ORIGINAL ARTICLE

Analytical Assessment of Nasal Packing in Septoplasty

ABID RASHID, BAKHT AZIZ, MAROOF AZIZ KHAN, *AZHAR HAMEED*

ABSTRCT

The once-common practice of packing the nose after septoplasty was based on a desire to prevent postoperative complications such as bleeding, septal hematoma, and adhesion formation. However, it was since found that not only is nasal packing ineffective in this regard, it can actually cause these complications. Although the consensus in the world literature is that packing should be avoided, to the best of our knowledge, no truly randomized study has been undertaken in Pakistan upon which to justify this recommendation here. Therefore, we conducted a prospective randomized comparison of the incidence of a variety of postoperative signs and symptoms in 40 patients, 15 years of age and older, who did (n=40) and did not (n=40) undergo nasal packing following septoplasty We found that the patients who underwent packing experienced significantly more postoperative pain, headache, epiphora, dysphagia, and sleep disturbance on the night of surgery Oral and nasal examinations 7 days postoperatively revealed no significant difference between the two groups in the incidence of bleeding, septal hematoma, adhesion formation, and local infection. Finally, the packing group reported a moderate to high level of pain during removal of the packing. Our findings confirm that nasal packing after septoplasty is not only unnecessary, it is actually a source of patient discomfort and other signs and symptoms

Key words: Nasal packing, Surgical Complications

INTRODUCTION

Septoplasty is one of the most common operations performed by otorhinolaryngologist[1]. Septoplasty is a surgical procedure to correct the shape of the septum of the nose. The goal of this procedure is to correct defects or deformities of the nasal septum. Study shows that septoplasty is a good surgical procedure showing improvement in the symptomatology of the patient[2]. Rhinologists all over the world have frequently been using nasal packing after nasal septal surgery. The use of nasal packing following septoplasty is based on the assumption that packing would result in good flap opposition and minimize the risk of complications such as bleeding, haematoma and adhesion formation[3]. However, many patients complained that the presence of nasal packing was quite distressing and some said that its removal was the most painful experience of their life. In addition, pack removal sometimes caused secondary bleeding that required repacking. Nasal packing has also been reported to cause edema of the nose and periorbital area, excessive lacrimation, sleeplessness, dry mouth, and even cardiopulmonary complications[4,5]. With limited evidence to suggest a beneficial effect and a potential for deleterious side effects, the routine use of post operative packing following septolasty should be questioned. Stucker and Ansel were first to question the benefits of nasal packing[6]. Several alternatives of traditional nasal packing have also been proposed. Various absorbable materials have been marketed but there biocompatibility and cost issues have been raised[7].

Although the consensus in the world literature today is that packing should be avoided, to the best of our knowledge, no truly randomized study has been undertaken in South Asia upon which to justify this recommendation here. Therefore, we conducted such a study to determine if a lack of nasal packing would result in any undesirable consequences. It was our opinion that if intra-operative bleeding was adequately controlled, postoperative bleeding would not be excessive and packing would not be necessary. The objective of this study is to analyze and compare the discomfort level, complications and functional results of septoplasty with and without packing.

MATERIAL AND METHOD

This prospective, randomized, procedural study was conducted at the department of Otorhinolaryngology and Head and Neck surgery (unit-I) Mayo Hospital in Lahore, Pakistan. Our objective was to compare the incidence of postoperative signs and symptoms in patients undergoing septoplasty with and without postoperative nasal packing. The variables included postoperative pain, headache, epiphora, sleep disturbance on the night of surgery, bleeding, septal

---

Department of ENT and HNS Unit- I, King Edward Medical University / Mayo Hospital, Lahore.
Correspondence to Dr. Abid Rashid, Assistant Professor Email: dr.abidr64@hotmail.com

hematoma, adhesion formation and local infection. In addition, patients in the packing group were evaluated for pain during removal of the packing. The following categorical variables were included in the analysis:

Sr. No.	**Variable factors**
1	Post operative pain
2	Headache
3	Epiphora
4	Sleep disturbances
5	Bleeding
6	Septal haematoma
7	Adhesion
8	Infection

Our study population was drawn from among all patients aged 15 years and older who had undergone septoplasty at our institution from January 2010 through June 2010. Exclusion criteria included a history of bleeding disorder, diabetics and revision surgery on the nose. To adequately compare a nasal packing group with a no-packing group, we chose a sample size of 80 patients. Randomization was accomplished in the operating room when the surgeon chose a sealed envelope that contained a slip of paper marked either PACKING or NO PACKING. The envelopes were shuffled before each draw.

All septoplasties were performed by a senior consultant with the assistance of a resident. Intravenous CEPHRADINE was administered preoperatively. Anesthesia with 2% lidocaine with 1:200,000 epinephrine was infiltrated submucosally 7 minutes before incision. Standard septoplasty was performed with the mucoperichondrial flap kept intact. A small incision was made in the flap on one side of the septum to facilitate the drainage of blood. Septal quilting sutures with 2/0 catgut were applied with a straight needle to approximate the subperichondrial flaps.

In the packing group, packing was performed uniformly by inserting glove-finger packs lubricated with petroleum-based antibiotic ointment. Packs were removed after 24hrs of surgery. Patients in both groups were discharged on 3rd postoperative day with a 7-day course of oral antibiotics

Data collection: Immediately following surgery, patients in both groups were given identical analgesic medications on demand. Before they were administered their medication, they were asked to rate their degree of pain on a visual analog scale (VAS) of 1 (minimal) to 10 (unbearable). Just prior to discharge, patients filled out a questionnaire to indicate whether they had experienced any headache, epiphora, dysphagia, or sleep disturbance on the night of surgery. Also, the patients in the packing group used the same 10-point VAS to indicate the degree of pain they experienced during removal of the pack. At 7days postoperatively, all patients underwent a thorough examination of the mouth and nose, including rigid nasal endoscopy. During this examination, we looked for any postoperative bleeding, septal hematoma, and synechia formation, as well as signs of local infection.

Statistical analysis: For categorical variables, the chi-square test was applied, and a P value of less than 0.05 was considered significant. As a part of the quality assurance process all complications were recorded in a computerized database.

RESULTS

The patients in the packing group had significantly more postoperative pain (table 1) and a significantly higher incidence of headache, epiphora, dysphagia, and sleep disturbance on the night of surgery (table 2). No significant differences between the two groups were seen with respect to bleeding, septal hematoma, synechiae, and infection (table 2). The most common pain scores were 10 in the packing group and 1 in the no-packing group (table 1).

Table 1. Pain scores in the packing group (n = 40) and the no-packing group (n = 40) postoperatively.

Pain-score	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Packing group	0	1	2	1	5	6	7	8	4	6
Non-packing group	5	5	6	4	8	7	3	1	1	0

Visual analog scale score *

* A score of 1 indicates "minimal" pain and a score of 10 indicates "unbearable" pain.

Headache: Forty patients (90.9%) in the packing group experienced postoperative headache, compared with only 9(20.5%) in the no-packing group ($p<0.05$). Epiphora: All 40 patients in the packing group complained of excessive lacrimation, compared with only 5 patients (11.4%) who did not receive packing ($p<0.001$).

Sleep disturbance: Thirty-six patients (81.8%) in the packing group had less than 6 hours of sleep on the night of surgery, compared with only 7 patients (15.9%) in the no-packing group ($p<0.05$).

Bleeding: Only 1 patient in the entire study experienced postoperative bleeding that required a topical vasoconstrictor, and that episode was mild. The affected patient was in the no-packing group (0 vs. 2.3%; $p > 0.05$). Septal hematoma: The only 3 patients who developed a septal hematoma and required incision and drainage were in the packing

group (6.8 vs. 0%; p>0.05). Adhesion formation: Synechiae developed in 8 of the packing patients and none of the no-packing patients (18.2 vs. 0%; p>0.05).

Table 2. Postoperative signs and symptoms in the packing group (n = 40) and the no-packing group (n = 40)

Sign/ symptom	Packing n (%)	Non-packing (%)	P-value
Headache	40 (90.9)	9(20.5)	<0.05
Epiphora	44(100	5(11.4)	<0.001
Sleep disturbance*	36(81.8)	7(15.9)	<0.05
Bleeding	0(0)	1(2.3)	NS ([dagger])
Septal hematoma	3(6.8)	0(0)	NS
Adhesions	8(18.2)	0(0)	NS

* Denotes sleep disturbance on the night of surgery only.

DISCUSSION

From a patient's perspective, the pain and distress caused by nasal packing brings into question whether there is a need to pack the nose at all. Various modifications in the design and type of nasal packing have been suggested to improve patient comfort. Among the products not mentioned earlier are devices that provide direct pressure via an inflatable balloon or a central lumen and products that have haemostatic properties, such as Gelfoam. However, the advantages of this modified nasal packing are counterbalanced by both real and potential drawbacks. First, the insertion of any type of non-absorbable packing will necessitate its removal, and we have earlier noted that this painful experience is one of the worst aspects of nasal surgery. (Indeed, Yavuzer and Jackson quoted one patient as saying, "I have come to have surgery from you because I hear that you don't pack the nose". Second the newer modified nasal packing is expensive and adds significantly to the cost of surgery. Third, packing increases the relative risk of toxic shock syndrome, although the absolute risk remains low. Finally, the most dangerous complication is what is known as the naso-pulmonary reflex, which is mediated via the vagus nerve and results in an increase in parasympathetic activity that can lead to broncho-constriction and hypoxia. The only apparent advantage of packing the nose is perhaps that it helps achieve good flap apposition. Even so, this benefit can be achieved by other means--namely, by using quilting sutures to hold the septum and flaps together.

To the best of our knowledge, our study is the first ever conducted in our part of the world that addresses the issue of nasal packing in detail. We took into account all of the important ill effects of nasal packing, such as headache, epiphora, dysphagia, and pain. Our decision to use the 10-point VAS to subjectively quantify pain was based on the fact that it is simple and highly sensitive and it generates a directly measurable numerical score.

We believe that the significantly high pain levels we observed in the packing group over the first 24 hours after surgery make the use of routine nasal packing difficult to justify. We also found that the patients in the packing group had a significantly greater incidence of headache; this can be attributed to the fact that packing stretches the nasal walls and causes pain that is perceived as headache. Nasal packing also blocks the naso-lacrimal duct and causes epiphora; although this is a temporary problem, it was described as a nuisance by most of the patients in the packing group. Dysphagia was another common complaint in the packing group. If a patient swallows when the nasal passages are blocked (Toynbee maneuver), air cannot pass anteriorly and it is insufflated into the middle ear. This unpleasant feeling results in poor oral intake while the packing is in place.

Postoperative bleeding was not an issue in our study. An important factor in maintaining good haemostasis during septoplasty is the proper infiltration of lidocaine and epinephrine solution. If this is achieved and the mucosal flap is elevated in the right plane, there is virtually no bleeding. Some surgeons might consider nasal packing as a means of preventing septal hematoma. However, in our study, the only septal hematomas that were observed occurred in patients in the packing group. One possible reason for this surprising finding might be that the surgeon handled the septum roughly knowing that the packing would take care of any consequent bleeding. Another possible reason is that the packing itself exerted a traumatic effect and caused the septum to buckle, resulting in the formation of a septal hematoma.

Another justification that has been cited in the past for placing postoperative nasal packing is that it might prevent adhesions from forming between the turbinates and the lateral nasal wall. But we found that packing makes the nasal mucosa raw and actually more susceptible to synechiae formation. In our study, the rate of adhesion formation was actually higher in the packing group than in the no-packing group (18.2 vs. 0%). In the only published local study of the complications of septoplasty (N = 200), which was reported by Iqbal and Nabil in 2003, nasal packing was performed routinely; synechiae formed in 14 of these patients (7.0%). Adhesions can be prevented without packing by careful handling of the septal mucosa, by avoiding manipulation of the

turbinates, and by meticulous placement of instruments in the surgical site.

In this era of evidence-based medicine, it is difficult to justify providing any potentially harmful therapy to our patients without having a clearly documented rationale for doing so. For example, in 2004, Orlandi and Lanza advocated that packing be eschewed during endoscopic sinus surgery; they too emphasized meticulous technique. Nevertheless, in some cases nasal packing is unavoidable--for example, when the operative field is obscured by bleeding from vessels that are not accessible for diathermy or ligation. Such a situation is most likely to arise when there is accidental trauma and damage to the turbinates. The surgeon must individualize treatment in such circumstances.

CONCLUSION

In conclusion, we hope that the results of our study will act as a stimulus to change some aspects of surgical practice at the medical centers in our part of the world and that post-septoplasty nasal packing will for the most part be relegated to the history books.

REFERENCES

1. Y. Bajaj, A. N. Kanatas, S. Carr, N. Sethi, G. Kelly. Is nasal packing really required after septoplasty? Intl J Clinc Prac 2009 May, 63 (5) :757-59.
2. Sharif M, Ali S, Zaman T.Nasal septal surgery without splints, without packing Ann Abbasi Shaheed Hosp Karachi Med Dent Coll Jun 2007;12(1):17-23.
3. Awan M S, Moghira I. Nasal Packing after septolasty: Nasal packing after septoplasty: a randomized comparison of packing versus no packing in 88 patients. Ear Nose and Throat Journal Nov 2008.
4. Fairbanks DN. Complications of nasal packing. Otolaryngol Head Neck Surg 1986;94(3):412-15.
5. Dubin MR, Pletcher SD. Postoperative packing after septoplasty: is it necessary?. Otolaryngol Clin North Am. 2009 Apr;42(2):279-85.
6. Stucker FJ, Ansel DG. A case against nasal packing. Laryngoscope 1978;88 (8 Pt 1):1314-17.
7. Reiter D, Alford E, Jabourian Z. Alternatives to packing in septorhinoplasty. Arch Otolaryngol Head Neck Surg 1989;115(10):1203-5.