NASAL PACKING WITH VENTILATED NASAL PACKS; A COMPARISON WITH TRADITIONAL VASELINE NASAL PACK

Junaid Alam, Muhammad Wasif Siddiqui*, Nusrat Raza, Zeeshan Ayub**, Madiha Sami**, Asim Abbas***

Pakistan Air Force (PAF) Hospital Rafiqui Shorkot Pakistan, *Combined Military Hospital Malir/National University of Medical Sciences (NUMS) Pakistan, **Combined Military Hospital Multan/National University of Medical Sciences (NUMS) Pakistan

ABSTRACT

Objective: To compare the benefits of ventilated nasal packing with traditional vaseline guaze nasal packing.
Study Design: Randomized controlled trial.
Place and Duration of Study: This study was conducted at CMH Multan, from Jun 2014 to Dec 2014.
Material and Methods: In this study, sample size of 80 patients was calculated using WHO calculator. Patients were divided in two groups using lottery method endotracheal tube and piece of surgical glove filled with ribbon guaze was utilized for fabricated ventilated nasal pack and compared with traditional nasal packs. Nasal obstruction and sleep disturbance were studied at eight hours and twenty-four hours following surgery using visual analog scale.
Results: Mean nasal obstruction with ventilated nasal pack was 45.62 ± 6.17 and with Vaseline nasal pack was 77.67 ± 4.85 which was statistically significant (p=0.001) in both the groups. Mean sleep disturbance in both the groups was 46.32 ± 5.23 and 68.75 ± 2.70 respectively which was statistically significant (p=0.001) in both the groups.
Conclusion: Patients with ventilated nasal packs were found to have better tolerance to nasal packs due to less nasal obstruction and sleep disturbance.

Keywords: Nasal obstruction, Nasal surgery, Sleep disturbance, Ventilated packs, Vaseline gauze.

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INTRODUCTION

Nasal and sinus disorders are the most common diseases of adults while nasal surgeries are the common surgical procedures performed in routine otorhinolaryngology[1]. Nasal surgeries in routine result in bleeding, ranging from mild to severe which may require nasal packing[2]. Mild bleeding promotes adhesion formation where as severe bleeding leads to nasal packing which is a painful procedure in a recently operated nose[2]. Apart from selected cases of septoplasty most of the cases require nasal packing, which provide tamponade effect[3]. Various materials are used for nasal packing as Bismuth subnitrate iodoform paraffin paste gauze, simple Vaseline gauze etc. With the advancement in medical sciences, multiple new options as merocel are now available. But all types of nasal packing leads to complete nasal obstruction and force patient to breathe through mouth especially difficult when recovering from anaesthesia and sleep. This led to introduction of ventilated nasal packs, commercially available ones are costly.

Rationale of this study is that although the idea of use of ventilated nasal packs is not a new concept, people are trying it with various modifications but it was not utilized and studied in our set up. Locally fabricated ventilated nasal packs, which are cost effective and prevent bleeding while maintaining nasal patency. This leads to less discomfort and better sleep. Commercially made ventilated nasal packs available in market are used in some setups but they are expensive, so considering affordability of our patients we tried locally fabricated nasal packs.

MATERIAL AND METHODS

We conducted a Randomized Control Trial at ENT department, Combined Military Hospital Multan from 20th June to 20th December 2014 after the approval by hospital ethical committee.

Correspondence: Dr Junaid Alam, ENT Specialist, PAF Hospital Rafiqui Shorkot Pakistan *(Email: drjunaidalam@gmail.com)*
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A sample size of 80 patients was calculated using WHO sample size calculator.

Patients included in the study were adults of more than 18 years undergoing the following nasal surgeries

- SMR
- Septoplasty
- Septorhinoplasty
- Turbinate surgery
- FESS
- Patients with bleeding diathesis, road traffic accidents and with having confounding variables were excluded.

All surgeries were performed by consultant ENT surgeons with at least 2 years experience. Total 80 patients were selected by non probability consecutive sampling Patients were divided into group A and B by lottery method and informed consent was obtained. After surgery patients of group A were packed with ventilated nasal packs and those of group B with vaseline gauze packs. Patients were evaluated for nasal obstruction and sleep disturbance using VAS, eight and twenty four hours following surgery. All data were entered and analyzed using SPSS (version 10.0). Frequency and percentage was calculated for age and gender. Mean and standard deviation was calculated for nasal obstruction and sleep disturbance. Independent t-test was applied. Chi square test was applied for the comparison of gender among groups. A *p*-value less than 0.05 was considered as significant.

RESULTS

Eighty patients were included in our study according to the inclusion criteria and were randomly divided into two groups using lottery method, 40 in each group. Patients in Group A were packed with ventilated nasal packs and Group B patients were packed with Vaseline gauze packs.

Frequency and percentages of male patients in both the groups was 21 (52.5) and 19 (47.5) respectively, whereas frequency and percentages of female patient in both the groups was 19 (47.5) and 21 (52.5) respectively (p=0.654). Descriptive statistics of age (yrs) of patient was calculated in terms of mean and standard deviation Mean age (yrs) in both the groups was 40.48 ± 15.07 and 34.98 ± 12.97 respectively (p=0.084). Mean nasal obstruction in both the groups was 45.62 ± 6.17 and 77.67 ± 4.85 respectively which was statistically significant (p=0.001) in both the groups (table-I). Similarly, Mean sleep disturbance in both the groups was 46.32 ± 5.23 and 68.75 ± 2.70 respectively which was statistically significant (p=0.001) in both the groups (table-II).

Table-I: Comparison of nasal obstruction in both the groups.

	Two Groups	n	Mean	Std. Deviation	*p*-value
Nasal obstruction	Ventilated nasal packs	40	45.62	6.17	<0.001
	Traditional vaseline gauze packs	40	77.67	4.85	

Table-II: Comparison of sleep disturbance in both the groups.

	Two Groups	n	Mean	Std. Deviation	*p*-value
Sleep disturbance	Ventilated nasal packs	40	46.32	5.23	<0.001
	Traditional vaseline gauze packs	40	68.75	2.70	

DISCUSSION

Nasal surgeries are the most common procedures of otorhinolaryngology clinics. In the USA approximately 600,000 patients underwent ambulatory sinonasal procedures in 2006 for various nasal conditions[1]. The most common problem encountered after nasal surgery is bleeding, as nasal mucosa is one of the most vascular structures of the body being richly supplied by the internal and external carotid

system making post-operative nasal packing essential in most cases[3]. Even when this bleeding is mild, it may result in adhesion formation. If the bleeding is severe, it may result in inhalation as well as swallowing of blood causing aspiration and nausea and vomiting respectively[8]. But nasal packing is probably the most dreadful part of the nasal surgery from patients' perspective, as it results in discomfort causing nasal blockage and poor sleep while it is in place as human beings as nasal breathers and also causes severe discomfort while it is being removed. Apart from selected cases of septoplasty, where haemostasis can be achieved by stitching or fibrin glue or other haemostatic agents, majority of cases require nasal packing as nasal packing provides tamponade effect[2,3]. It has been a long journey in search of an ideal nasal pack that not only controls bleeding, but also causes minimal discomfort in terms of nasal breathing, good sleep and minimal pain and bleeding during its removal[8].

Traditional nasal packing methods using Vaseline ribbon gauze or paraffin mesh cause nasal obstruction, sleep disturbance, mouth dryness and adhesions formation due to the mucosal abrasions caused by them. As these traditional packs do little in terms of patient comfort, especially patient is forced to breathe through mouth, they often result in an unsmooth recovery from anaesthesia, disturbance in sleep and distress. Hence many innovations of nasal packs have been carried out to maintain nasal breathing so as to reduce patients' inconvenience. Ventilating nasal packs allow the patient to breathe through the nose thereby alleviating the patient's distress, resulting in smooth recovery from anaesthesia and offer better sleep as patient can breathe through nose[8].

The packing method using paraffin mesh or Vaseline gauze after the reduction of a nasal bone can trigger symptoms such as nasal obstruction, mucosal adhesion, sleep disturbance, headache, mouth dryness and dysphagia. Nasal obstruction can give rise to severe discomfort in patients after surgery. Therefore, the ideal nasal packing method should include sufficient splinter support and result in less discomfort associated with nasal obstruction. To reduce patient discomfort, studies have assessed the performance of packing methods that use an airway tube Merocel[8,9,10] a rolled silastic sheet, or a bronchodilator. These studies, however, only evaluated results through patient surveys, lacking objective measures of nasal respiration.

The existing nasal packing method can cause discomfort, such as nasal obstruction, headache, and dry mouth, and complications, such as nasal septal perforation and toxic shock syndrome[11]. Nasal obstruction not only causes severe discomfort but can also cause sleep apnea, high blood pressure, and nocturnal oxygen desaturation. Therefore, various methods have been reported for supporting the reduced nasal bone without the standard packing. In clinical practice, however, packing is used extensively to support reduced bone[7].

In our study, the outcome of the study was to compare the nasal obstruction in both the groups. Mean nasal obstruction in ventilated nasal pack group was 45.62 ± 6.17, whereas mean nasal obstruction in traditional vaseline gauze packs group was 77.67 ± 4.85. Moreover, Kim et al[7] in their study found that the mean ± standard deviation of nasal obstruction in both the groups were 79.6 ± 10.7 and 44.6 ± 15.1 respectively (table-I).

A study conducted in 2012[7] found that the mean ± standard deviation of sleep disturbance in ventilated nasal pack group was 68.9 ± 17.4 and in vaseline gauze pack group was 40.8 ± 16.2. Similarly, in our study mean sleep disturbance in ventilated nasal pack group was 46.32 ± 5.23, whereas mean sleep disturbance in traditional vaseline gauze packs group was 68.75 ± 2.70 respectively.

CONCLUSION

The study concludes that patients with ventilated nasal packs were found to have better tolerance to nasal packs due to less nasal obstruction and sleep disturbance.

RECOMMENDATION

Nasal packing is beneficial following nasal surgeries as it prevents bleeding and provides support to nasal skeleton while keeping nasal flaps together preventing septal hematoma formation. Ventilated nasal packs offer all benefits with less sleep disturbance due to nasal obstruction.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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