent nasal hemorrhage, to prevent septal hematoma and to reduce complications after nasal surgery. Intranasal packing pro-
roduces some quality-of-life problems for patients. These include problems with nasal respiratory function that can cause degrees of hypoxia, mouth dryness and sore throat. Serious infections, aspiration and cardiologic complications may also occur. Considering such complications, several studies have been conducted to evaluate the usefulness of nasal packing.

In the current study of 105 septoplasty operations, postoperative packing and intranasal septal splint insertion were carried out randomly in 57 patients and avoided in 48 patients. Four separate trans-septum through and through horizontal mattress sutures were used in the latter group. The results of this study did not show septal hematoma in either group. This result is similar to that of Lemmens and Lemmens. Evaluating the other complications, in a comparison of septal perforation between the two groups, showed there were no statistically significant differences (p = 0.56). This is in agreement with a study by Schoenberg et al. in which patients underwent Telfa packing, bismuth iodoform paraffin paste packing or no packing; the septal perforation rate was the same in all groups.

In a comparison of postoperative nasal purulent secretions, there was no significant statistical difference (p = 0.08) between the two groups. The packing group showed infection in 7% of patients, whereas 100% of patients in the non-packing group were infection-free. This result was in accordance with the study by Kaygusuz et al., although in their study a significant statistical difference was demonstrated in the infection rate of the packing group.

The incidence of mucosal adhesions and the severity of persistent residual deviation, revealed no significant differences between two groups (p > 0.05); which was similar to the other results. The results differed from those of Guyuron which suggested that the patients with nasal packing tended to have less residual deviation. In evaluating the patient’s satisfaction from airway improvement, the two groups showed no significant differences. The VAS results revealed significant statistical differences in the amount of the pain and discomfort after the operation; the patients with no packing had less severe pain and discomfort compared with the packing group (p = 0.01); the average VAS was 5 in the non-packing group and about 2 in the packing group. This was in accordance with the results of Nunez in which the averages were 4 and 3 in the packing and non-packing groups, respectively.

The patients in the non-packing group had a better nasal respiratory situation than those in the packing group in the first few days. This was observed by Jensen et al. in the form of nocturnal hypoxia during the first and the second nights after the operation.

Considering the results of this study and comparing them to others, using four separate trans-septum through and through horizontal mattress sutures without any mesh or intranasal splint insertion will have similar results to those from the nasal packing group, but the former results in less pain and discomfort for the patient. This study confirmed that using intranasal packing and splints would not result in any further benefit to patients undergoing septoplasty over the trans-septum through and through suturing technique.

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Competing Interests
None declared

Ethical Approval
Not required

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