Comparison of Early-period Results of Nasal Splint and Merocel Nasal Packs in Septoplasty

Original Investigation

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Abstract

Objective: Several types of nasal packs are used postoperatively in septoplasty. In this study, we compared two commonly used nasal packing materials, the intranasal septal splint with airway and Merocel tampon, in terms of pain, bleeding, nasal obstruction, eating difficulties, discomfort in sleep, and pain and bleeding during removal of packing in the early period.

Methods: The study group included 60 patients undergoing septoplasty. Patients were divided into two groups (n=30 in each group). An intranasal splint with airway was used for the patients in the first group after septoplasty, while Merocel nasal packing was used for the second group. Patients were investigated in terms of seven different factors - pain, bleeding while the tampon was in place, nasal obstruction, eating difficulties, night sleep, pain during removal of the nasal packing, and bleeding after removal of packing.

Results: There was no statistically significant difference between the groups in terms of pain 24 hours after operation (p=0.05), while visual analog scale (VAS) scores for nasal obstruction, night sleep, eating difficulties, and pain during packing removal were lower in the nasal splint group with a statistically significant difference (p<0.05). There was no statistically significant difference between the groups in terms of postoperative bleeding (p=0.23). Significantly less bleeding occurred during removal of the packing in the nasal splint group (p<0.05).

Conclusion: Our study indicates that the nasal splint was more comfortable and effective in terms of causing lesser bleeding and pain during removal of packing.

Keywords: Septoplasty, nasal packing, complication, quality of life

Introduction

Septoplasty is one of the most commonly performed operations in ear, nose, and throat clinics. Nasal tampons are used to control post-septoplasty bleeding for septum stabilization and to prevent hematoma and adhesion (1-3). However, nasal tampon application has disadvantages, such as pain, nasal obstruction, nasal mucosal injury, respiratory disorder in sleep, oxidative stress, allergic reactions, dysphagia, eating difficulties, pain and bleeding during removal of the tampon, and toxic shock syndrome (4-8).

Various types of products can be used for postoperative nasal packing in septoplasty, including Merocel tampons, nasal splints, Vaseline gauze, glove finger packs, silastic sheets, Oxycel® and Surgicel® (5, 9-11). There is no consensus on the ideal material or duration of buffering in the literature. In this study, we compared two commonly used nasal packing materials, an intranasal septal splint with airway and Merocel tampon in terms of pain, bleeding, nasal obstruction, eating difficulties, discomfort in sleep, and pain and bleeding during removal of packing.

Methods

Sixty patients undergoing septoplasty under general anesthesia between May 2015 and December 2016 were enrolled. Patients with nasal septal deviation and aged between 18-50 years were included in this prospective study. Institutional ethical committee approval was granted for the study. Informed consent was obtained from all patients. Patients with a history of nasal surgery, allergic disorders, bleeding disorders, any chronic comorbidity, or aged under 18 years or over 50 years were excluded.

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All operations were performed by the same surgeon. Nasal packs were inserted in all patients. Two types of nasal pack were used, the Merocel standard 8 cm nasal dressing without airway (Medtronic Xomed Inc.; FL, USA) and the Doyle Silicone Combo splint with airway (Boston medical products; MA, USA). Both nasal packing materials were commercially prepared products, and no process was applied before usage. The patients were randomly divided into two groups. The nasal splint was used in Group 1 and Merocel nasal packing in Group 2.

All packing was removed 48 hours after surgery. Patients were investigated in terms of seven different factors, including pain, bleeding with the tampon in place, nasal obstruction, eating difficulties, night sleep, pain during removal of the nasal packing, and bleeding after removal of the packing. A visual analog scale (VAS) was used to determine pain, eating difficulties, night sleep, and nasal obstruction in patients on a 10 cm scale wherein 0 indicates no symptom and 10 indicates the most severe symptoms. Pain scores were recorded 1, 6, and 24 hours postoperatively and during nasal packing removal at 48 hours postoperatively. Hemorrhage after removal of nasal pack was also recorded according to the following scale: 0=no bleeding, 1=blood seeping from the nose, and 2=continuous bleeding.

Statistical analysis

Statistical Package for Social Sciences 17.0 (SPSS Inc.; Chicago, IL, USA) was used for statistical analysis. The Shapiro-Wilk test was used to test the normality of data. The nonparametric Mann-Whitney U test was used to compare scores between the groups. A p value of <0.05 was considered statistically significant.

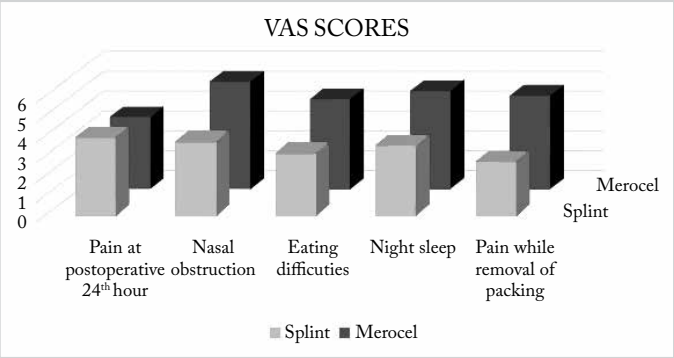

Figure 1. Comparison of the VAS scores
VAS: visual analog scale

Results

Sixty patients aged 18-47 years were included in the study. Median ages were 29.5±7.3 years in Group 1 and 27.4±6.9 years in Group 2. Group 1 consisted of 17 females and 13 males and Group 2 consisted of 16 females and 14 males. There was no statistically significant difference between the groups in terms of age (p=0.23) or gender (p=0.79). No postoperative complications occurred in any patient. Length of surgery was similar in both procedures.

Visual analog scale scores of the groups in terms of pain at postoperative 24th hour, nasal obstruction, night sleep, eating difficulties, and pain on removal of packing are summarized in Table 1. There was no significant difference between the groups in terms of pain at postoperative 24 hours (p=0.05), while VAS scores for nasal obstruction, night sleep, eating difficulties, and pain during removal of packing (p<0.05) were significantly lower in patients receiving nasal splints (Table 1).

No statistically significant difference was observed between the groups in terms of postoperative bleeding scores (p=0.23) (Table 2). Bleeding during removal of packing was significantly lower in patients with nasal splints (p<0.05, Figure 1).

Discussion

In this study, the nasal splint was better tolerated following septoplasty than was the Merocel tampon. Patients with intranasal septal splints experienced lesser nasal obstruction, lesser difficulty in eating, and fewer night sleep problems. They also experienced less pain and bleeding during tampon removal. No statistically significant difference was observed between the groups in terms of pain at postoperative 24 hours. No septal hematoma was observed with either of the two types of tampon used.

Septoplasty is one of the most common surgical interventions in otorhinolaryngology. Nasal packs are used to reduce bleeding and prevent complications, such as septal hematoma and adhesion (12). Although some authors do not recommend the use of nasal tampons following septoplasty, these are still employed by many otorhinolaryngologists. In addition to exhibiting the desired benefits, an ideal tampon must also be easily inserted and removed and cause minimum patient discomfort (12, 13). The advantages and disadvantages vary depending on the type of nasal tampon used. Intranasal tampons applied following septoplasty cause problems that may affect patients' quality of life. One of the problems of greatest concern is pain and particularly pain while the tampon is being removed. Another important

Table 1. VAS scores of the groups

	Postoperative pain at 24 hours (Mean±SD)	Nasal obstruction (Mean±SD)	Eating difficulties (Mean±SD)	Night sleep (Mean±SD)	Pain during removal of packing (Mean±SD)
Splint	3.9±2	3.7±1.4	3.1±2.1	3.5±1.7	2.7±1.5
Merocel	3.6±1.8	5.4±2.1	4.5±2.2	4.9±1.9	4.7±1.8
p	0.50	0.002*	0.016*	0.008*	0.000*

*: significant at 0.05 level; VAS: visual analog scale; SD: standart deviation

Table 2. Bleeding scores of the groups

	Postoperative bleeding (Mean±SD)	Bleeding during removal of packing (Mean±SD)
Splint	0.17±0.37	0.03±0.18
Merocel	0.07±0.25	0.3±0.59
p	0.23	0.02*

*: significant at 0.05 level; SD: standart deviation

factor that compromises patient comfort is nasal fullness. Patients may experience difficulty in swallowing and eating and may experience dry mouth and associated sleep problems (5, 12, 14, 15).

Acıoğlu et al. (12) compared postoperative findings in 119 patients who had utilized Merocel pack, nasal splint, Merocel in a glove finger, and Vaseline gauze. They compared postoperative pain, nasal fullness, and bleeding for these four nasal packing materials and concluded that Merocel had the highest pain potential during removal as well as the highest rate of bleeding following removal. In a study of 60 patients, Wadhera et al. (10) found that intranasal septal splints result in less postoperative pain without increasing postoperative complications; thus, they can be used as an effective alternative to nasal packing after septoplasty.

Merocel and intranasal septal splints are frequently used after septoplasty operations (16). Merocel is a foam-type nasal packing material made from a polymer of hydroxylated polyvinyl acetate (17). The Merocel tampon can be easily inserted and removed. However, nasal fullness has a significant impact on patient comfort and leads to difficulty in swallowing and eating and sleep problems (8, 10, 18). Important problems associated with Merocel tampons include pain and bleeding. Merocel tampons cause pain and bleeding on removal by adhering to the nasal septal mucosa and lateral nasal wall (19).

Intranasal septal splints are inserted in to both of the nasal cavities and fixed by a U suture that crosses through the septal flap sands plints using a 3.0 Nylon material. Intranasal septal splints cause less pain and provide better patient comfort immediately after surgery by permitting respiration (18). Acıoğlu et al. (12) compared four different nasal tampon materials - Merocel pack, nasal splint, Merocel in a glove finger, and Vaseline gauze. Levels of nasal fullness and pain and bleeding on removal of the tampon were highest in the Merocel tampon group. The authors attributed this to less contact and adhesion to the concha and lateral nasal wall in case of the nasal splint (12). Studies have shown that intranasal septal splints cause less negative pressure in the middle ear than do Merocel tampons, which also increases postoperative patient comfort (20).

The major limitation of our study was the small sample size. Also another patient group with no packing material after operation may be included in the study.

Conclusion

In this study, we compared the efficacy and effects of Merocel pack and intranasal septal splints. Our findings indicate that intranasal septal splints are more comfortable and effective in terms of causing lesser bleeding and pain during removal of the packing.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Atatürk University (2015; 17).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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