

## The Incidence of Post-septoplasty Bleeding in Patients without Nasal Packing

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**Objective:** To evaluate the incidence of post-septoplasty hemorrhage and hematoma formation in patients without anterior nasal packs.

**Design:** A Retrospective Study.

**Setting:** ENT Department, Salmaniya Medical Complex, Kingdom of Bahrain.

**Method:** Fifty-one patients with a symptomatic deviation of nasal septum who had septoplasty with/without inferior turbinoplasty were included in the study from August 2008 to April 2015. Patients who underwent septoplasty combined with endoscopic sinus surgery were excluded. Septoplasty was performed without postoperative anterior nasal packing, and the patients were assessed for postoperative bleeding and hematoma formation. All patients were followed-up for 4 weeks.

**Result:** Two (3.9%) patients had postoperative bleeding on the day of operation. Forty-nine (96.1%) patients had no nasal bleeding during the hospital stay and no patient had hemorrhage after discharge. No patients had septal hematoma during the follow-up period.

**Conclusion:** Incidence of bleeding following septoplasty without anterior nasal packing is very low and nasal packing should not be routinely used for this procedure.

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History of nasal packing after nasal surgery dates back to 1847, the time of Gustav Killian and Otto Tiger Freer, yet systematic submucosal resection (SMR) and nasal packing started in 1882 by Ephraim and Peterson<sup>1-4</sup>.

Different packing methods have been used, such as paraffin gauze, Vaseline gauze, bismuth iodoform paraffin paste, glove fingers and merocel<sup>2,5-7</sup>. The use of nasal packs after septoplasty is based on the assumption that nasal packing decreases postoperative hemorrhage and septal hematoma formation, supports septal flap apposition and prevents synechiae<sup>5,7,8</sup>. However, there is no evidence to support these benefits<sup>5,7,8</sup>. Although, it was found that nasal packing is not innocuous. The morbidities associated with the use of nasal packs include compromised nasal breathing, dryness of mouth, nasal valve narrowing, vestibulitis, crusting, synechiae formation, headache, watering from eyes, ear blockage, throat irritation, difficulty in swallowing, hypoxia, hypoxemia, secondary infection, increased hospital stay, increased blood pressure, toxic shock syndrome and death<sup>4,9-12</sup>. In addition, severe pain is experienced by patients during pack removal. Although this pain lasts for a short duration, it stays clearly in their mind; some patients said, "it was the most painful experience of their life"<sup>9,13,14</sup>. Therefore, it has been suggested to minimize the use

of nasal packs, if possible, to avoid these complications. Some surgeons have sought alternatives to nasal packing such as transseptal suturing with satisfying results<sup>1,15</sup>.

Nasal obstruction is one of the most common presenting complaints in otolaryngology clinics, and it could have a significant impact on an individual's quality of life. The causes of nasal obstruction are deviated nasal septum (DNS), rhinitis, adenoid hypertrophy, turbinate hypertrophy, sinonasal polyps and tumors<sup>16</sup>. DNS is a common disorder that is present in up to 64% of the population, but not all would need septoplasty. Various reasons have been postulated to play part in the development of DNS including racial factors, birth molding of the septum during parturition, trauma and developmental deformities of septum<sup>1,2</sup>. In addition to nasal blockage, DNS could cause many other symptoms such as sinusitis, facial pain, epistaxis and smell disturbance; septoplasty is used to treat these patients<sup>16</sup>. It can be done alone or in combination with other procedures such as rhinoplasty, inferior turbinoplasty and endoscopic sinus surgery.

Most of the patients in our center are routinely packed following septoplasty. This practice is not evidence-based<sup>5,7,8</sup>; to our best knowledge, no previous study was performed in Bahrain or

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in the GCC region to evaluate the incidence of complications without nasal packing after post-septoplasty.

The aim of the study is to evaluate the incidence of post-septoplasty hemorrhage and hematoma formation in patients without anterior nasal packs.

**METHOD**

The study was performed on 51 patients from August 2008 to April 2015. Inclusion criteria were both genders, aged 17-66, patients diagnosed with DNS and nasal obstruction who did not respond to medical treatment. All patients underwent septoplasty with or without inferior turbinoplasty (linear cautery and submucous diathermy) or bilateral antroscopy. Patients who had septoplasty combined with endoscopic sinus surgery were excluded from the study. All the operations were performed by the main author.

The procedure was performed under general anesthesia. Killian’s incision was used to elevate the mucoperichondrial flap after injecting 2% lidocaine and epinephrine 1:80000. The deviated cartilaginous parts were removed using turbinectomy scissors and the bony spurs were removed using gouge and hammer or Middleton septum double action forceps. The flaps were repositioned at the end of the procedure.

Anterior nasal packs were not used following the procedure. All patients were kept on oral paracetamol if necessary. Most of the patients were discharged on the first postoperative day. Patients were asked to do nasal douching with an alkaline solution or normal saline three times a day. The first follow-up visit was on the 7<sup>th</sup> postoperative day and the 2<sup>nd</sup> was four weeks postoperatively. No transeptal suturing was used.

The data was statistically analyzed using SPSS version 21; P<0.05 was considered statistically significant.

**RESULT**

Fifty-one patients were included in the study; 28 (55%) were males and 23 (45%) were females, with a male to female ratio of 1.2:1. Age ranged from 17 to 66 years with a mean age of 33.4 years, see figure 1.

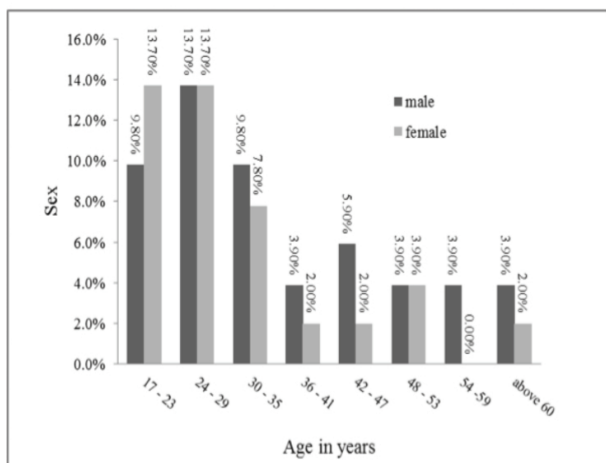


Figure 1: Age and Sex

Only 2 (3.9%) patients had postoperative reactionary bleeding; both were males and needed a finger glove pack which was removed the next day. Both bleeding patients had septoplasty with submucous diathermy of the inferior turbinates; the source of bleeding was not identified whether it is from the septum or the inferior turbinates, see table 1.

Table 1: Patients and Type of Surgery

Type of Surgery	Patients
Septoplasty	7 (13.7%)
Septoplasty and Submucosal Diathermy	5 (9.8%)
Septoplasty and Linear Cautery	37 (72.6%)
Septoplasty Plus Linear Cautery Plus Bilateral Antroscopy	2 (3.9%)
<b>Total</b>	<b>51 (100%)</b>

Forty-six (90.2%) patients were discharged on the first postoperative day, and 5 (9.8%) were discharged on the second postoperative day. The mean hospital stay was 1.009 days. None of the patients had a postoperative septal hematoma.

**DISCUSSION**

In our study, none of our patients needed intra-operative packing, while 3.9% of the patients had significant reactionary oozing requiring nasal packing. None developed a septal hematoma.

Saboo et al conducted a prospective randomized study comparing the incidence of postoperative complications using ribbon gauze, Merocel and quilting suture without nasal packing. In that study, the incidence of postoperative hemorrhage was 50%, 0% and 21% respectively<sup>1</sup>.

Hafeez et al in a study of 70 post-septoplasty patients revealed that 2.85% had excessive intra-operative bleeding, and intranasal packing was performed; 7.14% patients had bleeding within 12 hours of operation<sup>2</sup>.

Maeed et al compared the complication rate between two groups, with and without nasal packing after septoplasty. About 5.7% developed septal hematoma in the non-packing group versus 0% in the packed group<sup>3</sup>.

Awan et al in a study of packing versus no packing in 88 patients revealed that there is no significant difference between the two groups in the incidence of bleeding and septal hematoma. They concluded that nasal packing after septoplasty is not only unnecessary; it is a source of patient discomfort<sup>8</sup>.

PriyoSakhi et al in a study compared postoperative nasal bleeding after septoplasty with or without nasal packing. Bleeding occurred in 14% of the patients in the packing group compared to 18% in the non-packing group<sup>9</sup>.

Basha et al in a retrospective study found only 8.2% of the patients needed intra-operative packing while 3.2% had postoperative oozing requiring nasal packing. The study recommended that nasal packing should be used only for patients with significant oozing after surgery<sup>13</sup>.

Cukurova et al in a retrospective randomized study found that the incidence of postoperative bleeding was 1.1% in the transseptal suturing group compared to 1.8% in Merocele packing group. The septal hematoma was not observed in either group<sup>15</sup>.

Naghizadeh et al in their study revealed that postoperative bleeding occurred in one case in the packing group compared to two cases in the non-packing group. Septal hematoma frequency was equal in both groups<sup>17</sup>.

Bernardo et al reported the frequency of bleeding in patients with and without nasal packing. The rate was 30.6% and 10.8% respectively<sup>18</sup>.

Walikar et al in their randomized study compared the rate of postoperative bleeding, septal hematoma, perforation and discomfort between patients with and without nasal packing. The study revealed that there was no difference in postoperative bleeding and septal perforation between two groups, and they concluded that septoplasty without nasal packing is preferred alternative<sup>19</sup>.

Quinn et al study assessed the rate of septal hematomas, synechia and septal perforations after septoplasty and concluded that those septal sutures are associated with less postoperative pain compared to other methods of septal management<sup>20</sup>.

Our study confirms the findings of the studies mentioned above that the rate of post-septoplasty bleeding is low and does not justify the routine use of nasal packing.

Our method was retrospective; therefore, most sources of error were due to confounding and bias which are inherent in retrospective studies than in prospective studies. The number of patients was limited because it was one surgeon-based study; therefore, a prospective multicentric study is recommended.

## CONCLUSION

**The incidence of post-septoplasty bleeding is low and does not justify the routine use of nasal packing. Its use should be reserved to patients who have significant intra/postoperative bleeding.**

**Our study proves that septoplasty without nasal packs is more comfortable and allows the patient to breathe normally through the nose, avoid nasal packing complications, reduce the hospital stay and it is cost effective.**

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**Competing Interest:**None. **Sponsorship:** None.

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