

ORIGINAL ARTICLE

Comparison of Transseptal Suture and Anterior Nasal Packing after Septoplasty in Terms of Postoperative Crusting

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ABSTRACT

Objective: The objective of this study was to compare transseptal suture and anterior nasal packing after septoplasty in terms of frequency of postoperative crusting.

Design: It's a randomized controlled trial.

Study Settings: Research was conducted at Department of ENT and Head & Neck Surgery Abbas Institute of Medical Sciences (AIMS) Muzaffarabad, Azad Kashmir for a period of six months from 26/5/2020 to 25/11/2020.

Patients and Methods: This study involved 132 patients of both the genders undergoing septoplasty for deviated nasal septum. These patients were randomly divided into two groups. Patients in Group-A were treated with transseptal suturing of mucoperichondrial flaps while patients in Group-B were treated with anterior nasal packing. A written informed consent was obtained from every patient.

Results: The mean age of patients was 28.44±6.16 years in the range of 18 years to 40 years. The study group had 53 (40.2%) female and 79 (59.8%) male with a female to male ratio of 1:1.5. In terms of gender distribution and mean age both the groups were comparable (p-value=0.859 and 0.978 respectively). In patients treated with transseptal suturing, the frequency of post-operative nasal crusting was significantly lower (4.5% vs. 27.3%; p=0.000) as compared to anterior nasal packing. This difference was observed across all age and gender groups.

Conclusion: This study has reported transseptal suturing to be better than anterior nasal packing in terms of significantly lower frequency of post-operative nasal crusting regardless of patient's age and gender in patients undergoing septoplasty for deviated nasal septum. The results of this study thus advocate the use of transseptal suturing in future practice.

Keywords: Deviated Nasal Septum, Septoplasty, Transseptal Suturing, Anterior Nasal Packing, Post-Operative Nasal Crusting

INTRODUCTION

One of the most common nasal complaints faced by ENT surgeons is nasal obstruction which is mainly caused by deviated nasal septum. Nasal framework plays a vital role in facial central structure, by giving it pleasant look and beauty. In supporting facial structure, indispensable role of nasal septum was profusely expressed by Beckhius 'As goes the septum so goes the nose'.¹ Nasal septum deviations imply external deformity resulting into adverse effect on facial beauty. Its common symptoms include obstruction of nostrils, preferred sleeping on particular side, facial pain, recurrent sinus infections, difficulty in nose breathing, noise breathing during sleep and nose bleeding.²

Deviated nasal septum can be surgically corrected by septoplasty either by open surgery or through endoscopy.³ Postoperative anterior nasal packing is unpleasant part of this technique particularly discomfort and pain while removing packing. Nasal packing is used to prevent postoperative septal hematoma and hemorrhage. It also stabilizes remaining cartilaginous septum and reduces recurrence of septal deviations.⁴ Despite of many advantages, its disadvantages include compromised nasal breathing, ear blocking, headache, dryness of mouth, difficulty in swallowing, nasal pain, irritation of throat, nasal valve narrowing, vestibulitis, watering from eyes, crusting, hypoxemia, synechia, hypoxia and secondary infection besides increased length of hospital stay.⁵ Out of them, crusting is very critical and can compromise breathing from nose and can also cause epistaxis if attempted to remove.⁶ Crust formation leads to poor quality of life as it can cause nasal obstruction and foul smelling. The only way to avoid these complications is avoid nasal packing which is practically not possible. Otolaryngologists are always keen to use anterior nasal packing to avoid adhesion, bleeding, hematoma and especially recurrence.⁷

Currently, the transseptal suturing method is being used as an alternative to nasal packing.⁴ In this technique, opposing tears of septum are repaired. Transseptal sutures can effectively prevent postoperative haemorrhage, septal hematoma and adhesions formation after septoplasty.⁸ Nasal packing and transseptal

suturing technique appear to be equivalent with regard to postoperative haemorrhage, septal perforation and septal haematoma. In a comparative study, rate of crusting in transseptal patients was 6.81 % as compared to 21.95 % in patients with nasal packing.⁹

The purpose of this study was to determine which of the two methods, anterior nasal packing or transseptal sutures is more efficacious in preventing crusting with a hope that if transseptal suturing is proved to be more efficacious then its use can be recommended after septoplasty as it is not in common practice locally. At present, no such local study was available on the comparison of these procedures.

PATINETS AND METHODS

This randomized controlled trail was conducted at Department of ENT and Head & Neck Surgery Abbas Institute of Medical Sciences (AIMS) Muzaffarabad, Azad Kashmir for a period of six months from 26/5/2020 to 25/11/2020. Sample size of 132 cases (66 in each group) was calculated with 80% power of test, 5% level of significance and taking transseptal suturing in crust formation as 6.81% versus 21.95% with nasal packing.⁹ Patients from both the genders with ages in the range of 18-40 years who were undergoing septoplasty only due to deviated nasal septum diagnosed on anterior rhinoscopy were included in the study and divided into two groups randomly. However, patients with acute infection of the nose and para nasal sinuses (assessed by clinical examination and raised white blood cell count in complete blood profile) and patients having other associated sinonasal pathology (assessed clinically) were excluded. A written informed consent was obtained from every patient. Septoplasty was performed in the ENT operation theatres of Holy Family Hospital Rawalpindi by consultant surgeons and postoperatively all patients were given intravenous amoxicillin/clavulanic acid 1.2 gram 12 hourly and oral ibuprofen 400mg 08 hourly. Patients in group A were treated by transseptal suturing of mucoperichondrial flaps while patients in Group B underwent anterior nasal packing. Nasal packing was removed after 24 hrs and patients of both groups were discharged

on second post operation day with home treatment of tablet amoxicillin/clavulanic acid 1gram every 12 hours, tablet ibuprofen 400mg every 08 hour and normal saline nasal douching every 08 hour. The follow up for nasal crusting was done at 7th postoperative day. The crusting was recorded as present or absent clinically as dried yellow to greenish nasal secretions adherent to the nasal cavity, on anterior rhinoscopy using a Killian nasal speculum of appropriate size and a headlight.

All the data was noted and recorded along with demographic details of the patient. A single surgical team performed all the surgeries. Exclusion criteria were used to control confounding variables. Mean \pm SD has been used to present numerical variable i-e age. Frequency and percentage has been used to present categorical variables i-e gender and crusting. Chi-square test has been applied to compare the frequency of crusting between the two groups taking $p \leq 0.05$ as significant. For addressing effect modifiers, data was stratified for gender and age. Post-stratification chi-square test was applied by taking $p \leq 0.05$ as significant.

RESULTS

The mean age of patients was 28.44 \pm 6.16 years in the range of 18 years to 40 years. The study group had 53 (40.2%) female and 79 (59.8%) male with a female to male ratio of 1:1.5 as summarized in Table 1. In terms of gender distribution and mean age both the groups were comparable (p -value=0.859 and 0.978 respectively) as given in table 2. In patients treated with transseptal suturing, the frequency of post-operative nasal crusting was significantly lower (4.5% vs. 27.3%; $p=0.000$) as compared to anterior nasal packing. This difference was observed across all age and gender groups as shown in Table 3.

Table 1: Study Population demographic characteristics

Characteristics	Participants
Age (years)	28.44 \pm 6.16
Gender	
Male	79 (59.8%)
Female	53 (40.2%)

Table 2: Study Groups Comparison

Characteristics	TSS n=66	ANP N=66	P Value
Age (years)	28.42 \pm 6.17	28.45 \pm 6.18	0.978
Gender			
Male	39 (59.1%)	40 (60.6%)	0.859
Female	27 (40.9%)	26 (39.4%)	

Difference was observed statistically insignificant through independent sample t-test and chi-square test.

Transseptal Suturing (TSS), Anterior Nasal Packing (ANP)

Table 3: Comparison Post-operative Nasal Crusting Frequency between Study Groups

Nasal Crusting	TSS (n=66)	ANP (n=66)	P Value
• Overall	3 (4.5%)	18 (27.3%)	0.000*
• Age Groups			
18-25 years	1/24 (4.2%)	6/24 (25.0%)	0.041*
26-33 years	1/24 (4.2%)	6/23 (26.1%)	0.035*
34-40 years	1/18 (5.6%)	6/19 (31.6%)	0.043*
• Gender			
Male	2/39 (5.1%)	11/40 (27.5%)	0.007*
Female	1/27 (3.7%)	7/26 (26.9%)	0.018*

Difference was found statistically significant by Chi-square test

DISCUSSION

Nose is given central support by nasal septum. When septum is deformed significantly, it may cause cosmetic deformity besides dysfunctions that have impact on various functions of the nasal cavity.¹⁰ Nasal obstruction has been estimated in about 33%

population and near 25% patients pursue surgical treatment.⁴ Moreover, significantly deviated nasal septum is also associated with sinusitis, epistaxis, obstructive sleep apnea and headaches attributable to contact points with structures of the lateral nasal wall. These conditions are indicator for septoplasty⁵.

To prevent postoperative complications, traditionally nasal packing is used after septoplasty but it has its own disadvantages especially crusting. A novel and alternative technique to nasal packing is transseptal suturing. However, the available evidence was limited and no such locally published material was available.

In our study, the patients had a mean of 28.44 \pm 6.16 years in the range of 18 to 40 years. A similar mean age was earlier reported by Said et al.¹¹ in 2015 (27.37 \pm 6 years) in Iraq, Eski et al.¹² in 2015 (28.6 \pm 6 years) in Turkey, Ansari et al.¹³ in 2013 (23.4 \pm 6.41 years) in Pakistan, and Shah et al.¹⁴ in 2010 (25.4 years) in Nepal among patients undergoing septoplasty. However a relatively higher mean age has been reported by Cayonu et al.¹⁵ in 2014 (32.5 \pm 8.8 years) in Turkish and Bernardo et al.¹⁶ in 2013 (40.1 \pm 13.6 years) in Portugal's population.

In our study, number of female patients was 53 (40.2%) and male patients was 79 (59.8%) and with a female to male ratio of 1:1.49. This male predominance was also observed by Akhtar et al.¹⁷ in 2015 (1:1.63) in Pakistani, Said et al.¹¹ in 2015 (1:1.61) in Iraqi, and Cukurova et al.⁷ in 2012 (1:1.61) in Turkish patients undergoing septoplasty.

In terms of gender distribution ($p=0.859$) and mean age ($p=0.978$) both the groups were comparable and there did not exist any inherit bias between the two groups. In patients treated with transseptal suturing, the frequency of post-operative nasal crusting was significantly lower (4.5% vs. 27.3%; $p=0.000$) as compared to anterior nasal packing. This difference was observed across all age and gender groups. Our results are in line with those of the Naik et al.¹⁸ in 2015 who in a similar study in Indian population also observed transseptal sutures to be associated with significantly lower frequency of post-operative nasal crusting (6% vs. 24%; $p<0.05$) as compared to anterior nasal packing. Thapa et al.⁹ in 2011 (6.81% vs. 21.95%; $p<0.05$) in Nepal also observed similar significant difference.

However, an insignificant difference has been reported by Said et al.¹¹ in 2015 (6.7% vs. 13.3%) in Iraq, Devi et al.¹⁹ in 2014 (80% vs. 84%; $p>0.05$) in India and Günaydin et al.²⁰ in 2011 (93% vs. 90%; $p>0.05$) in Turkey. A possible explanation for this conflict can be the sampling bias where Said et al.¹¹ conducted a trial on 60 patients while Devi et al.¹⁹ studied 100 patients only. Population difference cannot be attributed to this difference in the studies as Naik et al.¹⁸ observed significant difference in Indian population contrary to Devi et al.¹⁹ who observed insignificant difference in the same population. So the most probable explanation for this conflict can be the difference in surgical skills as evident from the fact that in the current study the maximum frequency of nasal crusting was 27.3% which is much lower compared to the lowest frequency observed in these studies; Devi et al.¹⁹ (84%) and Günaydin et al.²⁰ (93%).

CONCLUSION

This study has reported transseptal suturing to be better than anterior nasal packing in terms of significantly lower frequency of post-operative nasal crusting regardless of patient's age and gender in patients undergoing septoplasty for deviated nasal septum. The results of this study thus advocate the use of transseptal suturing in future practice.

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