***Original Article / Çalışma - Araştırma***

# Influence of nasal pack removal on patients' anxiety after septoplasty

## Septoplasti sonrası nazal tamponun çıkarılmasının hastaların anksiyetesi üzerindeki etkileri

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***ABSTRACT***

**Objectives:** This study aims to investigate the effects of the removal of Merocel nasal packs on patients' anxiety after septoplasty.

**Patients and Methods:** Fifty patients (26 males, 24 females; mean age 30 years; range 18 to 56 years) who underwent septoplasty in the Department of Ear Nose and Throat of our hospital between January 2013 and January 2015 were enrolled in this prospective study. Patients' anxiety was measured using the State-Trait Anxiety Inventory. Anxiety levels were measured 24 hours preoperatively, 48 hours postoperatively before nasal pack removal, and 60 minutes after nasal pack removal.

**Results:** The State-Trait Anxiety Inventory scores were 44.2±7.4 preoperatively, 45.1±7.1 postoperatively before pack removal, and 37.4±6.7 after pack removal. There was no statistically significant difference between pre- and postoperative evaluations. However, patients' anxiety decreased statistically significantly in the evaluation 60 minutes after pack removal (p=0.0).

**Conclusion:** We recommend administering soluble packs or sewing techniques without nasal packs after septoplasty due to concerns related to quality of life after surgery.

***Keywords:*** Anxiety; nasal surgery; surgical; tampons.

***ÖZ***

**Amaç:** Bu çalışmada septoplasti sonrası Merocel nazal tamponların çıkarılmasının hastaların anksiyetesi üzerindeki etkileri araştırıldı.

**Hastalar ve Yöntemler:** Bu prospektif çalışmaya Ocak 2013 - Ocak 2015 tarihleri arasında hastanemizin Kulak Burun Boğaz Bölümünde septoplasti geçiren 50 hasta (26 erkek, 24 kadın; ort. yaş 30 yıl; dağılım 18-56 yıl) alındı. Hastaların anksiyetesi Durumluk-Sürekli Anksiyete Envanteri kullanılarak ölçüldü. Anksiyete düzeyleri ameliyattan 24 saat önce, ameliyattan 48 saat sonra nazal tampon çıkarılmadan önce ve nazal tampon çıkarıldıktan 60 dakika sonra ölçüldü.

**Bulgular:** Durumluk-Sürekli Anksiyete Envanteri skorları ameliyattan önce 44.2±7.4, ameliyattan sonra tampon çıkarılmadan önce 45.1±7.1 ve tampon çıkarıldıktan sonra 37.4±6.7 idi. Ameliyat öncesi ve sonrası değerlendirmeler arasında istatistiksel olarak anlamlı farklılık yoktu. Ancak tampon çıkarıldıktan 60 dakika sonraki değerlendirmede hastaların anksiyetesi istatistiksel olarak anlamlı şekilde azaldı (p=0.0).

**Sonuç:** Cerrahi sonrası yaşam kalitesine ilişkin endişeler nedeniyle septoplasti sonrası çözünebilir tampon veya nazal tampon olmadan dikiş teknikleri uygulanmasını öneriyoruz.

***Anahtar Sözcükler:*** Anksiyete; nazal cerrahi; cerrahi; tampon.

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Septoplasty is one of the most common surgeries in Ear, Nose, and Throat practice. Intranasal packs are widely used postoperatively for nasal septum stabilization and bleeding control. Merocel® (Medtronic Xomed, Jacksonville, FL, USA) nasal tampons are often preferred because of their ease of use and clinical efficacy.[1]

Anxiety is a symptom that can occur in cases when a person does not feel safe. Environmental factors and physical effects may increase anxiety. The process of surgery itself and use of intranasal packs are environmental factors that can affect anxiety levels. Patients may be concerned about pain during nasal pack removal, and their anxiety levels may increase.

Anxiety levels of patients can be objectively measured using different tests including the State-Trait Anxiety Inventory Scale (STAI-S), Hamilton Anxiety Scale, and Hospital Anxiety Depression Scale.[2,3]

In this study, we aimed to investigate patient anxiety preoperatively and postoperatively, before and after pack removal, using the STAI-S. In particular, we aimed to examine the anxiety before septoplasty and during pack removal after septoplasty.

## PATIENTS AND METHODS

Fifty-six patients, on whom we planned to conduct a septoplasty for a diagnosis of nasal septal deviation, between January 2013 and January 2015 were prospectively included in this study. Written informed consent was obtained from each subject, following a detailed explanation of the objectives and protocol of the study. This study was conducted in accordance with the ethical principles stated in the Declaration of Helsinki and approved by the institutional ethics committee.

Patients with nasal polyposis, concha bullosa, or any additional nasal or paranasal pathology were excluded. All patients were operated on under general anesthesia. All patients were operated on, and all nasal packs removed, by the same surgeon. Postoperatively, an 8 cm Merocel® standard nasal dressing without airway (Medtronic Xomed, Jacksonville, FL, USA) was placed into the right and left nasal cavity of each patient. Nasal packs were removed 48 hours after surgery. All patients were preoperatively evaluated by the same psychiatrist. Six patients were excluded from the study because of psychiatric issues (3 for general anxiety, 2 for depression and 1 because of schizophrenia) diagnosed by psychiatrist. After exclusion the study was completed with 50 patients (26 males, 24 females; mean age 30 years; range 18 to 56 years). The timing of nasal pack removal and all operation details were individually explained to all patients.

Anxiety levels of all patients were measured using STAI-S scale by the same psychiatrist (Table 1). Patient anxiety levels were measured three times: 24 hours before the operation, 48 hours after operation (before nasal packing removal), and 60 minutes after nasal packing removal. The patients were classified according to education level. They were classified as primary school graduates, secondary school graduates, high school graduates, and university graduates.

### Statistical analysis

The obtained data were compared using Statistical Package for the Social Sciences SPSS version 13.0 software program (SPSS Inc., Chicago, IL, USA). The patients' anxiety levels were compared with repeated measures for ANOVA (RM-ANOVA) test ($p<0.05$ was accepted as statistically significant). The patients' anxiety levels between genders were compared with a Student t test ($p<0.05$ was accepted as statistically significant). The patients' anxiety levels between education subgroups were compared with Student t test ($p<0.05$ was accepted as statistically significant).

## RESULTS

The State-Trait Anxiety Inventory Scale assessment was 44.2±7.4 preoperatively, 45.1±7.1 postoperatively before pack removal, and 37.4±6.7 after pack removal. There was a statistically significant difference in anxiety after pack removal ($p<0.05$). Patients' anxiety levels decreased significantly after nasal pack removal.

There was no statistically significant difference between male and female genders ($p=0.348$) (Table 2). Furthermore, there was no statistically significant difference between educational subgroups ($p=0.416$) (Table 3).

## DISCUSSION

Different nasal tampons or various suture techniques have been applied to prevent

**Table 1.** State trait anxiety inventory form

| | Not at all | Somewhat | Moderately | Very much |
|---|---|---|---|---|
| I feel calm | 1 | 2 | 3 | 4 |
| I feel secure | 1 | 2 | 3 | 4 |
| I feel tense | 1 | 2 | 3 | 4 |
| I feel strained | 1 | 2 | 3 | 4 |
| I feel at ease | 1 | 2 | 3 | 4 |
| I feel upset | 1 | 2 | 3 | 4 |
| I feel presently worried over possible misfortunes | 1 | 2 | 3 | 4 |
| I feel satisfied | 1 | 2 | 3 | 4 |
| I feel frightened | 1 | 2 | 3 | 4 |
| I feel comfortable | 1 | 2 | 3 | 4 |
| I feel self confident | 1 | 2 | 3 | 4 |
| I feel nervous | 1 | 2 | 3 | 4 |
| I am jittery | 1 | 2 | 3 | 4 |
| I feel indecisive | 1 | 2 | 3 | 4 |
| I am relaxed | 1 | 2 | 3 | 4 |
| I am content | 1 | 2 | 3 | 4 |
| I am worried | 1 | 2 | 3 | 4 |
| I feel confused | 1 | 2 | 3 | 4 |
| I feel steady | 1 | 2 | 3 | 4 |
| I feel pleasant | 1 | 2 | 3 | 4 |

formation of septal hematoma, to control bleeding, to prevent formation of adhesion of nasal cavities, and to stabilize the newly created septum after septoplasty.[4] Merocel® packs, Doyle™ packs (Medtronic, Minneapolis, MN, USA), Rapid Rhino™ tampons (ArthroCare Corporation, Austin, TX, USA), or gauze with vaseline can be applied as nasal packing after septal surgery.[1,5] Transseptal sutures and septal staplers can be used without nasal packing after surgery.[6]

**Table 2.** Descriptive statistics of between gender subgroups

| | Number | STAI value |
|---|---|---|
| | | Mean±SD |
| Preoperative | | |
| Gender | | |
| Male | 26 | 43.8±7.2 |
| Female | 24 | 44.7±7.8 |
| Postoperative before pack removal | | |
| Gender | | |
| Male | 26 | 44.6±7.5 |
| Female | 24 | 46±6.8 |
| Postoperative after pack removal | | |
| Gender | | |
| Male | 26 | 36.5±7 |
| Female | 24 | 38.3±6.4 |

STAI: State-Trait Anxiety Inventory; SD: Standard deviation.

After surgery, the removal of nasal packs (from the perspective of the patient) is a painful and scary process. For this reason, there is much research concerning this issue and addressing patient comfort. The process of pack removal can lead to anxiety, fear, and stress in patients.

Merocel® nasal packs are useful tampons because of their ease of use and their effective control of bleeding after surgery. There are disadvantages of patient discomfort while removing the nasal packing. The packs can be removed 24-48 hours after an operation.[1] The length of time the nasal packing stays in the nose affects patients' comfort and increases anxiety levels.

Patient anxiety may also occur because of general fears and environmental factors.

**Table 3.** Descriptive statistics of education subgroups

| Education | Number | Preoperative | Postoperative before pack removal | Postoperative after pack removal |
|---|---|---|---|---|
| Primary school | 6 | 44.5±2.7 | 47.6±2.7 | 36.5±2.1 |
| Secondary school | 17 | 41.8±1.9 | 42.9±1.9 | 36.8±1.7 |
| High school | 16 | 44±1.6 | 45±1.4 | 37.5±1.5 |
| University | 11 | 48±2.3 | 48.3±2.7 | 38.7±2.4 |

Unknown factors - e.g., surgical and anesthetic fear, death, unsuccessful recovery, previous hospital experiences, psychological factors - may cause anxiety. Packing and the process of removing the pack, as well as gender, are cofactors of anxiety.

The STAI-S was developed by Spielberger in 1970 to determine the state and continuous anxiety level of patients.[7] There are two forms of the scale. STAI-S is a short-term, self-evaluation scale. STAI-trait is a long-term evaluation scale. In STAI-S form, we evaluated how the participants feel now. In STAI-trait, the participants' general anxiety levels are evaluated. We used the first STAI-S form for short term psychiatric assessment of the patients (Table 1). Higher scores reflect higher anxiety levels. In the literature, the value of STAI is between 40-45 preoperatively.[8,9]

In the literature, there are few investigations pointing to the anxiety levels in patients with septoplasty with the use of level measurement STAI. Investigations of the connection between anxiety and different kinds of surgeries are present.[10,11] There are general fears about the surgical processes in patients. After septoplasty, patients are informed about the time until removal of nasal tampons. Patients receive information that the surgical process isn't finished yet. This may prevent patients from relaxing after the operation. We tried to investigate the triangle of operation, anxiety levels, and the removal of packs in our study.

In an emergency room setting, STAI measures before surgery were observed as 47 in males and 51 in females.[10] Postoperative STAI measures were 43 in males and 42 in females. In our study, STAI anxiety levels did not decrease significantly after operation. The levels decreased after removal of nasal packs. There was no statistically significant difference between genders in our study.

A study about anxiety levels in patients undergoing endoscopic sinus surgery observed that there was a clear increase in the level of preoperative anxiety in patients with information about the surgery and in female patients.[3] We informed all patients about the operation, but we could not create subgroups because of ethical reasons.

Another study showed no significant difference in patient anxiety before and after endoscopic sinus surgery and septum surgery[12] while a different study showed anxiety levels of patients having endoscopic sinus surgery decreased after the operation.[11] There are differing results in the literature, and using or not using nasal packs may be co-factors in this issue.

The patients' level of education may change the perception of pain and anxiety because of socio-demographic differences. As the level of education increases, individuals might research and query about the issue, so that levels of ignorance are lower with educated people. On the other hand, additional knowledge may increase anxiety levels. There are studies that revealed education level may enhance anxiety.[13] However, there was no statistically significant difference between educational subgroups in our study.

In conclusion, there are few studies about nose surgery and patient anxiety. We aimed to analyze how postoperative care can be improved after septoplasty surgery. Patient anxiety significantly decreases after nasal pack removal. We obtained the data of patients' anxiety and observed that anxiety significantly decreased after pack removal - not after the surgery. Nasal packing is an additional risk for patients' anxiety after operation. Because of this, we recommend using soluble packs or sewing techniques without nasal packings after septoplasty because of quality of life issues after surgery.

**Declaration of conflicting interests**

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