

# Does Hemostatic Gelatin Foam Packing Produce a Lower Mean Pain Score than Conventional Nasal Packing in Septoplasty? A Comparative Study

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## ABSTRACT

**Objective:** Comparing mean pain score of Haemostatic Gelatin Foam Packing versus conventional packing in patients undergoing septoplasty.

**Study Design:** Longitudinal Study

**Place and Duration of Study:** This study was conducted at the ENT department of Dow University of Health Sciences, Karachi for six months from September 2015 to February 2016.

**Materials and Methods:** After approval, the study was carried out at the ENT department of DUHS. 124 patients with DNS were selected through the non-probability sampling technique. The participants were divided into two groups of 62 each with one receiving the hemostatic gelatin foam packing (Group A) and the other group receiving the conventional nasal packing (Group B) after Septoplasty had been completed. The primary outcome measures will be PS- PIP due to the presence of packs in the nose and PS-PR pain associated with their removal. Data will be analyzed using SPSS with both the groups being compared for means of PS-PIS and PS-PR using Independent samples t-test. P-value < 0.05 will be taken as significant.

**Results:** A total of 79(63.7%) males and 45(36.3%) females were a part of the study, 35 aged between 18-25 years, 63 aged between 26-30 years, and 26 aged 30 years and above. A significant difference was observed between the mean pain score IN-Situ between Simple Conventional Nasal Pack (Mean: 46.084±10.75575) and Gelatin Nasal Pack (Mean: 30.8548±8.78868) (P-value<0.001). A significant difference was also observed between the mean pain score at removal be Simple Conventional Nasal Pack (Mean: 40.9677±11.55311) and Gelatin Nasal Pack (Mean: 24.6613±13.51616) (P-value<0.001).

**Conclusion:** After Septoplasty Haemostatic Gelatin Foam packing produces lesser mean pain scores than conventional nasal packs.

**Key Words:** Haemostatic Gelatin Foam, Conventional Nasal Packs, Septoplasty, Pain

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## INTRODUCTION

The nasal septum is a major component of the nose and is crucial in the function and stability of the nasal cavity<sup>1</sup>. However, one of the most well-known pathologies related to the nasal septum is deviated nasal septum (DNS)<sup>2</sup>.

DNS leads to multiple complications such as headaches, sinusitis, epistaxis, and sleep apnea<sup>3</sup>. 80% of the population still suffer from DNS, in one way or another<sup>4</sup>. Septoplasty is a procedure that is performed for the correction of a deviated nasal septum. It is the most frequently performed ear, nose, and throat operation in adults<sup>5</sup>. After every surgical procedure, adequate hemostasis is vital. Therefore, after Septoplasty nasal packing is placed to achieve desirable hemostasis<sup>6</sup>. Nasal packing has been an essential part of the Septoplasty procedure to limit post-operative bleeding. It is also stated that nasal packing can stabilize the cartilaginous septum that remains and minimize any chances of future recurrence of DNS<sup>7</sup>. There are many types of nasal packing that are available such as conventional nasal packs, pre-fabricated nasal tampons, air-filled balloons, and self-resorbable nasal packs<sup>8</sup>. Although nasal packs have a myriad of benefits, they also have their demerits. They create discomfort to the patient along with other complications such as toxic shock syndrome, sleep

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difficulties, and infections post-operatively<sup>9-10</sup>. Some even consider not using nasal packs altogether; however, it cannot be avoided in most of the situations and is still used by many surgeons as of now<sup>11</sup>. To overcome the drawbacks of traditional nasal packs and also avoid not placing nasal packs at all, various absorbable materials have been introduced in the market. These include porcine gelatin, antifibrinolytics, hyaluronic acid, and more<sup>12-14</sup>. Although these materials proved to be very effective in eliminating pain during removal and preventing postoperative bleeding, these materials are quite expensive. Therefore, a new material, gelatin foam was introduced into the market which also had hemostatic effects<sup>15</sup>. In our study we determined if Haemostatic Gelatin Foam Packing produces a lower mean pain score than conventional nasal packing in Septoplasty.

**MATERIALS AND METHODS**

After the approval of the synopsis from the institutional review board (IRB). A longitudinal study was conducted at the ENT department of Dow University of Health Sciences. The study spanned for the duration of 6 months. 124 patients with DNS were selected for this particular study through consecutive non-probability sampling techniques aged between 18-60 years. The patients before being admitted into the study were informed of their inclusion, were brief about the purpose of the study, and only after seeking verbal and written consent were they included in the study. The participants were divided into two groups of 62 each, with all patients being randomly allocated into the two groups. The random allocation was also concealed from the doctor. Group A will be allocated to receive gelatin foam packs and Group B will receive conventional nasal packs bilaterally. Septoplasty was to be performed by a qualified otolaryngologist. After the surgery, the hemostatic gelatin foam or conventional nasal packing was to be placed bilaterally according to the allocated groups. All the patients were prescribed oral paracetamol for pain relief. The packs will be removed 24 hours after surgery. The primary determinant to be measured will be PS-PIP (Pain score in-site) and PS-PR (Pain score on removal) both of which will be noted on a visual analogue from a scale of 0-100. All the data was recorded and analyzed using the Statistical Package of social sciences (SPSS). Quantitative variables will include Age, PS-PIS and PS-PR. Qualitative variables will include Sex. Both the groups will be compared for means of PS-PIS and PS-PR using Independent samples t-test. P-value < 0.05 will be taken as significant.

**RESULTS**

**Table 1 & Figure 1:** Shows the age distribution of patients in the study

**Table 2 & Figure 2:** Shows the gender distribution of patients in the study

**Table 3 & Figure 3:** Shows the visual analogues score of patients after septoplasty

**Table No.1: Age distribution of patients**

Age stratification	Conventional Nasal Pack		Gelatin Nasal pack	
	Frequency	Percent	Frequency	Percent
18-25 years	14	22.6	21	33.9
26-30 years	33	53.2	30	48.4
30 years above	15	24.2	11	17.7
Total	62	100.0	62	100.0

**Table No.1: Gender distribution of patients**

	Conventional Nasal Pack		Gelatin Nasal pack	
	Frequency	Percent	Frequency	Percent
Male	41	66.1	38	61.3
Female	21	33.9	24	38.7
Total	62	100.0	62	100.0

**Table No.3: Visual Analogue Scores of Septoplasty Patients**

Pain Score Category	Conventional Nasal Pack		Gelatin Nasal pack	
	Frequency	Percent	Frequency	Percent
Low	1	1.6	9	14.5
Mild	28	45.2	47	75.8
Moderate	29	46.8	5	8.1
High	4	6.5	1	1.6
Total	62	100.0	62	100.0

**Table No.4: Comparison of Pain Score IN-Situ**

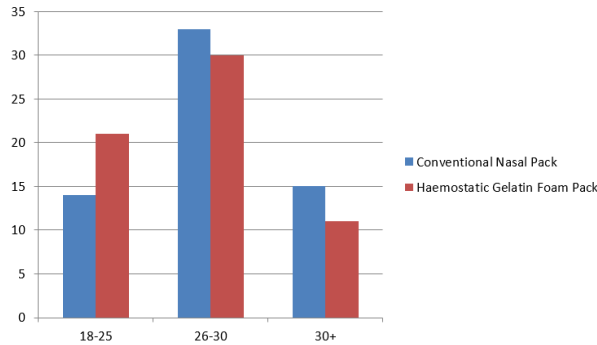
	Nasal Pack Groups	n	Mean	Std. Deviation	P-Value
Pain Score In Situ	Simple Conventional Nasal Pack	62	46.0484	10.75575	< 0.001
	Gelatin Nasal Pack	62	30.8548	8.78868	

**Table No.5: Comparison of Pain Score at removal**

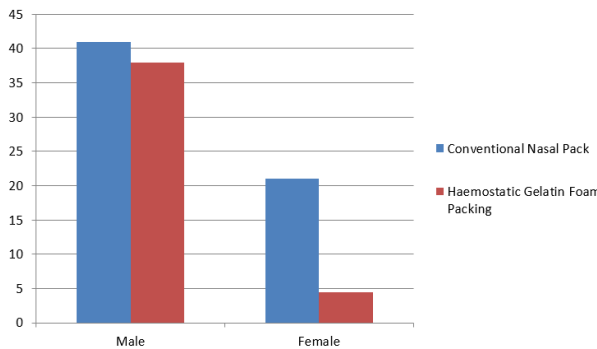
	Nasal Pack Groups	n	Mean	Std. Deviation	P-Value
Pain Score at removal	Simple Conventional Nasal Pack	62	40.9677	11.55311	< 0.001
	Gelatin Nasal Pack	62	24.6613	13.51616	

**Table 4 & Figure 4:** Shows the comparison of Pain Score IN-Situ

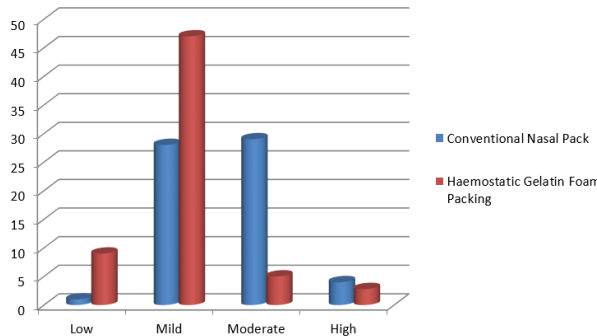
**Table 5 & Figure 5:** Shows the comparison of Pain Score at removal.



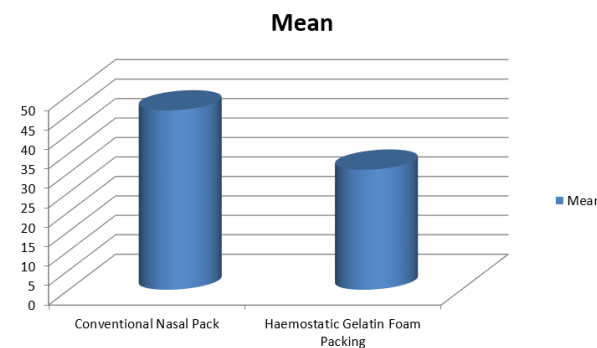
**Figure No.1:** Age distribution of patients



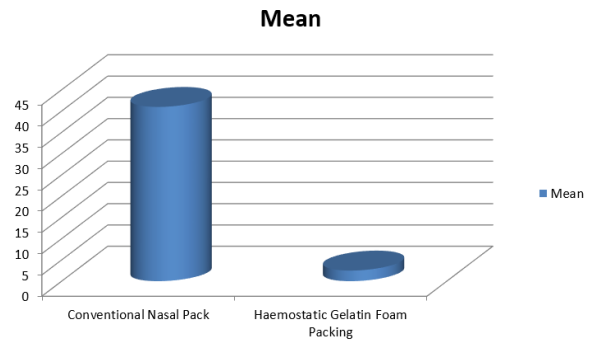
**Figure No.2:** Gender distribution of patients



**Figure No.3:** Visual Analogue score of Septoplasty Patients



**Figure No.4:** Comparison of Pain Score IN-Situ



**Figure No.5:** Comparison of Pain Score at removal

## DISCUSSION

Pain is subjective; some experience it to a greater extent than others. The perception of pain is a handicap in researches that study pain as a variable. The importance of nasal packs is well documented in the literature and its advantages are evident. However, its disadvantages one of it being pain has led to many other techniques being adapted. Currently, trans-septal suturing is also gaining some favor in the community as it avoids patients' pain and anxiety<sup>16</sup>. However, in Pakistan nasal packing is still being used broadly in the ENT community. Pain relief from nasal packing is still a concern and the search continues to reduce pain when placing nasal packs<sup>17</sup>. Nonsteroidal anti-inflammatory drugs (NSAIDs) can be given to patients to reduce pain after surgery and some also advocate using nasal packs soaked in local anesthesia solutions for relief<sup>18</sup>. Our study evaluated that can gelatin foam be a more effective alternative to the conventional nasal pack in preventing bleeding and hematoma, and also causes lesser pain upon being placed in the nasal cavity and at removal. Studies like this have been conducted in the past before<sup>19</sup>. Our study showed a significant difference ( $P$  value=  $<0.001$ ) when it came to comparing Pain In-site and Pain at removal between gelatin foam and conventional nasal packing. The mean pain score was significantly lower in the hemostatic gelatin foam packing groups showing that it indeed is a better option when it comes to levels of pain. These results are in line with another study conducted by Jawaid et al (2013) in which he showed that significantly less pain occurred on the removal of gelatin foam as compared to traditional nasal pack ( $P=0.01$ ), with both of the nasal packs being equally effective in reducing post-operative bleeding and hematoma<sup>20</sup>. Valentine et al stated that conventional nasal packs cause patients discomfort, thus absorbable biomaterials should be used<sup>21</sup>. Gelatin foam is cost-effective and as mentioned previously also hemostatic in nature and can be used in surgery. Another comparative study compared gelatin foam to another material FloSeal to show the amount of granulation tissue production, in which FloSeal had a clear trend towards forming more granulation tissue than thrombin-soak gelatin<sup>22</sup>. The use of hemostatic gelatin foam should be done more as we also found no significant crusting and adhesions in the packing. This

along with its low pain scores mean that it is equally effective and can be better tolerated by the patient as well.

## CONCLUSION

The Haemostatic gelatin foam packing infect does produce lesser pain scores both IN-site and upon removal compared to conventional nasal packing and thus can be used more widely as a nasal packing agent after Septoplasty.

### Author's Contribution:

Concept & Design of Study: Shehzad Ahmed  
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 Revisiting Critically: Shehzad Ahmed  
 Final Approval of version: Shehzad Ahmed,  
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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