

## SEPTOPLASTY WITH OR WITHOUT POSTOPERATIVE NASAL PACKING: COMPARATIVE STUDY

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### ABSTRACT

**Background** Anterior nasal packing after septoplasty, when performed, it aims at reducing the risks of postoperative bleeding and hematomas formation; however, the demerits of anterior nasal packing motivate the idea of septoplasty without nasal packing. **Objective:** To assess the value of anterior nasal packing after septoplasty. **Type of Study:** Randomized clinical trial. **Patient and Methods:** This study was conducted on 50 patients who underwent septoplasty in one institute by the same surgeon (the senior author). They were randomly divided into two groups, in the first group postoperative anterior nasal pack was performed, in the second group there was no packing. Evaluation of subjective symptoms and physical finding was performed at three stages, early postoperative stage (at first and third day), 7 days, 2 weeks, and 2 months after surgery. **Results:** In the early postoperative stage, the first group experienced less feeling of pain, 2 cases in the second group experienced severe nasal bleeding that requires overnight admission and the bleeding was controlled without packing; also, sensation of pain, lacrimation, swallowing difficulties, and sleep disturbance were significantly higher in the first group in this stage. At the 7<sup>th</sup> day, the 2<sup>nd</sup> week, and the 2<sup>nd</sup> month after surgery, the prevalence of granulations, infection, and crust formations, respectively, were significantly higher in the packing group. **Conclusion:** Septoplasty without postoperative anterior nasal pack is more compliant with less postoperative morbidities. Packing should be preserved for patients with excessive bleeding during the primary surgery. **Keywords:** internal nasal packing; nasal septum; quality of life

### INTRODUCTION

Septoplasty is the third frequently performed surgery in the field of otorhinolaryngology<sup>[1]</sup>. The main issue for using nasal splint and packing in septoplasty are maintaining homeostasis, prevention of hematoma, and avoiding displacement of bone or cartilage grafts<sup>[2]</sup>. Also it is assumed that nasal packing can prevent synechia formation<sup>[3]</sup>. However, the anterior nasal packing has many disadvantages as excessive dryness of mouth, unpleasant smell around the patient, loss of smell, increased incidence of respiratory tract infection, watering from eyes, ear blockage, irritation of throat,

difficulty in swallowing, hypoxia, hypoxemia and secondary infection, and increasing hospital stay<sup>[4]</sup>.

Different types of nasal packing are used all over the world such as Bismuth Iodoform Paraffin Paste (BIPP), gels, Vaseline gauze, and merocel.<sup>[5]</sup>

Septoplasty without anterior nasal packing has been described to avoid the complications associated with packing<sup>(6-21)</sup>. Moreover, the risks associated with unpacked nasal cavities after septal surgery was negligible provided that the procedure was performed without rough handling of adjacent soft tissues in the nose especially turbinate<sup>[3,22]</sup>.

In our institute, packing is performed routinely after septoplasty, to change this concept in our institute, we aimed at comparing the results of doing and undoing anterior nasal packing after septoplasty, within the same institute by the same surgeon.

#### **PATIENTS AND METHODS**

This is a prospective randomized controlled study conducted at zagazig university hospitals, after approval of the institutional ethical committee, including 50 adult patients with deviated nasal septum admitted for septoplasty with or without turbinate reduction procedure during the period from June 2013 to September 2014 by the same surgeon (first author) in the same institute. The following conditions were excluded: nasal polyposis, chronic sinusitis, history of haemorrhagic diathesis, anticoagulant drug use, and or previous nasal surgery. Informed consent was taken from all patients.

#### ***Surgical procedure***

The surgery was performed under general anesthesia. Submucosal infiltration of 1/200000 epinephrine was performed on both sides of the nasal septum; then caudal septal incision (CSI) was performed on left side. The septal bones were approached by elevating the mucoperichondrium and mucoperiosteum on both sides. The cartilaginous septal parts were dissected free and mobilized by chondrotomies as required. Bony and cartilaginous spurs were respected and the curved cartilage were straightening and replaced in same position. The CSI was closed using two 3/0 Vicryl sutures. Splint was applied and fixed by transseptal transfixing sutures using single 2/0 Silk suture. Turbinate reduction surgery was performed, when needed, using bipolar electrocautery for the posterior end of the inferior turbinate. Then randomization is performed by asking the surgeon assistant to take a wrinkled paper out of a box

containing, at the beginning of the study, 25 paper titled "Packing" and another 25 paper titled "No-packing". When the paper titled "packing" is withdrawn, a ribbon gauze impregnated with antibiotic ointment (R/ Tetramycin) was applied in each nasal fossa for packing. The pack is removed 48 hours after surgery.

#### ***Postoperative Follow Up***

All cases were planned to be discharged at the same day of surgery. Before discharging, the patients received, in the ward, parenteral antibiotics (R/ Cefotaxime 1g bid), they receive also analgesics according to their demands, but before taking the analgesic the patients were asked to rate their feeling of pain on visual analogue scale (VAS) from 1 (minimal) to 10 (unbearable), this is performed immediately after full recovery of anesthesia.

If there is no anterior or posterior nasal bleeding, the patients are discharged on prophylactic oral antibiotic (R Augmentin 1 gram bid for 8 days) and saline nasal irrigation by isotonic sea water sprays in the second group (without nasal pack) and oral analgesics according to the severity of pain.

The first postoperative visit is 48 hours after surgery. In the first group of patients, with nasal pack, the nasal pack is removed, then the patients were asked to rate their pain on VAS and also evaluation of presence or absence of nasal bleeding is performed. In the second group of patients, without nasal pack, local examination is performed for evaluation and removal of blood clots or crusts if present. Patients in both groups are asked about their complaints during the first 2 days after surgery, they are evaluated for the presence or absence of epistaxis, headache, excessive lacrimation, swallowing difficulties, and sleep disturbances.

The second postoperative visit is 7 days after surgery the silicone stent is removed and local endoscopic nasal examination is performed for evaluation of the presence or absence of septal hematoma, infection, crusts, edema, and granulation.

Then, reevaluation of the patients is performed at the end of the 2<sup>nd</sup> week and the 2<sup>nd</sup> month after surgery. Endoscopic nasal examination is performed for evaluation of the presence or absence of septal hematoma, infection, granulation, and synechia.

Statistical analysis was performed by SPSS for Windows, the demographics of the patients was also recorded and it was aimed to be of a mostly homogeneous character (mean with standard deviation ( $\pm$ SD) and median values were calculated).

### RESULTS

All the 50 patients in both groups completed the follow up visits. There was no significant difference between the two groups regarding age, sex, and associated turbinate hypertrophy that needed turbinate reduction procedure (Table 1)

**Table 1:** The demographic distribution of the patients in both groups.

	Group 1 (Packing group)	Group 1 (No- packing group)	Total	P value
Age (Mean $\pm$ SD)	31.88 $\pm$ 9.748162	34.8 $\pm$ 8.062258	33.34 $\pm$ 8.975272	0.2542
Sex (Male/Female)	18/7	16/9	34/16	0.5672
Associated turbinate Hypertrophy	13	16	29	0.5672
Total	25	25	50	

After full recovery of anesthesia, the sensation of pain was significantly more in the first than the second group (VAS was 6.84  $\pm$  2.23 in 1st group and 4.28  $\pm$  2.18 in 2nd group and P= 0.0002). 2 cases only in the second group experienced severe nasal bleeding that requires overnight admission and it was controlled by ice bag, local vasoconstrictors, and systemic antifibrinolytic drugs (Table 2)

**Table 2:** Demonstration of the incidence of pain and severe nasal bleeding in both groups at the first postoperative day.

	Group 1 (Packing group)	Group 1 (No- packing group)	Total	P value
VAS for pain Immediately after recovery of anesthesia (Mean $\pm$ SD)	6.84 $\pm$ 2.230097	4.28 $\pm$ 2.189368	5.56 $\pm$ 2.54077	0.0002
Severe nasal bleeding (anterior or postnasal)	0	2	2	0.4898

At the first visit, 48 hours after surgery, there was no significant difference among both groups in complaining of epistaxis, 3 cases in the first group versus 6 cases in second group ( $P=0.7252$ ), however, Sensation of pain, lacrimation, swallowing difficulties, sleep disturbance were significantly higher among patients in the first group than second group.

**Table 3:** Demonstration of the symptoms of the patients in both groups 48 hours after surgery.

	Group 1 (Packing group)	Group 1 (No- packing group)	Total	P value
VAS for pain (Main ± SD)	5.68 ± 1.6	2.12 ± 2.61916	3.9 ± 2.801239	0.0001
Epistaxis (anterior or postnasal)	4	6	10	0.7252
Headache	12	6	18	0.1398
Epiphora	14	5	19	0.0186
Swallowing Difficulties	20	4	24	<0.0001
Sleep disturbances	21	7	28	0.0001

Endoscopic nasal examination 7 days, 2 weeks, and 2 months after surgery shown that, no reported cases of septal perforations in both groups, only one case in each groups had septal hematoma/thickening. The prevalence of synechia and recurrent septal deviation in the packing group was relatively higher, but non-significant, in the first than the second group ( $P>0.05$ ). The prevalence of granulations, infection, and crust formations were as significantly higher in the packing group during the examination 7 days, 2 weeks, and 2 months respectively after surgery ( $p<0.05$ ).

**Table 4:** Results of endoscopic nasal examination 7 days, 2 weeks, and 2 months after surgery in both groups (\* means significant difference ( $P<0.05$ )).

	7 days		Two weeks		Two months	
	Group 1 (Packing group)	Group 2 (No- packing group)	Group 1 (Packing group)	Group 2 (No- packing group)	Group 1 (Packing group)	Group 2 (No- packing group)
Septal hematoma – thickening	0	0	1	1	1	1
Infection – sinusitis	8*	1*	4	1	3	2
Crusts	7	3	4	2	7*	1*
Granulations bleeding	– 5	2	7*	0*	4	0
Synechia	0	0	0	0	2	1
Recurrent septal deviation	0	0	0	0	2	1
Septal perforation	0	0	0	0	0	0

## DISCUSSION

Anterior nasal packing was described after septoplasty as a routine procedure to prevent postoperative bleeding, septal hematoma, and or nasal synechia<sup>[23]</sup>. It should also be noted that there are many reported complications caused by nasal packing, these complications may be local morbidities, (such as nasal mucosal trauma, nasal blocking, obligatory oral breathing, infection) or systemic morbidities (such as hypoxia, respiratory distress, toxic shock syndrome)<sup>[6,24]</sup>.

To avoid the possible complications of nasal packing after septoplasty, various studies were conducted to evaluate the value of nasal packing in such conditions, and the possibility of using transseptal suture only to prevent hematoma, abscess or synechia formation<sup>[6-21]</sup>. However, in our institute, we are routinely doing anterior nasal packing and nasal splinting after septoplasty, to change this concept we had to do institutional RCT to prove the significant of packing after septoplasty.

Most of the previous randomized controlled trials on this issue were comparing packing without nasal splints with transfixing sutures without packing or splints<sup>[8,10,11,12,14,16,20]</sup> or comparing nasal splints without packing with packing without nasal splint<sup>[7,17]</sup> or comparing nasal silicone splint without packing with transfixing sutures without packing<sup>[15,18,19]</sup>, or comparing topical fibrin glue applications with anterior nasal packing<sup>[9,13]</sup>; however, these studies are not similar to our routinely used technique in both packing and non-packing group. (nasal splinting and fixation by single transfixing).

In our study, we did not use transseptal sutures without nasal splints in either the two groups, because in our institute we routinely usually use nasal splints after septoplasty, which is fixed by single transfixing suture which is removed after

one week, the nasal splints have a major role in preventing adhesions and minimize incidence of septal perforations<sup>[7,17]</sup>.

Our results show that the incidence of complications is higher in packing group than non-packing group. These results are coinciding with the results of previous RCT comparing packing group (with or without nasal splints) with non-packing (with or without nasal splints)<sup>[7,8,10-12,14,16,17,20]</sup>. However, we have no difference between the two groups regarding incidence of hematoma formations this may be due to the usage of nasal splints in unpacking group. Also, we have non-significant difference between both group regarding synechia formation, Awani et al found significant higher incidence of synechia in packing group this may be due to unusing of splints in packing group<sup>[11]</sup>.

So we recommend, if packing is considered, to do nasal splint rather than depending on anterior nasal pack alone. Also we recommend for further studies comparing nasal splints with trans septal sutures without doing nasal packing in both groups.

## CONCLUSION

Septoplasty without postoperative anterior nasal pack is more compliant with less postoperative morbidities. Packing should be preserved for patients with excessive bleeding during the primary surgery.

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