



# Analyze and Compare the Pain Level and Complications of Septoplasty with and without Splints and Packing

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors MIR and GSM designed the study, Authors MIR and GSM performed the statistical analysis, Authors RI and MSK wrote the protocol, and wrote the first draft of the manuscript. Authors MSK, RI and MIR managed the analyses of the study. Author GSM managed the literature searches. All authors read and approved the final manuscript.*

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## **ABSTRACT**

**Aim:** The main objective of this study is to analyze and compare the pain level and complications of septoplasty with and without splints and packing.

**Methodology:** Our study comprised of 100 patients who underwent septoplasty procedure both under general and local anesthesia. They were divided into two groups. One group of 50 patient had splints and packing while the other group of 50 patients had no splints and packing post operatively. Patients were chosen randomly. Children and elderly patients were excluded from the

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study. Printed proforma was used to compare the result in terms of pain scores and complications. Regular follow-up was done for average six months. The study was approved by ethical review board PUMHSW Nawabshah.

**Results:** Pain scores were higher in patients with splints and packing both in post-operative period and at the time of removal of splints and packing. There was no significant difference regarding other post operative complications.

**Conclusion:** It is concluded that pain and discomfort associated with nasal splints and packing does not justify their application in case of certain minor to moderate nasal septal defects undergoing surgery. However when septal surgery is extensive and associated turbinate and framework procedure are done, splints and packing become mandatory in our setup.

*Keywords: Nasal septum; surgery; operative; splints; packing.*

## 1. INTRODUCTION

Nasal septal deviation is very common problem encountered in E.N.T practice, given rise to nasal obstruction, headache and recurrent upper respiratory tract infections. Commonly it is corrected by septoplasty [1], a conservative submucosal resection approach to the septum with minimal resection of its deviated portions and bringing the septum in midline or by classical submucous resection (SMR), which involves radical excision of the septum, persevering only caudal and dorsal struts of septal cartilage for support to the nose. SMR is more prone to complications; therefore septoplasty is more commonly performed in most the advanced centers all over the world [2,3].

In most of the centers abroad and in Pakistan septoplasty is completed by placing splints and packing in the nose using a suitable material to prevent the formation of septal haematoma, post operative bleeding and formation of adhesions [4]. Intranasal splints and packing are frequently used in otolaryngology practice. They are in use to prevent the complications like haemorrhage, haematoma formation & adhesions etc. They are also in use to maintain septal cartilage and flaps stability and approximation in order to improve the results and to achieve a patent airway. However with the use of these packing materials and splints the morbidity is much increased such as pain and discomfort, secondary infection and septal necrosis in post-operative period [5,6].

Recently in many centers of the world, people have adopted a new concept of not putting splints and not packing the nose after nasal septal surgery [7,8]. The results are very encouraging regarding cost effectiveness and morbidity [9,10]. The aim of the present study was to compare the results of septoplasty with splints and packing with those septoplasty

without splints and packing at PMC Hospital Nawabshah.

## 2. MATERIALS AND METHODS

This study was conducted in the Department of Ear, Nose, Throat and Head and Neck Surgery, Peoples Medical College Hospital, Nawabshah. Duration of this study was two years (from march 2011 to January 2013). A total of 100 cases, 50 cases having obstructive deflected nasal septum (DNS) underwent septoplasty with intranasal splints and postoperative nasal packing and 50 cases with obstructive DNS has septoplasty without intranasal splints and without postoperative nasal packing for correction of their DNS. The patients were chosen randomly. Complete history, clinical examination and investigations were carried out the day before surgery. Performa was used to obtain information about all the aspects of surgery. Both sexes with age 16-45years and having nasal obstruction due to DNS were included. All Patients had gross enlargement of the turbinates, had any acute suppurative disease in the nose, paranasal sinuses or any associated systemic infection, had any systemic disease like diabetes mellitus, hypertension, tuberculosis or any bleeding disorder, had any previous septal surgery, had any nasal bridge depression, columellar retraction or gross external nasal deformity on clinical examination were excluded. On admission complete clinical work-up of patients including history, general physical examination and ENT examination was done routinely and the findings were recorded on the history chart while related ENT finding were recorded on the proforma as well.

Clinical evaluation included chief complaints with duration of symptoms which were nasal obstruction, rhinorhea, headaches, postnasal drip, sneezing, hyposmia, blockage of the ears,

sore throat and cough. The details of these complaints were obtained in the history of present illness.

Local examination included external examination of the nose and anterior and posterior rhinoscopy. Position of the septum, turbinates and other abnormalities were looked for. Nasal patency was checked by cold spatula and cotton test on both sides. Throat, ears, neck were examined in detail routinely.

### 3. RESULTS

A total of 100 cases were selected for the study 50 cases were selected for septoplasty with splints and packing and 50 for septoplasty without splints and without packing. All of the patients were young adults with mean age 28 years. Out of 50 cases selected for septoplasty with splints and packing 42 (81%) were male and 08 (19%) were female. The ratio for males to females was 4:1. Detail has been shown in Table 1.

All of the patients selected for surgery were complaining of nasal obstruction. The obstruction

was either unilateral or bilateral. Headache mainly in the frontal region was present in 30 (59%) and 27 (54%) for septoplasty with splints and Packing and without splints and packing respectively. Other complaints of the patients selected for septoplasty with splints and packing were rhinorrhea 18 (35%), sneezing 7(13%) Snoring 15(29%), and hyposmia 10(19%). Detailed results of pre-operative symptoms and signs for septoplasty with and without splints and packing has been shown in Table 2.

Both local and general anesthesia was used for septal surgery. Local anaesthesia was used 30(58%) and 33 (66%) of patients while general anaesthesia was used 20 (42%) and 17(34%) or patients in cases of septoplasty with and without splints and packing respectively (Table 3).

All patients were seen 10 days post-operatively for splints removal and suction clearance. They were asked to come to out-patients department 6 weeks post operatively 42 (80%) patients of septoplasty with splints and packing group and 38 (76%) of patients of septoplasty without splints and without packing group visited the hospital after 6 weeks of the operation. At that

**Table 1. Sex Distribution in patients selected for septoplasty with and without splints and packing**

Sex	Septoplasty cases with splints and packing		Septoplasty cases without splints and without packing	
	No	%	No	%
Male	42	81	34	68
Female	08	19	16	32

**Table 2. Pre-Operative symptoms and signs for septoplasty with and without splints and packing**

Symptoms	Septoplasty with splints and packing		Septoplasty without splints and packing	
	No	%	No	%
Nasal obstructions	52	100	50	100
Headaches	30	59	27	54
Rhinorrhea	18	35	15	30
Sneezing	7	13	5	10
Snoring	15	29	9	18
Hyposmia	10	19	8	16
Signs				
DNS	52	100	50	100
Muciod Discharge	6	11	5	10
Decreased Nasal Patency (unilateral)	40	77	35	70
Decreased nasal Patency (unilateral)	12	23	15	30

**Table 3. Anaesthesia used for septal surgery with and without splints and packing**

Anaesthesia	Septoplasty with splints and packing		Septoplasty without splints and packing	
	No	%	No	%
Local Anaesthesia	30	58	33	66
General anesthesia	20	42	17	34

time 28 (55%) patients with splints and packing group and 25(52%) patients without splints and packing were happy about their surgery. They were not having any troublesome symptoms or any signs of complications. The rest of the patients who had some problems like adhesions, pain in the nose and crusts were treated accordingly. 37% of patients with splints and packing group and 35% of patients without splints and without packing group had their follow-up visits to the hospital up to 8 months.

Pain assessment was done using 10 cm visual analogue scale. The most significant difference relating to the two aspects of septoplasty was pain. The most painful events were pain during insertion in patient under local anesthesia operated of splints and packing and at the time of their removal.

The mean pain scores while packs in-situ were 3.8. The patients with no splints and no packing were also experiencing pain during that times due to surgical trauma. The pain scores were 2.6.

The mean pain scores during pack removal that time were the highest. In spite of every possible effort to minimize the mean pain scores were 7.1. The pain scores were slightly greater in females as compared to male.

The pain scores during splint removal, after ten days when the patients came for their first follow-up visit the mean pain scores in splints and packing group were 3.2 as compared to with splint and without group where the pain scores were 1.8. During the splints removal the pain scores were 5.8 again greater in females as compared to males (Table 4). Number (No) and

percentage (%) of patients having complications with and without splints and packing is shown in detail in Table 5.

#### 4. DISCUSSION

This study was conducted in order to evaluate and compare the safety and efficacy of septoplasty with splints and packing and without splint and packing. The study further provides the objective evidence that the most painful events of using nasal splints and packing in nasal septal surgery are really effective in all the cases to prevent the complications or not.

This study comprises the results of 50 patients (42 males and 08 females) who underwent septoplasty with splints and packing and 50 patients (34 males and 16 females) who underwent septoplasty without splints and packing group [11]. The simple horizontal 10 cm visual analogue scale provided us the quantitative evidence of increased morbidity associated with the use of splints and packing. The pain scores were comparatively more evident in females as compared to males. The most painful events during these procedures were packs removal (6) and splints removal (5).

Other study have shown almost similar result i.e packs in situ (pain scores 4), packs removal (pain scores 6) and splints removal (pain scores 5) [12]. A recent study has further provided objective evidence that nasal splints are associated with significant morbidity [13,14].

Accidental pack displacement and splint extrusion are other very irritating unwanted and painful events which we have encountered 2(4%) and 1 (2%) in our study. These complications are

**Table 4. Mean pain scores with and without splints and packing**

	With splints and packing	Without splints and packing
Pack Insertion	6	-
First 24 hours	4	3
Pack removal	6	-
Ten days	3	2
Splints removal	5	-

**Table 5. Number (No) and percentage (%) of patients having complications with and without splints and packing**

Complications	With splints and packing		Without Splints and packing	
	0	0	0	0
Haemorrhage primary	0	0	0	0
Reactionary	1	2	2	4
Secondary	0	0	0	0
Septal haematoma	1	2	0	0
Splint extrusion	1	2	-	-
Accidental pack	2	4	0	0
Displacement into pharynx				
Intranasal Adhesions	3	5	4	8
Septal perforation	2	4	2	4
Antral sinusitis	1	2	0	0
Vestibulities	1	2	0	0
Pack lefts in nasal cavity for more than 7 days	1	2	-	-
Altered dental sensation-After 10 days	5	9	3	6
After 6 weeks	1	2	1	2
After 8 months	-	-	-	-

also mentioned in literature. 7.76 vestibulities occurred only in 1 case (2%) in splints and packing group in our study while in another study it has occurred in 3(11.1%) in packs group only [15]. Similarly we have encountered 1 case (2%) of antral sinusitis in splints and packing group only. The same complication with the same frequency is also mentioned in as study in splinted group [7].

We have also encountered 1 case (2%) of severe acute rhinosinistis due to packs left in the nasal cavity up to 7 days post-operatively. In our study, we encountered 1 case (2%) of reactionary haemorrhage in splints and packing group while 2(4%) in without splints and without packing group. A study has shown 2(2.8%) of haemorrhage in patients with packs while no case was encountered in patients with no packs [8].

Intranasal adhesions occurred in 3(5%) of patients in splints and packing group and 4(8%) in without splints and without packing group in our study. A study has shown 2(8.3%) and 6(8.4%) adhesions in patients with no packs and with packs groups respectively [6]. Another study has shown 1.8% adhesions in splinted group and 7.7% in non splinted group [9].

Septal perforation was encountered 2(4%) in splints and packing group and 2(4%) in no splints and no packing group in our study. A study has shown 2(2.8%) perforations in with packs group only [9]. While another study has shown 1(2%) of septal perforation in splints group only [11].

Septal haematoma has occurred in 1 case (2%) in splints and packing group only in our study.

The post-operative morbidity is increased with the use of nasal packing and splints. Our current study together with a number of earlier reports has shown the same benefits and an equally low complication rate can be achieved in selective cases undergoing septal surgery without splint and packing with nasal toilet and follow-up.

In view of this, we would no longer recommend the use of nasal splints and packing in every nasal septal procedure with mild to moderate defects. We recommend the use of nasal toilet following septal surgery both before discharge from the ward and at out-patient department. In selected nasal packing and splint cases these may still be helpful in extensive septal surgery, partial inferior turbinectomy and framework procedures.

## 5. CONCLUSION

It is concluded that pain and discomfort associated with nasal splints and packing does not justify their application in case of certain minor to moderate nasal septal defects undergoing surgery. However when septal surgery is extensive and associated turbinate and framework procedure are done, splints and packing become mandatory in our setup.

## Consent

All authors declare that 'written informed consent was obtained from the patient.

## ETHICAL APPROVAL

The study was approved by ethical review board PUMHSW Nawabshah.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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