DOI: https://doi.org/10.53350/pjmhs2115123970

ORIGINAL ARTICLE

Study the effect of Bilateral Nasal Packing on Systemic Blood Pressure and Prevalence of Complications Associated with Nasal Packing in Patients who had Undergone Septoplasty

NASEEM UL HAQ[1], BAKHT ZADA[2], MUHAMMAD HABIB[3], ZAFAR IQBAL[4], MUHAMMAD TAYYAB RASHEED[5], MUHAMMAD NASEEM KHAN[6]

[1]Assistant Professor ENT Department, Kuwait Teaching Hospital, Peshawar Medical College, Peshawar
[2]Associate Professor ENT Head &Neck Surgery, Lady Reading Hospital MTI, Peshawar
[3]Associate Professor ENT, Peshawar Medical College, Peshawar
[4]Associate Professor ENT, Chaudhary Muhammad Akram Teaching and Research Hospital, Lahore
[5]Assistant Professor ENT, Aziz Bhatti Shaheed Teaching Hospital, Nawaz Sharif Medical College, Gujrat
[6]Asistant Professor and District ENT Specialist, DHQ Teaching Hospital/ Gomal Medical College, DI Khan
Corresponding author: Bakht Zada, Email: bakht.zada@lrh.edu.pk, Cel: +92 313 3401966

ABSTRACT

Aim: The main objective of this study was to determine the effect of bilateral nasal packing on systemic blood pressure in patients treated with septoplasty surgical procedure.

Study Design: Retrospective study.

Place and Duration: This study was conducted at the department of ENT/ Head & Neck Surgery, Lady Reading Hospital MTI, Peshawar and Chaudhary Muhammad Akram Teaching and Research Hospital, Lahore for duration of one year from October 2020 to September 2021.

Methods: One hundred and two men and women who had undergone nasal septoplasty following a clinical assessment were included in this research. From 18 to 48 years of age, the patients comprised this group. Detailed information about each patient, such as age, gender, and place of residence, was gathered after informed consent was obtained from each patient. Group C had no nasal packing placed, whereas typical anterior nasal packing was used in Group D. Both groups were evenly split. A 24-hour ambulatory monitoring of blood pressure was performed on all patients before to and during septoplasty. SPSS 23.0 was used to do statistical analysis on all of the data.

Results: 60 (58.8%) of the 102 patients were male, and 42 (41.2%) of the patients were female. A total of 41 (40.2 percent) patients were under the age of 30, 35 (34.3 percent) were between the ages of 31 and 40, and 26 (25.5 percent) were above the age of 40. Rural residents comprised 52% of the patients. Study participants in Group D were found to have higher mean blood pressure (p-Value 0.05) following septoplasty therapy than those in Group C (P-Value >0.05). Group D patients had bleeding, vestibulitis, and septal perforations as a result of their nasal packing procedure.

Conclusion: It is determined that bilateral nasal packing was associated with an elevation in either systolic or diastolic blood pressure in individuals who had septoplasty treatment. Patient who did not get nasal packing showed no statistically significant change from the rest of the group.

Keywords: Septoplasty, Bilateral Nasal Packing, Systemic blood pressure

INTRODUCTION

It is common for otorhinolaryngologists to see patients with nasal airway blockage and/or congestion. Aside from the obvious physical and financial toll, they have a detrimental influence on people's well-being [1, 2]. There are a number of roles that the nose performs, including humidification, warming, and filtering of the air that we inhale [3]. While the nasal airway contributes about half of the overall airway resistance in normal settings [4], this resistance is significantly augmented in pathological situations [5]. Each side of the nose has a distinct nasal resistance due to nasal mucosal changes occurring in the turbinates of the nose during time [6]. About 80% of adults have this cycle, and it performs a function in protecting the respiratory system [7]. Oral breathing as a result of nasal blockage might alter respiratory mechanics and arterial blood gases [8]. As a result of the nasal cycle, individuals with persistent unilateral nasal blockage may experience an increase in total airway resistance [7]. Hypoxemia and alterations in respiratory function tests have previously been linked to mild nasal blockage. Following a nasal surgery, nasal packing is a standard procedure. The use of nasal packing after surgery may cause hypoxemia and/or hypercapnia, according to certain studies [11].

More conservative procedures such silver nitrate chemical cautery, electric cautery, or thermal cautery has not worked in the case of unsuccessful nasal packing. Nasal packing using a ribbon guaze soaked with a topical anaesthetic and decongestant is a common procedure. Nasal packing requires a well-defined and focused light source nasal speculum as well as a forceps nasal dressing. Nasal packing and the surgeon's physical dexterity ensure that the walls, ceiling and floor are effectively pressed against one other. In addition to promoting hemostasis, it also exerts pressure on the nasal septum, the floor of the nose, and the nasal lateral wall. Nasal packing necrosis, neurogenic syncope, headaches, and lacrimation from the eyes due to decreased drainage from the nasolacrimal duct are all side effects. Long-term nasal packing might lead to an infection. Toxic shock syndrome can occur if nasal packing is kept in the nose for longer than 48 hours without being removed. Also well-

known are the effects of complete nasal packing on nocturnal oxygen saturation and difficulties in slumbering.

Patients who had undergone septoplasty were studied to see if bilateral nasal packing had an effect on their systolic or diastolic blood pressure. Also, to find out how common itranasal packing complications are. Improved treatment and a lower incidence of side effects are other important goals.

MATERIAL AND METHODS

This retrospective study was conducted at the department of ENT Head &Neck Surgery, Lady Reading Hospital MTI, Peshawar and Chaudhary Muhammad Akram Teaching and Research Hospital Lahore for duration of one year from October 2020 to September 2021. 102 individuals of both sexes with a deviated nasal septum who had undergone septoplasty following a clinical assessment were included in this research. There were 18 to 48 years were the ages of the patients in this study. After obtaining informed consent from all of the patients, a full history of the patient was recorded, including age, gender, and place of residence (where applicable). In this study, all patients were separated into two groups, with Group C receiving no nasal packing and Group D receiving traditional anterior nasal packing.

All of the patients in both groups were subjected to 24-hour ambulatory blood pressure monitoring before to septoplasty and again after septoplasty on the second day. There have also been reports of complications connected with nasal packing.

A computer programme called SPSS 23.0 was used to evaluate all of the statistical data.

RESULTS

60 (58.8%) of the 102 patients were male, and 42 (41.2%) of the patients were female.(Fig 1) A total of 41 (40.2%) patients were under the age of 30, 35 (34.3%) were between the ages of 31 and 40, and 26 (25.5%) were above the age of 40.(Fig 2) Rural residents comprised 52% of the patients.(table 1)

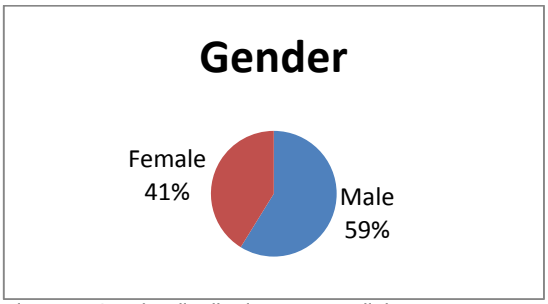

Figure 1: Gender distribution among all the cases

All of the patients were divided evenly into two groups, with each group consisting of 51 individuals. Patients in Group C were 28 (54.9 percent) men and 23 (45.1 percent) females, while patients in Group D were 31 (60.8 percent) males and 20 (39.2 percent) females.(Table 2) Patients in Group D saw an increase in mean systolic and diastolic blood pressure following septoplasty therapy (p-Value 0.05), whereas there was no statistically significant change detected among those in Group C (p-Value 0.015).(Table 3) Complications found after nasal packing in group D was among 14 (27.5%) cases. In which most of the patients had hemorrhage 7 (13.7%), followed by septal perforations in 4 (7.8%) and 3 (5.9%).

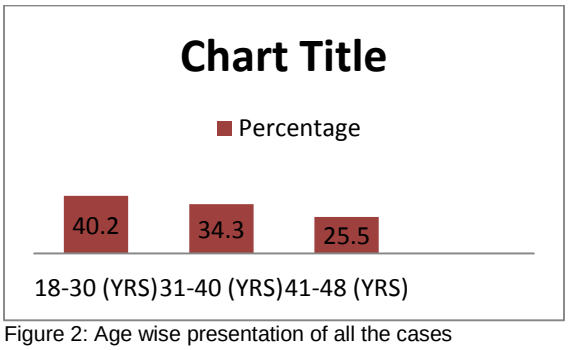

Figure 2: Age wise presentation of all the cases

Table 1: Residency details of all the cases

Characteristics	Frequency No.	%age
Residency		
Rural	53	52
Urban	49	48

Table 2: Comparison of patients among both groups

Characteristics	Group C n=51	Group D n=51
Gender		
Males	28 (54.9%)	31 (60.8%)
Females	23 (45.1%)	20 (39.2%)
Total	51 (100%)	51 (100%)

Table 3: Comparison of blood pressure Before and after surgery among patients of group C

Characteristics	Before Surgery	After septoplasty 2nd day	P-Value
n=51			
Mean Systolic BP	115.9	117.32	>0.05
Mean Diastolic BP	73.6	76.8	>0.05

Table 4: Comparison of blood pressure Before and after surgery among patients of group D

Characteristics	Before Surgery	After septoplasty 2nd day	P-Value
n=51			
Mean Systolic BP	116.95	132.6	<0.05
Mean Diastolic BP	72.7	93.5	>0.05

Table 5: Association of complication in group D

Complications	Frequency	%age
Hemorrhage	7	13.7
Septal Perforations	4	7.8
Vestibulitis	3	5.9
Total	14	27.5

DISCUSSION

Endoscopic therapy for epistaxis has taken the role of nasal packing in ENT clinics across the country. Angiography and embolization of the bleeding vessel may be required. Because of the scarcity of resources, nasal packing remains the most cost-effective and extensively used method of treating epistaxis. According to the literature, the duration of nasal packing is unknown. Despite the fact that it has far-reaching consequences for

the patients' comfort and the difficulty of nasal packing. Patient pain and dry throat are both exacerbated when nasal packing is present. Stasis of secretions, mucosal irritation, and headache are all caused by the continual stimulation of mucosal glands and a resulting disruption of normal mucociliary clearance. [12] Blockage of the lacrimal canal (epiphora) results in the dripping of tears. The continual stimulation of the lacrimal apparatus resulting in excessive lacrimation is caused by the presence of nasal packing. [13,14]

In this study, 60 (58.8%) of the 102 patients were male, and 42 (41.2%) of the patients were female. A total of 41 (40.2%) patients were under the age of 30, 35 (34.3%) were between the ages of 31 and 40, and 26 (25.5%) were above the age of 40. These were comparable to the studies conducted in past.[15,16]

Individuals in Group D (nasal packing) were found to have an elevated mean systolic and diastolic blood pressure, whereas there was no significant difference identified in Group N (nasal packing-free) patients. These findings are consistent with those of other studies that have been conducted on the effects of bilateral nasal packing after septoplasty, in which the mean systolic and diastolic blood pressures were found to be higher in patients who had been treated with anterior nasal packing than in those who had not. [14,1517,18]

Also, Gupta et al.[19] did a research on the side effects of nasal packing, as well. To identify nasal packing issues, they looked for elevated blood pressure, decreased sleep, and a change in oxygen saturation. Airway with nasal packing was proposed as a preventative measure to avoid these problems. Nasal packing and suturing following septoplasty were compared by Wang et al.[20]. This study's findings were in line with this one. Nasal discomfort, headache, dysphagia, and sleep disturbances were more common in the packing group. In contrast to the suture group, there was no change in epiphora. Patients who used nasal packs for a longer period of time observed higher lacrimation in the current research.

Complications found after nasal packing in group D was among 14 (27.5%) cases. In which most of the patients had hemorrhage 7 (13.7%), followed by septal perforations in 4 (7.8%) and 3 (5.9%). face discomfort and headaches than suturing, supporting the idea that extended nasal packing increases patient suffering with affecting recurrence of bleeding much. A study by Ardehali et al.[22] indicated that patients who received nasal packing had considerably greater pain levels. Both Cukurova et al.[23] and this study's findings that extended nasal packing produces more pain and suffering for patients are in agreement with one another: patients with nasal packing suffer more when they have it in their noses.

CONCLUSION

Nasal packing is a prevalent technique in ENT clinics because of its ease of use. In this study, we found that nasal packing should not be conducted on individuals with cardiovascular or pulmonary conditions. The systolic and diastolic blood pressure of patients who had had septoplasty surgery was also raised by bilateral nasal packing. Patient's without nasal packing showed no significant change in our research.

REFERENCE

1 Stewart M, Ferguson BJ, Fromer L. Epidemiology and burden of nasal congestion. Int J Gen Med. 2010;3:37.

2 Chandra RK, Patadia MO, Raviv J. Diagnosis of nasal airway obstruction. Vol. 42, Otolaryngologic Clinics of North America. Elsevier; 2009. p. 207–25.

3 Geurkink N (1983) Nasal anatomy, physiology, and function. J Allergy Clin Immunol 72(2):123–128. https://doi.org/10.1016/0091-6749(83)90518-3

4 Ferris BG, Mead J, Opie LH. PARTITIONING OF RESPIRATORY FLOW RESISTANCE IN MAN. J Appl Physiol [Internet]. 1964 1 [cited 2021 Jan 30];19:653–8. Available from: https://journals.physiology.org/doi/abs/10.1152/jappl.1964.19.4.653

5 Hasegawa M, Kern EB. The human nasal cycle. Mayo Clin Proc [Internet]. 1977 1 [cited 2021 Jan 30];52(1):28–34. Available from: https://europepmc.org/article/med/609283

6 Eccles R. A role for the nasal cycle in respiratory defence. Eur Respir J. 1996;9(2).

7 Passàli D, Tatti P, Toraldo M, De Benedetto M, Peverini F, Caruso G, Marzetti A, Passàli FM, Bellussi LJ. OSAS and metabolic diseases: Round Table, 99th SIO National Congress, Bari 2012. Acta Otorhinolaryngol Ital. 2014;34(3):158.

8 Fitzpatrick MF, McLean H, Urton AM, Tan A, O'Donnell D, Driver HS. Effect of nasal or oral breathing route on upper airway resistance during sleep. Eur Respir J [Internet]. 2003 1 [cited 2021 Jan 30];22(5):827–32. Available from: https://erj.ersjournals.com/content/22/5/827.

9 Bista M. Effects of bilateral nasal packing on oxygen saturation and blood pressure. J Nepal Med Assoc [Internet]. 2017 [cited 2021 Jan 30];56(208):442–6. Available from: https://pubmed.ncbi.nlm.nih.gov/29453477/

10 Yousof A, Awada O, Abdel Fattah M, Ahmada S. Pulmonary function tests in patients with chronic rhinosinusitis and the effect of surgery. Egypt J Bronchol [Internet]. 2017 [cited 2021 Jan 30];11(3):283. Available from: https://link.springer.com/articles/10.4103/ejb.ejb_91_16

11 Gupta M, Singh S, Chauhari B (2011) Comparative study of complete nasal packing with and without airways. B-ENT. 7(2):91–9

12 Yilmazer C, Sener M, Yilmaz I, Erkan AN, Cagici CA, Donmez A, et al. Pre-emptive analgesia for removal of nasal packing: a double-blind placebo controlled study. Auris Nasus Larynx 2007; 34:471-5

13 Melia L, McGarry GW. Epistaxis: update on management. Curr Opin Otolaryngol Head Neck Surg 2011; 19:30-5.

14 Kula M, Yuce I, Unlu Y, Tutus A, Cagli S, Ketenci I. Effect of nasal packing and haemostatic septal suture on mucociliary activity after septoplasty: an assessment by rhinoscintigraphy. Eur Arch Otorhinolaryngol 2010; 267:541-6

15 Fang S, Wei X, Ying L, Zhu L, Cui J, Ma Z, Wang W. Comparative study of nasal septal retainer and nasal packing in patients undergoing septoplasty. Eur Arch Otorhinolaryngol. 2019

16 Cayonu M, Acar A, Horasanli E, Altundag A, Salihoglu M (2014) Comparison of totally occlusive nasal pack, internal nasal splint, and transseptal suture technique after septoplasty in terms of immediate respiratory distress related to anesthesia and surgical complications. Acta Otolaryngol 134(4):390–394.

17 Naik K (2015) A novel way of trans-septal splint suturing without nasal packing for septoplasty. Indian J Otolaryngol Head Neck Surg 67(1):48–50.

18 Sowerby LJ, Wright ED (2013) A comparison of septal stapler to suture closure in septoplasty: a prospective, randomized trial evaluating the effect on operative time. Int Forum Allergy Rhinol 3(11):911–914

19 Gupta M, Singh S, Chauhan B. Comparative study of complete nasal packing with and without airways. B-ENT 2011; 7:91-6.

20 Wang M, Xing Z, Yuan X, Liu Y, Han L, Qin N. Effect of nasal septal suture versus nasal packing after septoplasty. Lin Chung Er Bi Yan Hou Tou Jing Wai Ke Za Zhi 2011; 25: 1068-75

21 Kazkayasi M, Dinçer C, Arikan OK, Kiliç R. [The effect of nasal packing and suture technique on systemic oxygen saturation and patient comfort after septoplasty]. Kulak Burun Bogaz Ihtis Derg 2007; 17:318-23.

22 Ardehali MM, Bastaninejad S. Use of nasal packs and intranasal septal splints following septoplasty. Int J Oral Maxillofac Surg 2009; 38:1022-4.

23 Cukurova I, Cetinkaya EA, Mercan GC, Demirhan E, Gumussoy M. Retrospective analysis of 697 septoplasty surgery cases: packing versus trans-septal suturing method. Acta Otorhinolaryngol Ital 2012; 32:111-4.