

## Conventional anterior nasal pack versus a modified ventilated nasal pack: effect on patients' anxiety

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### ABSTRACT

**Objective:** To compare the effectiveness of locally fabricated ventilating nasal packs with traditional nasal packs in reducing anxiety following nasal packing.

**Study Design:** Prospective Comparative study.

**Place and Duration:** Department of ENT, Military Hospital Sialkot and Shorkot from 1<sup>st</sup> December 2017 to 15<sup>th</sup> May 2018.

**Methodology:** A total of 80 patients planned for Septoplasty were enrolled and divided into two groups 'A' and 'B'. Group A patients were packed with traditional nasal packs while the patients of Group B were packed with locally fabricated nasal pack following surgery. Anxiety in both groups was documented using Hamilton anxiety rating scale(HAM-A) 1 hour before surgery; 24 hours following surgery just before pack removal and 1 hour after nasal pack removal.

**Results:** The mean HAM-A assessment scores in both groups peaked at the 24 hours reading, with group 'A' (17.08±0.66) higher than group 'B' (16.55±1.06). The lowest scores in both groups were documented one hour after pack removal. There was statistically significant difference among both groups recorded immediately before the nasal pack removal. Anxiety level in group B (Ventilated nasal packs) was lower than group A (Conventional nasal packs) (p<0.0004) which is statistically significant.

**Conclusion:** Following nasal surgery, the use of Ventilated nasal packs is preferable over conventional nasal packs as they cause considerably less anxiety especially in apprehensive patients.

**Keywords:** Nasal Surgery, Septoplasty, Conventional nasal packs, Modified nasal packs, Ventilating Nasal Packs, Anxiety.

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### INTRODUCTION

Anxiety is defined as a sense of apprehension and fear, characterized by physical symptoms such as palpitations, sweating, and stress<sup>1</sup>. In the field of Otolaryngology majority of nasal surgeries require post-operative anterior nasal packing, primarily to control bleeding. It goes without saying that the

insertion of nasal packs is an extremely unpleasant experience for the patient<sup>2</sup>. Conventional nasal packing of any material results in occlusion of the nasal airway. The resultant mouth breathing translates into a dry mouth, blockage of ears, sleep disturbance and increased anxiety.

Nasal packing is not devoid of its myriad of complications, ranging from mild to severe. Surprisingly breathing difficulty which causes the most anxiety falls in the group of minor complications<sup>3</sup>. Commercially available or modified ventilating nasal packs, on the other hand reduce the patients' anxiety as they allow the patient to breathe through the nose avoiding all complications associated with nasal obstruction. Another advantage is the ability to perform suction of blood or secretions from the post-nasal space, thereby maintaining the patency of the ventilating nasal packs<sup>4</sup>. Objective measurement of patient's psychic and somatic anxiety can be performed utilizing several tests e.g., State-Trait Anxiety Inventory Clinical Assessment Scale (STAI-S) and Hospital Anxiety Depression Scale (HADS) but the Hamilton Anxiety Rating Scale (HAM-A)<sup>5</sup> which was introduced by Max Hamilton in 1959 is most commonly used.

Although there are a fair number of published articles comparing the effects of conventional versus ventilating nasal packs yet articles on comparison of anxiety between these two are almost non-existent. With above in view we designed this

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study to document and compare the effect of use of ventilated nasal pack in reducing anxiety of patients versus traditional nasal packs. We have conducted this study with an objective to compare the effectiveness of locally fabricated ventilating nasal packs with traditional nasal packs in reducing anxiety following nasal packing.

**METHODOLOGY**

This prospective comparative study was carried out in the Department of ENT, Military Hospital Sialkot and PAF Hospital Shorkot from 1st December 2017 to 15th May 2018. Eighty adult patients, American Society of Anesthesiologists [ASA] physical status I, planned for elective Septoplasty operation, were enrolled. Approval of a protocol for this study was obtained from the hospital ethical committee and all patients gave written informed consent.

All patients were evaluated and reviewed by a Psychologist. Young adult patients of either gender, aged 18 or above, undergoing elective Septoplasty were included in this study. The exclusion criteria included patients of either gender below the age of 18 years; all cases of nasal packing following Road Traffic Accident or epistaxis; and those undergoing nasal surgery other than Septoplasty, as this increases the patient’s discomfort level or pain. Furthermore, patients on psychiatric medicines were also excluded from study.

All operations were performed by surgeons of similar and adequate experience, using the same standardized technique. At the conclusion of operation nasal packing was performed gently so as to avoid any unnecessary trauma to the nasal mucosa. The patients were randomly divided in two groups ‘A’ and ‘B’ using simple random sampling. In group ‘A’ traditional nasal packing was done, while in group ‘B’, nasal packing was done using locally fabricated ventilating nasal packs. To minimize the cost, locally fabricated ventilating nasal packs were prepared using endotracheal tube of appropriate size (conforming to the size of patients nasal vestibule), cut to appropriate length (8-10 cms; so as to traverse the entire nasal cavity) with paraffin ribbon gauze rolled around it, and secured with a 1’0 silk stitch. Traditional nasal packing was done using Vaseline/ paraffin impregnated gauze. All packs were left in place for only 24 hours. Twenty minutes prior to removal of the packs 4% Xylocaine solution was instilled in and around the packs to minimize the patient’s discomfort. Patients’ anxiety levels were evaluated using Hamilton anxiety scale one hour prior to surgery; 24 hours later just before pack removal and finally 1 hour after nasal pack removal. The HAM-A score is

standardized comprehensively and consists of 14 items, each defined by a series of symptoms. These include the mood and behavior at interview, somatic complaints, systemic and autonomic symptoms. Each item is scored on a scale of 0 to 4 (not present, mild, moderate, severe and incapacitating), with a total score range of 0 to 56. A score of 17 or less indicates mild anxiety, 18 to 24 indicates mild to moderate anxiety while a score of 25 to 30 indicates moderate to severe anxiety. The parameters recorded were age, gender, type of nasal packs used and anxiety score.

**Data Analysis:** Mean and standard deviation online calculator was used and p value was determined using the student’s paired t-test. The data was noted on a proforma and all the statistical analysis was done by using SPSS version 23 and a p- value of < 0.05 was considered significant.

**RESULTS**

A total of 80 patients were included in study. The age of 80 patients enrolled for this study ranged from 19 to 38 years with a mean of 25.1 years. The age range of 40 patients in group A was 19 to 37 years (Mean age: 25.9 years), while that of group B was 19 to 38 years (Mean age: 25.05 years). There were a total of 46 male and 34 female patients in this study. In group A there were 22 males and 18 females while in group B there were 24 males and 16 female patients. This male preponderance in both groups is elaborated in Table-I.

**Table-I: Frequency of gender distribution of patients. (N=80)**

Gender	Group A N=40		Group B N=40	
	Conventional Nasal Packs		Ventilated nasal packs	
	Number	Percentage	Number	Percentage
Male	22	55%	24	60%
Female	18	45%	16	40%
Male to Female Ratio, M:F	1.22:1		1.5 : 1	

The Hamilton Anxiety Scale assessment scores in both groups ranged from mild to moderate with a mean ‘moderate’ category in group A and ‘mild’ category in group B’. The most common symptoms, n=25 (62.5%) in group ‘A’ were Autonomic [dry mouth] and Respiratory symptoms [choking] while in group ‘B’ pre dominant symptoms were Somatic [muscular aches and pain] n=23 (57.5%).

**Table-II: Hamilton Anxiety Rating Scale Scores (HAM-A) in Both Groups A and B, before, during and after conventional and ventilated nasal pack removal. (N=80)**

HAM-A	Group A (n=40)			Group B (n=40)			t-test	p-value
	Range	Mean	SD	Range	Mean	SD		
1 hour Pre-op	14-16	15.25	0.78	14-16	15.23	0.77	1.0000	0.3235
24 hours Post – op	15-18	17.08	0.66	15-18	16.55	1.06	5.1880	<0.0001
1 hour post removal	14-16	14.93	0.76	14-16	14.95	0.78	1.0000	0.3235

The anxiety scores in both groups peaked at the 24 hours reading (from Mild to moderate), with group 'A' ( $17.08 \pm 0.66$ ) higher than group 'B' ( $16.55 \pm 1.06$ ). Among the three recordings, the lowest scores in both groups were documented one hour after pack removal. (Table-II). There was statistically significant difference among both groups recorded immediately before the nasal pack removal. Anxiety level in group B (Ventilated nasal packs)  $16.55 \pm 1.06$  [Mean plus standard deviation (SD)] was lower than group A (Conventional nasal packs)  $17.08 \pm 0.65$  [Mean plus standard deviation (SD)]. p value  $<0.0001$  which is statistically significant.

### DISCUSSION

Anterior nasal packing is frequently done following nasal septal surgery<sup>6</sup>. The drawbacks of nasal packing range from headache to toxic shock syndrome<sup>7</sup>. Nasal obstruction due to conventional nasal packs causes dry mouth, choking, chest pressure and shortness of breath resulting in an increase in patients' anxiety. Ventilated nasal packs on the other hand circumvent these symptoms and allay patients' apprehension. Our study is the first one to document and compare the anxiety levels between conventional and ventilated anterior nasal packs. Our results also confirmed the hypothesis that ventilated nasal packs reduced the anxiety level as compared to the conventional nasal packs.

Various studies have compared the anxiety levels of nasal packing versus no packs (Trans septal suturing). Sari in such a study noticed that the group without nasal packing experienced less anxiety<sup>8</sup>. Another study<sup>4</sup> also corroborates our findings that ventilating nasal packs are better compared to the conventional gauze packs in preventing complications like nasal obstruction, however the data is not quantitative since no anxiety scale was used in his study. Similarly, a study by Hosemann<sup>9</sup> claims that the patients had significantly reduced preoperative anxiety if they were expecting ventilating nasal packs to be used on them. Another study proposes a fabricated ventilating nasal pack<sup>10</sup> using Merocel and silastic suction catheter aimed at decreasing discomfort and breathing difficulty yet anxiety was not assessed. In comparison our modification of a ventilated nasal pack is still cheaper and equally effective.

Researchers studying the effects of conventional nasal packing on arterial blood gasses and acid base balance have documented hypoxemia as an ill-effect and have recommended the use of ventilating nasal packing<sup>11</sup>. Another study by Kurtaran<sup>12</sup> documenting the effect of ventilating nasal packs on pulmonary function concluded that no post-operative respiratory dysfunction or hypoxia was noted in their sample of fifty patients. Another study<sup>13</sup>, comparing the effects of nasal packing (with and without an airway) on blood pressure, arterial oxygen saturation, middle ear pressure, and post-operative subjective complaints concluded that ventilating nasal packs reduce the risk of hypoxemia. Alam in his study concluded that patients with ventilated nasal packs had better tolerance due to decreased nasal obstruction and sleep disturbance<sup>14</sup>. Again Anxiety wasn't documented and only a Visual Analog Scale was used.

Confirming our results Kim<sup>15</sup> in his study of ventilating nasal packs noticed that maintaining nasal respiration reduced the inconvenience to patients. Jung<sup>16</sup> in his study about usefulness of ventilating nasal packing noticed that it helps patients to breathe through the nose more easily and reduces discomfort. Khan<sup>17</sup> also concludes in his study of 120 patients that Ventilating nasal packs provide a better alternative to conventional nasal packs in terms of patient comfort after nasal surgery compared to conventional Vaseline gauze packs. Although these studies corroborate our results that ventilating nasal packs are better than conventional nasal packs which confer complete nasal obstruction, yet the anxiety levels were not assessed, rather, effects like discomfort, tolerance and sleep disturbance were studied.

### CONCLUSION

Following nasal surgery, the use of Ventilated nasal packs is preferable over conventional nasal packs as they cause considerably less anxiety especially in apprehensive patients.

### CONTRIBUTION OF AUTHORS

Alam MJ: Manuscript writing, Literature review Data compilation and analysis.

Hydri AS: Conception and design of study, Literature search, Data collection and analysis, Manuscript writing, Final approval.

Mirza F: Data collection, Final critical review of manuscript.

Sami M: Data collection and compilation, Literature review.

Nasrullah F: Literature search, Data collection and compilation, Literature review.

Ahmed Z: Literature review, Statistical analysis.

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