

Optimal time for nasal packing removal after septoplasty. A comparative study*

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SUMMARY

Objective: *The objective of this study was to evaluate the efficacy and subjective discomfort of one-day internal dressing compared to that of two-day in patients undergoing nasal septal surgery.*

Study Design / Methods: *Prospective, randomized, clinical trial conducted on 75 patients undergoing septoplasty in a tertiary ENT clinic. Discomfort caused by nasal dressings was evaluated by means of a visual analog scale. Postoperative complications were also compared.*

Results: *Mean discomfort score for group A (nasal packing for 48 hours) was 3.5 (SD 1.15) vs. 2.7 (SD 1.52) for group B (nasal packing for 24 hours). Significant lower discomfort is reported when the nasal packing is removed the first day instead of after two or more days. No increase in complication rate was noticed.*

Conclusion: *Our results point out that one-day internal nasal dressing is preferable to that of two or more days, because of less patient discomfort and increased cost-effectiveness without increasing immediate complications.*

Key words: nasal packing, septoplasty, rhinology, postoperative discomfort

INTRODUCTION

Nasal septal surgery, one of the commonest operations performed in otolaryngological practice, is usually followed by nasal packing. The purpose of nasal packing or internal dressing is to control bleeding from raw surfaces and prevent septal hematoma formation, to act as an internal splint, to discourage adhesions and to facilitate nasal hygiene⁽¹⁾. However, the use of nasal packing does not lack complications. Dysphagia, aspiration, airway obstruction, hypoventilation and hypoxemia, eustachian tube block, sinusitis and even toxic shock syndrome have been reported⁽²⁾. In addition, patients report a varying feeling of discomfort causing disturbance to their sense of well-being and sometimes, combined with the hospitalization effect, even emotional effects⁽³⁾.

There are no uniform guidelines for packing removal following septoplasty and the practice varies between hospitals and individual surgeons. Most commonly nasal packing is left in place for one to three days following surgery, although some surgeons use alternative methods of dressings provided there is no heavy bleeding during or after the operation⁽³⁻⁵⁾. The prolonged staying of the packing increases the possibility of occurring complications and extends the patients' sense of discomfort.

It is not unusual for patients to request from their doctors to remove the packing from their noses shortly after the operation. It is obvious that the sooner the packing is removed, the better for the patient, provided the surgical outcome is not jeopardized and there is no increase of postoperative complications. Although many surgeons suggest that nasal packing is not necessary for more than 24 hours there has been no randomized clinical trial, to our knowledge, establishing this observation. The aim of this study was to compare the effectiveness of one-day internal dressing compared with two-day of nasal packing in patients undergoing nasal septal surgery and to evaluate whether there were any consequences on postoperative complications as well as on the patients' sense of discomfort during the time period the packing was in place.

MATERIAL AND METHODS

Patients

Since January 2004 until December 2005 a prospective, randomized trial was conducted in our department (Department of Otolaryngology, University of Crete, Medical School). This study was approved by the local ethics committee. Subjects involved in this study were otherwise healthy patients of differ-

ent ages undergoing septoplasty for deviation of the nasal septum. Patients that were under psychic energizers, hypnotic and antidepressant medication were excluded from this study. Patients with additional rhinologic problems besides nasal septum deviation (upper and lower nasal cartilage deformities, nasal bone deformities, inferior turbinate hypertrophy, nasal polyps) were not included in this study.

Operation

The subjects were randomly assigned in two groups: group A, where the nasal packing remained for 48 hours and group B, where the nasal packing remained for 24 hours. The patients were not informed for the duration of the packing because it might have affected their discomfort scores. All patients were operated under general anaesthesia by the two senior surgeons (J.B., J.H.) using the same technique. Preoperatively endonasal topical vasoconstriction was applied using gauges impregnated in xylometazoline 0,1%. Local vascular hemostasis was applied to all patients by injection of 2 ml lidocaine HCl 1% with epinephrine 1: 100000 at the caudal end of the septum into the nasal base. Our technique briefly consisted of hemitransfixion incision, creation of septal tunnels, posterior chondrotomy, osteotomies if necessary, septal reposition and reconstruction. Septal cartilage in the collumelar pocket was fixated by interrupted vicryl (3-0) sutures. Packing was applied by placing three loosely woven gauges impregnated with Vaseline and antibiotics (fucidinic acid) that are commercially available. All patients were discharged after package removal for the fear of accidental dislocation of the package to the nasopharynx. All patients were treated postoperatively with antibiotics for three days.

Postoperative evaluation

Postoperatively the patients were asked to evaluate their sense of discomfort attributed to nasal packing on a visual analog scale (range 1-10) in specific time points (12 hours, 24 hours, 36 hours, 48 hours postoperatively). No pain medication was administered unless it was requested by the patients. Following packing removal, patients were examined for complications like nose bleeding or septal hematoma formation. The patients were also evaluated for fever, which could imply possible infection (fever was considered a temperature rise over 38 °C).

Prior to commencing the study, a power analysis was performed to determine the sample size needed to detect with high probability a prespecified difference in the sense of discomfort when nasal packing was applied for different time periods. More precisely, power calculations showed that a total of at least 70 patients are needed to achieve 80% power to detect a treatment difference at a two-sided 5% significance level, assuming the true difference in discomfort between the two treatments is 1 and that the standard deviation is 1.5.

The data derived from the visual analog scale were subjected to the Mann-Whitney non parametric test. In order to compare

for postoperative complications crosstabs procedure with Fischer's exact test was used.

RESULTS

Our series included 70 patients, 39 male and 31 female between ages 21 and 55 (mean age 33; Table 1). For group A, (35 patients), where nasal packing remained for 48 hours, the mean discomfort score at 12 hours was 3.8 (SD 2.26), at 24 hours 2.7 (SD 1.52), at 36 hours 3.5 (SD 1.33) and at 48 hours 3.5 (SD 1.15). For group B, (35 patients) where nasal packing remained for 24 hours, the mean discomfort score at 12 hours was 3.4 (SD 1.91) and at 24 hours 2.44 (SD 2.71) (Table 2, Figure 1). Significantly lower discomfort was noticed between 24 hours and 36 hours ($p < 0.05$ Mann-Whitney test) and between 24 hours and 48 hours ($p < 0.01$ Mann-Whitney test). No significantly lower discomfort scores were noticed between 36 and 48 hours. Moreover, significantly higher discomfort

Table 1. Baseline clinical and demographic parameters.

	nasal packing			
	Group A 48 hours		Group B 24 hours	
	Mean	Count	Mean	Count
age	33,34		33,57	
gender	male	20		19
	female	15		16

scores were reported at 12 hours compared to 24 hours ($p < 0.01$ Mann-Whitney test).

Bleeding after nasal packing removal was noticed in 9 patients (4 in group A and 5 in group B). In all cases it was minor epistaxis, lasting for few minutes without necessity of reinsertion of nasal packing. No cases of septal hematoma occurred. Fever was noticed in 7 patients (6 in group A 1 in group B). Pain medication was used in 44 patients (20 patients in group A and 22 in group B). Marginal significance was noticed on postoperative fever between the study groups. In group A, where nasal packing remained for 48 hours, 6 patients presented with fever greater than 38°C versus 1 patient in group B ($p = 0,053$ Fischer's exact test). No significant differences were revealed on postoperative bleeding, or pain medication used (Fischer's exact test) (Table 3).

Table 2. Mean discomfort scores reported by the patients in specific time points after the nasal packing placement.

Discomfort	nasal packing			
	Group A 48 hours		Group B 24 hours	
	Mean	SD	Mean	sD
12 hours	3,84	2,26	3,4	1,91
24 hours	2,71	1,52	2,44	2,71
36 hours	3,53	1,53		
48 hours	3,45	1,15		

Table 3. Postoperative complications that were noticed in both groups.

Postoperative complications	nasal packing		Fischer's Exact Test
	Group A 48 hours	Group B 24 hours	
bleeding after removal of packing	4	5	0,5
Fever > 38	6	1	0,053
Use of pain medication	21	23	0,4

DISCUSSION

Nasal packing or internal nasal dressing is considered routine by most doctors at the completion of nasal septal surgery. Some rhinologists prefer the term “internal nasal dressing” when gauges are applied endonasally to adjust the repositioned nasal structures and keep them in new position and the term “nasal packing” when gauges are more or less forcefully brought into the nasal cavity to stop nasal bleeding⁽⁶⁾. In our study we used the terms “nasal packing” and “internal nasal dressing” with the same meaning. The packing is intended to prevent postoperative swelling and hematoma formation. Many types of nasal packing are used and the number of days that it is used varies greatly in the literature⁽⁷⁾. Huizing believes that it is not the material that counts but the care with which these internal dressings are applied⁽⁶⁾. Yet, there are no established guidelines regarding the period of time that packing should remain. In our study we looked into the effect of nasal packing on patients undergoing septoplasty by measuring the resulting discomfort in specific time points following operation completion using VAS questionnaires. We also tried to find out if earlier removal of the nasal packing increases the complication rate and risks the outcome of the operation.

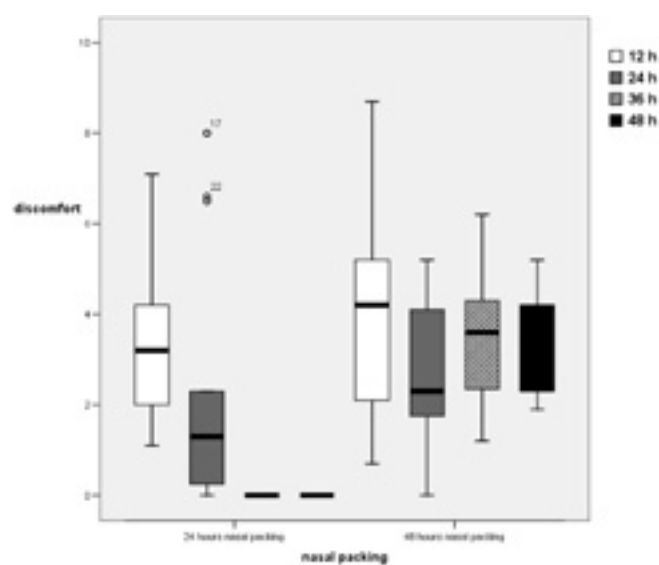


Figure 1. Box plots presenting the discomfort distribution in both groups. Cases 17 and 22 are outliers.

As it has already been reported by many authors nasal packing is not an innocuous process⁽⁸⁾. The pitfalls of packing comprise increased patient discomfort, rhinorrhea, increased postoperative swelling and edema, bleeding upon packing removal, mucosal lesions and the risk of infection inherent to the presence of a foreign body with the rare complicating of toxic shock syndrome. A serious complication consists of the disturbance of breathing during sleep or decrease in nocturnal arterial PO₂. In some studies, nasal packing has been associated with stroke, myocardial infarction, and sudden death possibly due to nocturnal changes in oxygen saturation⁽⁹⁾. Other complications include dislocation of the nasal dressings with possible aspiration, eustachian tube dysfunction, allergy, paraffin granulomas and spherulocytosis^(9,10).

In our department all patients undergoing septoplasty are not allowed to return home with nasal packing inside. Prolonged nasal packing leads to prolonged hospitalization resulting in higher insurance costs and lost workdays. It may cause sleep disturbances and possibly an undesirable emotional effect in patients who wish to return home soon.

While the highest noticed discomfort was after 12 hours of nasal packing, probably due to absorption of nasal fluids and blood, our study showed significant increase in patients discomfort when packing remained endonasally more than 24 hours. The prolonged hospitalization might contribute to this effect. In fact, many of our patients usually request the removal of endonasal dressings as soon as possible while many surgeons routinely remove the nasal packing after 24 hours⁽¹¹⁾ and some others do not use packing at all⁽³⁻⁵⁾.

The comparison between groups A and B did not display any significant differences in immediate complication rate concerning hemorrhage or headache. Minor epistaxis following removal of nasal packing and headache were almost equal in number for both groups. A marginal significance was noticed regarding fever that was higher in more patients in the 48-hour nasal packing group. However, a greater sample would be necessary in order to draw safer conclusions regarding the immediate complications and a longer follow-up period is needed for evaluating late complications such as synechiae or deviation of the septum from the midline.

Based on our findings, we support the use of one-day internal nasal dressing instead of two or more days since less discomfort is caused to the patients and less hospitalization time is required. In this way, one-day internal nasal dressing is more cost effective without further increasing immediate complication rate as bleeding or hematomas.

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