

Comparative Study on Transseptal Suturing Vs Merocel Packing Following Septoplasty

¹Dr. Anjana Udayakumar, Otorhinolaryngology, Sri Sidhartha Medical College, Tumkur, Karnataka, India

²Dr. Narayanaswamy G N, Otorhinolaryngology, Sri Sidhartha Medical College, Tumkur, Karnataka

²Dr. Vigneshwar RK, Otorhinolaryngology, Sri Sidhartha Medical College, Tumkur, Karnataka, India

Corresponding Author: Dr. Anjana Udayakumar, Otorhinolaryngology, Sri Sidhartha Medical College, Tumkur, Karnataka, India

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Abstract

It has been shown that nasal packing after septoplasty is associated with several complications. Our aim was to compare post-septoplasty nasal packing and trans septal suturing, in terms of complications and outcome of operation. . Trans-septal suturing has been suggested as a safe and effective alternative with a view to obviate the need for nasal packing and the hence avoid the discomfort associated with it. To compare the outcome of trans-septal suturing technique with merocel nasal packing after septoplasty. This was a prospective comparative study done on 32 patients who underwent septoplasty. The patients were divided randomly into 2 groups, while Group A comprised of patients undergoing Post-operative nasal packing with poly vinyl alcohol sponge (also commercially called Merocel), Group B included patients who underwent nasal septal suturing after surgery. The postoperative pain, hemorrhage, head ache and long term complications were the main parameters that were assessed and a comparison was drawn between the post-operative outcome of two techniques. The suturing

technology can be used as a substitute for traditional nasal packing of the first-line treatment. More well-designed studies are needed to confirm the effect of trans-septal suturing following septoplasty.

Keywords: Deviated nasal septum, merocele packing, transseptal suturing, septoplasty.

Introduction

Deviated nasal septum is one of the most common nasal structural defect and a prevalent problem among the general population worldwide (1). Septoplasty is a commonly performed surgery for the correction of a symptomatic deviated nasal septum and as an additional procedure in endoscopic surgeries to approach the lateral nasal wall. Nasal packing is routinely done as a last step of this surgery with the purpose of preventing post-operative bleeding, formation of synechiae or septal hematoma, reducing edema, optimizing the position of the septal flaps and closing the dead space between cartilage and subperichondrial flaps(2). Nevertheless, this approach has its own drawbacks. Aside from irritating pain and

difficulties in sleeping and respiration related to airway blockage caused by nasal pack, in the most extreme situations, inappropriate management of nasal pack can lead to toxic shock syndrome [3, 4].

Therefore, the complications of nasal packing vary from patient's discomfort to systemic life-threatening events (5). Therefore, the nasal packing as a nasal septum after routine treatment measures have been questioned in recent years. In addition to nasal packing, the surgeons have tried to find different methods. Alternative to nasal packing, such as fibrin glue, silicone nasal splint, and airbags, etc., but for various reasons these methods have not been widely promoted.

Currently, trans-septal suturing has gained a broader application area. This technique can obviate the need for packing after septoplasty, avoid patients' pain and anxiety during the extraction and cleaning of packing (6). It is quicker and easier for patients with trans-septal suturing to recover from anesthesia compared to nasal packing, and the period of post anesthesia care is shorter. However, suture removal also may cause pain and discomfort and this technique is difficult, when necessary, can prolong the surgery (7).

The present study was carried out to compare the outcome of Trans-septal suturing technique with poly vinyl alcohol sponge nasal packing after septoplasty with bleeding, pain, headache and long term complications.

Materials and methods

The present study to compare the transseptal suturing and merocel packing following septoplasty was carried out in the Department of Otorhinolaryngology, Sri Siddhartha Medical College, Tumkur between 1st November 2018 and 1st November 2020. All patients attending outpatient department of ENT, Sri Siddhartha Medical College hospital presenting with symptomatic

deviated nasal septum posted for only septoplasty were enrolled for the study after obtaining the written informed consent.

Study Design

Prospective study

Sample Size

Using the formula:

$$n = 2 \left\{ \frac{z(1-\alpha/2) + z(1-\beta)^2(\sigma^2)}{d^2} \right\}$$

Where:

n- is the sample size

z (1- $\alpha/2$)- is equal to 1.96 at the desired confidence level 95%

z (1- β) – 0.80

σ = pooled standard deviation= 1.25

d= difference of means

n=so with 95% Confidence level, sample size n= 16 in each group

Sample size = 32

Sampling Method: Purposive sampling

Study Period: 18 months + 6 months follow up (1st November 2018 to 1st November 2020)

Inclusion criteria

Patients aged between 18 to 50 years of age of both gender presenting with nasal obstruction due to deviated nasal septum (DNS) and qualifying to undergo septoplasty.

Exclusion Criteria

Patients undergoing septoplasty with Endoscopic sinus surgery, trans-septal procedures or septorhinoplasty.

Methods of collection of data

The selected patients are subjected to following

A Proforma will be used to collect all the requisite data from the patients with written informed consent between two groups.

Obtaining a detailed history and thorough clinical examination and investigations will be performed for all the patients. Surgical management includes septoplasty followed by either transseptal suturing or merocel packing . Patients are selected based on randomized double blind method.

Results

The postoperative complication among 16 patients with transseptal suturing and 16 patients with merocel packing following septoplasty have been analysed

Immediate postoperative bleeding was assessed within first 24 hours.

At each follow up visit, postoperative complications were assessed in each group and compared. These includes, pain and headache (using Visual Analogue Scale), adhesion, synechia and septal perforation.

With above findings, efficacy of transseptal suturing and merocel packing following septoplasty are found and compared.

Age Wise Distribution

Patients between the age group of 18 to 50 years were included in this study. . In transseptal suturing group 7 patients were in 21-30 years age group (43.8%) and 7 patients in 31-40 years age group (43.8%) and 2 patients were between age group of 41-50 years (12.50%). In merocel group, 3 patients were between the age group of 21-30 years (18.8%), 7 patients in 31-40years (43.8%) and 6 patients in 41-50 years (37.5%). Mean age in transseptal group was 31.44years, where as in merocel group it was 33.03 years

Gender wise distribution

In our study, out of 32 patients, 18 were male and 14 were females. Transseptal suturing group includes 10(62.5%) male and 6(37.5%) female patients. In merocel group, there were 8(50%) males and 8(50%)

females. 43.8% of the subjects were females and 56.3% of them were males.

Post-Operative Bleeding

Immediate postoperative bleeding in both groups were analysed and compared. Bleeding is considered as significant, if 4 or more Standardised swab (4x4cm) are used. Out of 16 patients in transseptal suturing group, 10 patients (62.5%) had immediate postoperative bleeding, which was measured in standardised swab. Among merocel group, 4 patients (25%) had postoperative bleeding. Immediate postoperative bleeding was managed with anterior nasal packing. P value was 0.033, which shows postoperative bleeding is significant among transseptal group.

Post-Operative Pain

Postoperative pain is analysed among both groups using visual analogue scale and compared. Visual analogue scale score of 5 or more as considered as significant. On analysis, out of 16 from transseptal suturing group, 3 patients (18.8%) had postoperative pain during first postoperative follow up visit on 7th day. From merocel packing group, 9 out of 16 patients (56.3%) complained of pain during the visit. P value was 0.028 which shows postoperative pain was significant among merocel group.

Post operative headache

Postoperative headache is analysed among both groups using visual analogue scale and compared. Visual analogue scale score of 5 or more as considered as significant. On analysis, out of 16 from transseptal suturing group, 2 patients (12.5%) had postoperative headache during first postoperative follow visit on 7th day. From merocel packing group, 9 out of 16 patients (56.3%) complained of headache during 1st postoperative day and during the follow up visit. P

value was 0.023, which shows postoperative headache was significant among merocel group.

Long term complications

Long term complications like synechiae and septal perforation are analysed during the follow up on first month till 6 months. Out of 16 from transseptal suturing group, 2 patients had synechiae, where in merocel group had 4 patients out of 16 had synechiae. Findings were analysed and compared

Discussion

In our study we had compared two groups of 16 patients each, one with transseptal suturing and one with merocel packing following septoplasty.

Age

Patients between the age group of 18 to 50 years were included in this study. In Transseptal suturing group 7 patients were between age group of 21-30 years (43.75%) 7 patients in 31-40 and 31-40 years age group (43.75%) and 2 patients in 41-50(12.5%) . In packing group, 3 patients were between the age group of 21-30 years (18.75%), 7 patients in 31-40years (43.75%) and 6 patients in 41-50 years (37.5%)

In a study conducted by Said Mustafa said et al the mean age of the sample was 27.37 ± 6 years, ranging from 18-45 years. The main age group was between 20-29 years (56.7%) [8]

In another study by Adrehalli et al, the mean age was 24.6 years, that also comes in the age group of 21-30. Study by Cukurova et al mean age was 28.9.

Gender

In our study out of 32 patients, 18 patients (56.25%) were males and 14 were females (43.75%). Among suturing group, 10 patients (62.5%) were males and 6 patients (37.5%) were females. Among packing group,

8 patients (50%) were males and 8 patients (50%) were females.

In a similar study by Adrehalli et al, out of 105 patients 78 patients were male and 27 were females.

In another study by Said et al, out of 60 patients, 37 patients were males (61.7%) and 23 patients were females (38.3%). In a study conducted by Cukurova et al, out of 697 patients, 430 were males (61.7%), and 267 were females (38.3%).

Post operative bleeding

In our study of 32 patients, 16 underwent transseptal suturing and 16 had merocel packing post septoplasty. Among the transseptal suturing group, out of 16, 10 patients (62.5%) had postoperative bleeding. And among merocel packing group out of 16, 4 patients (25%) had postoperative bleeding.

In a study by Said et al, patients in packing group experienced mild bleeding at the time of removal of nasal packs, another study done by Cukurova, postoperative bleeding is more in nasal packing group (1.8)[9]

Postoperative pain

In our study, out of 16 from transseptal suturing group, 3 patients (18.75%) complained of postoperative pain and headache. And out of 16 from merocel packing group, 9 patients (56.25%) had postoperative pain. P value was 0.028, which shows postoperative pain was significant among merocel group.

In a similar study done by Adrehalli et al, the average VAS score was 5 in the packing group and 2.1 in the non-packing group. Study of Said et al revealed the level of postoperative nasal pain in first and second postoperative days was higher among packing group compared to suturing group (T test significant)

Cukurova et al study shows postoperative pain among suturing group (2.3) is lesser compared with that of

packing group (4.8). P value was <0.05 . In another study by Mahmut et al the mean postoperative pain score was 2.8 ± 1.2 (median 2) in transseptal suturing group, and 7.3 ± 1.2 (median 7) in merocel packing group 1 h to 48 h post-surgery. [10]

Abdulla et al study revealed the postoperative pain scores at 1, 24, and 48 hours were significantly higher in packing group than in transseptal suturing group ($P < 0.05$). In both groups, the postoperative pain scores at 24 and 48 hours were not significantly different from the score 1 hour postoperatively. The pain scores of merocel packing group significantly increased when the nasal packing was removed. [11]

Post operative headache

In our study, out of 16 patients from transseptal group, 2 patients (12.5%) had postoperative headache, where 9 patients from merocel group (56.3%) had complained of postoperative headache. P value was 0.023, which shows postoperative headache was significant among merocel group.

Said et al study revealed that those with packing experienced much headache in comparison to patients in suturing group.

Synechia

In our study of 32 patients, 16 patients in each group, 2 patients (12.5%) had synechia from suturing group and 4 patients (25%) had synechia from packing group.

In a study done by Adrehalli et al, the packing group, 2 patients (3%) had Mucosal adhesion, whereas there was only one patient (2%) with mucosal adhesion in the non-packing group ($p = 0.56$).

Another similar study by Said et al revealed one patient (3.3%) in suturing group and 2 patients (6.7%) in packing group developed unilateral adhesions. Also Shambulinga killera et al says in their study, 4 patients

had synechia from suturing group and 12 patients had synechia from nasal packing groups. p value was 0.042. [12].

Conclusion

Taking into Consideration the observations of our study and comparing with similar studies we conclude that there will be less morbidity in terms of postoperative pain, headache, and long term complication like synechia among the patients who had transseptal suturing following septoplasty than with patients who had merocel nasal packing. The results of this study might help the surgeon to make a decision to choose transseptal suturing over merocel packing following septoplasty. Apprehensions about postoperative management if not packed has been addressed adequately in this study.

Limitations of the study: This is a study done on a small group, therefore there is need for a study with large group.

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