

Suturing of the nasal septum after septoplasty, is it an effective alternative to nasal packing?

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ABSTRACT

Objective: To discuss and compare the results of suturing the nasal septum after septoplasty with the results of nasal packing.

Methods: A prospective study, which was performed at Prince Hashem Military Hospital in Zarqa, Jordan and Prince Rashed Military Hospital in Irbid, Jordan between September 2005 and August 2006 included 169 consecutive patients that underwent septoplasty. The patients were randomly divided into 2 groups. After completion of surgery, the nasal septum was sutured in the first group while nasal packing was performed in the second group.

Results: Thirteen patients (15.3%) in the first group and 11 patients (13%) in the second group had minor oozing in the first 24 hours, 4 patients (4.8%) had bleeding after removal of the pack in the second group. Four patients (4.8%) developed septal hematoma in the second group. Two patients (2.4%) had septal perforation in the second group. One patient (1.1%) in the first group, and 5 patients (5.9%) in the second group had postoperative adhesions. Five patients (5.9%) were found to have remnant deviated nasal septum in each group. The operating time was 4 minutes longer in the first group.

Conclusion: Septal suturing after septoplasty offers the following advantages: elimination of discomfort for the patients, minimal complications, the outcome is almost the same as with nasal packing, and finally the hospital stay is less than with nasal packing. Therefore, suturing of the nasal septum after septoplasty should be a preferred alternative to nasal packing.

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Nasal septal surgery is one of the most commonly performed operations in routine otolaryngological practice.¹ At the end of septal surgery, most ear, nose, and throat surgeons insert a nasal pack to achieve hemostasis, prevention of hematoma, clinching of the septal flaps over the septal cartilage, decreased edema, closure of dead space, internal stabilization, and prevention of adhesions.²⁻⁴ However, nasal packing is not an innocent procedure, aside from the great discomfort caused by keeping the pack in the nose, it causes mucosal injury with loss of cilia,⁵ eustachian tube dysfunction, hypoxia and disturbance of arterial blood gases.^{6,7} Therefore, alternatives to nasal packing were sought. Lee and Vukovic,⁸ described and performed suturing of the nasal septum after septoplasty, and achieved the purposes of nasal packing without causing discomfort for their patients. The same results were reported by Lemmens and Lemkens.⁹ In this study, we discuss and compare the results of suturing of the nasal septum and packing of the nose after performing septoplasty in 169 patients.

Methods. This a prospective study carried out at 2 referral hospitals, Prince Hashem Military Hospital in Zarqa and Prince Rashed Military Hospital in Irbid, Jordan from September 2005 to August 2006, included 169 patients that underwent septoplasty because of deviated nasal septum. Patients with history of previous intranasal surgery, chronic medical illnesses, bleeding tendency and who were in need of additional surgical procedure were excluded from the study. The patients were divided randomly into 2 groups, in the first group (85 patients), suturing of the nasal septum was performed while nasal packing was inserted at the end of the procedure in the second group (84 patients). A written consent was obtained from all patients to use the data and results of their surgery in the study. All surgeries were performed under general

endotracheal anesthesia, the septum was injected with adrenaline 1/2000000 subperichondrially on both sides. A Cottle incision was made, and the mucoperichondrial flap was elevated on one side over the septal cartilage using blunt dissection, then an incision was made just anterior to the osteo-cartilaginous junction and the mucoperiosteum was elevated bilaterally over the bony septum. The cartilage was then freed from the perpendicular plate of the ethmoid, the vomer, and from the maxillary crest. Bony deviations and spurs were removed using Tilly Henckel forceps as necessary until all significant deviations were eliminated, and the cartilage was freely mobile. Drainage sites were created at either side of the mucoperichondrial flaps if there were no inadvertent tears of septal mucosa. At completion of surgery a through- and-through suturing of the septum using Vicryl 5° was started at the right columella, the needle was inserted on one side and picked up on the other side, then sutures were carried out deeper and deeper as much as possible along the floor of the nose, then upwards and forward to reach the columella and join the initial suture where they were tied and cut in the first group, while the nose was packed with ribbon gauze impregnated with antibiotic ointment for 24 hours in the second group. The time of surgery was calculated from the start of injecting the septum with adrenaline until finishing by insertion of nasal packing or suturing of the nasal septum. The nasal packs were removed after 24 hours, and the patients were kept for another 24 hours in the hospital for observation of bleeding or septal hematoma, while patients with suturing of the septum were discharged after 24 hours, thereafter patients were seen after one week, one month, and 3 months. A simple descriptive statistical comparison between the 2 groups using Statistical Package for Social Science version 10.0 for windows to calculate the frequency and the percentage was carried out.

Results. Most of our patients were men, 81% in the first group and 88% in the second group. The mean age was 27.8 years (range 15-50) in the first group and 26.07 years (range 15-46) in the second group. The most common complaint of our patients was nasal obstruction followed by headache, recurrent sinusitis, and postnasal drip (Table 1). The mean operating time was 27 minutes (range 15-43) in the first group and 23 minutes (range 17-40) in the second group, this showed that suturing of the nasal septum added only 4 minutes to the operating time. During the first 24 hours, minor oozing occurred in 13 patients (15.3%) in the first group and in 11 patients (13%) in the second group, oozing was minimal and no intervention was required. Four patients (4.8%) of the packing group developed bleeding at removal of nasal packing, which

was controlled by pressure. All patients in the suturing group were discharged after 24 hours, while patients in the packing group were kept in the hospital for another 24 hours after removal of nasal packing for observation of bleeding and septal hematoma. Four patients (4.8%) of the packing group developed septal hematoma where evacuation, repacking, and hospitalization for another 48 hours was necessary. Patients were seen after one week for follow up where most of them had crusts and 2 patient (2.4%) were found to have septal perforation in the packing group. At one month, one patient (1.1%) in the suturing group and 5 patients (5.9%) in the packing group were found to have adhesions. At 3 months 5 patients (5.9%) in each group were found to have remnant deviated septum without causing symptoms in any patient.

Discussion. This study compares suturing of nasal septum and nasal packing after septoplasty. Nasal packing is still routinely performed by most surgeons at the end of endonasal procedures, many types of material are used, numerous medications are added, and the duration of the packing varies. Vaseline gauze, bismuth iodoform paraffin paste, Merocel foam rubber packs, calcium sodium alginate, Telfa, glove fingers, silastic intranasal splints, Oxycel, Surgicel, Gelfoam, gauze impregnated with different broad-spectrum antibiotics, and pneumatic balloons have all been used as nasal packing for durations ranging from 2 hours to 7 days.^{10,11} The surgeon's choice of nasal packing is mainly determined by personal preference or habit.¹² An ideal pack is one that simply holds the structures in contact until nature's adhesive powers hold the operated structures and the 2 sides of the septum together and can easily be removed.¹³ Different studies were performed to compare packing materials regarding discomfort, while the pack was in situ and removed,^{10,14,15} to assess bleeding occurring on pack removal, and the ease with which the pack was removed,^{14,16} to review the complications with specific packing materials,^{12,15} and to investigate the influence of packing methods on the final outcome.¹⁰

Table 1 - Preoperative complaints

	Group 1		Group 2	
	n	(%)	n	(%)
Nasal obstruction	75	(88.2)	72	(85.7)
Headache	29	(34.1)	33	(39.3)
Recurrent sinusitis	24	(28.2)	20	(23.8)
Postnasal drip	5	(5.9)	6	(7.1)

The advantages and disadvantages of nasal packing were discussed by many authors.^{10,12,17} Guyuron¹¹ found that the final outcome is better with nasal packing for the following reasons: Firstly, postoperative swelling facilitated contact between the septum and the turbinates in the group without packing. Secondly, the blood in the residual dead space between the 2 mucoperichondrial flaps thickened the area. Finally, the mucoperichondrial memory might result in shifting of the septum to its preoperative position. However, Yavuzer et al³ believe that packing of the nose may increase swelling because of the disturbance of endonasal lymph and venous drainage rather than decrease edema, and no blood will be collected in the dead space because drainage sites are created on both mucoperichondrial flaps.

The purposes of nasal packing can be achieved by suturing of the nasal septum, in addition to the great advantage of elimination of discomfort caused by keeping the pack in situ, it eliminates postoperative bleeding and prevents the formation of septal hematoma, it repairs any inadvertent mucosal tears, and finally it gives support to septal structures and flaps keeping them in an optimal position for 14 days.^{8,9} Genc et al,¹⁸ compared suturing of the nasal septum and packing in rabbit noses, they found that suturing of the nasal septum is an effective and useful technique for clinching the septal flaps over the septal cartilage, and that they have the same effect on histological appearance of the nasal septum, and suturing of the septum does not cause discomfort. The results of our study showed that the purposes of nasal packing were achieved more effectively by suturing of the septum, the complications were less and there was no discomfort to the patients. The only disadvantage was found that suturing of the nasal septum added 4 minutes to the operating time, which could be shortened by more experience.

In conclusion, septal suturing after septoplasty offers the following advantages: elimination of discomfort for the patients, complications were minimal, the outcome is almost the same as with nasal packing, and finally the hospital stay is less than with nasal packing. Therefore, suturing of nasal septum should be a preferred alternative to nasal packing.

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