Perioperative anxiety in patients undergoing septorhinoplasty

Septorinoplasti hastalarında perioperatif anksiyete

Abstract

Aim: Septorhinoplasty is a frequently performed surgery in otolaryngology clinics that may induce perioperative anxiety in patients. Although such anxiety is considered a normal part of the surgical experience, it has negative consequences. This study aimed to evaluate the perioperative depression, anxiety, and postoperative pain scores of patients who underwent septorhinoplasty, as knowing this information has the potential to improve their recovery process.

Methods: A total of 46 patients who underwent septorhinoplasty in 2019–2021 were included in this prospective study. The Hospital Anxiety and Depression Scale (HADS) was used to measure anxiety and depression, and the Visual Analog Scale was used to measure patients' postoperative pain (POP).

Results: A comparison of preoperative and first postoperative day HADS-A scores revealed a significant decrease in the scores (p=0.001). HADS-A and HADS-D scores decreased significantly after internal nasal splints were removed (p<0.05). A positive correlation was found between postoperative HADS-A scores and POP values (p<0.001).

Conclusion: Perioperative anxiety should be mindfully considered in patients undergoing septorhinoplasty. Early removal of the internal nasal splints may reduce patients' anxiety.

Keywords: anxiety; depression; pain; rhinoplasty

Öz

Amaç: Septorinoplasti kulak burun boğaz kliniklerinde sıklıkla yapılan ve hastalarda perioperatif anksiyeteye neden olabilen bir ameliyattır. Anksiyete her ne kadar perioperatif dönemdeki cerrahi deneyimin normal bir parçası olarak kabul edilse de negatif sonuçları bulunmaktadır. Bu çalışma ile septorinoplasti ameliyatı geçiren hastaların iyileşme sürecine katkıda bulunmak amacıyla perioperatif dönemdeki depresyon, anksiyete ve postoperatif ağrı skorlarının değerlendirilmesi amaçlandı.

Yöntemler: 2019-2021 yılları arasında septorinoplasti ameliyatı yapılan 46 hasta bu prospektif çalışmaya dâhil edildi. Hastaların anksiyete ve depresyon skorlarını ölçmek için HADS (Hospital anxiety depression scale), postoperatif ağrı puanlarını (POP) ölçmek için ise vizüel analog skala kullanıldı.

Bulgular: Preoperatif ile postoperatif 1.gün HADS-A skorları karşılaştırıldığında skorlar arasında anlamlı düzeyde bir azalma olduğu görüldü (p=0.001). İnternal nazal splintler çıkarıldıktan sonra HADS-A ve HADS-D skorlarında anlamlı bir düşme görüldü (p<0.05). Postoperatif HADS-A skorları ile POP değerleri arasında pozitif bir korelasyon bulundu (p<0.001).

Sonuç: Septorinoplasti ameliyatı geçiren hastalarda perioperatif anksiyete dikkatle ele alınmalıdır. Tamponların erken çıkarılması hastaların anksiyetesini azaltabilir.

Anahtar Sözcükler: ağrı; anksiyete; depresyon; rinoplasti

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Received/*Geliş* : 06.08.2022
Accepted/*Kabul*: 02.09.2022

DOI: 10.21673/anadoluklin.1158712

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INTRODUCTION

Anxiety is frequently observed in patients in the perioperative period. Although it is considered a normal part of the surgical experience, it may have negative consequences, affecting patients both cognitively and psychologically (1). There is a risk of depression after any type of surgery, but specific surgeries are more likely to trigger postoperative depression, and septorhinoplasty (SRP) is one of them (2).

Unlike other nasal surgeries, SRP changes the external appearance of the nose. Changes in the body image, fear of postoperative pain (POP), and fear of internal nasal splints are possible causes of perioperative anxiety in SRP patients. In the early postoperative follow-up, the presence of internal nasal splints is one of the more uncomfortable situations encountered by SRP patients. It is important to evaluate SRP patients' perioperative anxiety, depression, and pain levels to improve the recovery process.

The aim of this prospective, observational, single-center study was to analyze pre- and postoperative anxiety and depression scores of patients who underwent SRP, and secondly to investigate the correlation between the postoperative anxiety, depression and pain levels.

MATERIAL AND METHODS

Protocol

This study was approved by Bazmialem Vakif University Non-Interventional Research Ethics Committee (Date: 18.06.2019, no: 12/252). Informed consent was obtained from all the participants in the study. All the procedures in the study adhered to the ethical standards of the institutional research committee and the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Participants

A total of 46 patients who underwent SRP in 2019–2021 were included in the study. The inclusion criteria were as follows: aged ≥18 years; scheduled for SRP; American Society of Anesthesiologists physical status: class 1, ability to read and understand the Turkish language. The exclusion criteria included at least one of the following conditions: a history of mental illness; lack of cooperation; inability to answer the questionnaire; postoperative use of additional analgesic drugs; additional nasal or paranasal pathology.

Surgical approach

The open SRP technique was performed, which involves submucosal infiltrative anesthesia with a 4-mL mixture of 1% lidocaine and epinephrine (1:100,000) in the region of the septum and nasal soft tissues over the nasal dorsum. The osteotomies were done by using micro saws, and, to homogenize the study group, only patients that underwent osteotomy were included in the study. All of the operations were performed by the same surgeon.

Nasal splints (Doyle Intranasal Airway Splint; Medtronic, Minneapolis, USA) were used for nasal packing and removed on the seventh postoperative day. External nasal thermal splints (Thermal splint; Medtronic, USA) were also used and removed on the seventh day after surgery.

Anesthesia and pain management

All the patients were premedicated with 2 mg midazolam 30 minutes before the surgery. General anesthesia was provided with the induction of 2 to 3 mg/kg propofol, 2 mcg/kg fentanyl, and 0.6 mg/kg rocuronium. Anesthesia and analgesia maintenance was performmed with 50% oxygen, 50% air, 1 minimum alveolar concentration (MAC) sevoflurane, and 0.125 to 0.500 mcg/kg/min remifentanil infusion. No complications were seen during or after the operations. All the patients received a 100-ml intravenous infusion containing 1,000 mg of paracetamol and 100 mg of tramadol 30 minutes before the end of the operation.

All the patients received 1,000 mg intravenous paracetamol 3 times per day as standard procedure for POP management on the day of surgery, and no additional analgesic medication was given. The length of hospital stay was 24 hours. All the surgeries were scheduled as the first case of the day. All the patients were prescribed 500 mg oral paracetamol 3 times daily for 7 days after discharge.

Data collection

The Hospital Anxiety and Depression Scale (HADS), validated in the Turkish language, was used to measure

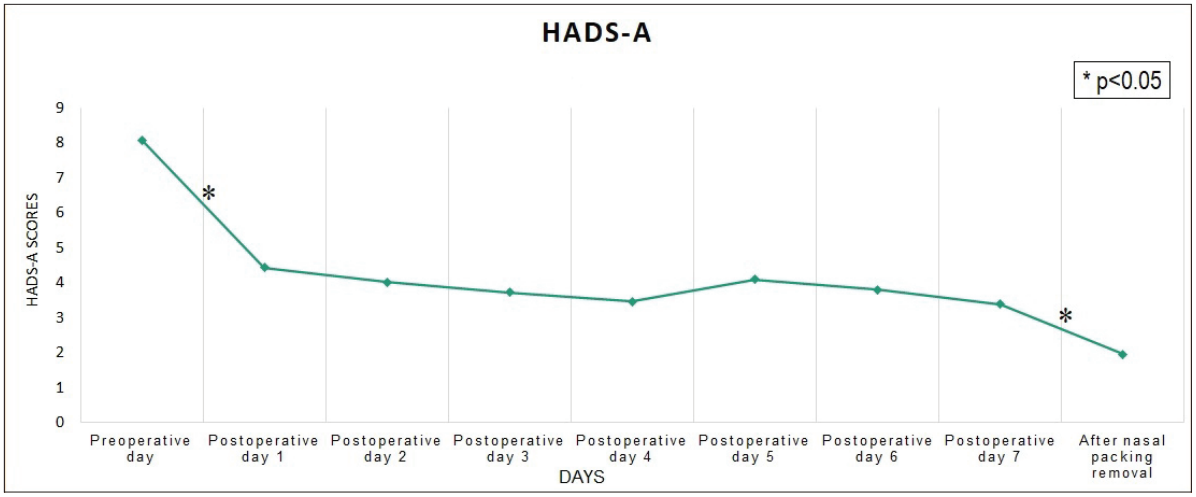

Figure 1. Comparison of Hospital Anxiety and Depression Scale-Anxiety (HADS-A) scores.

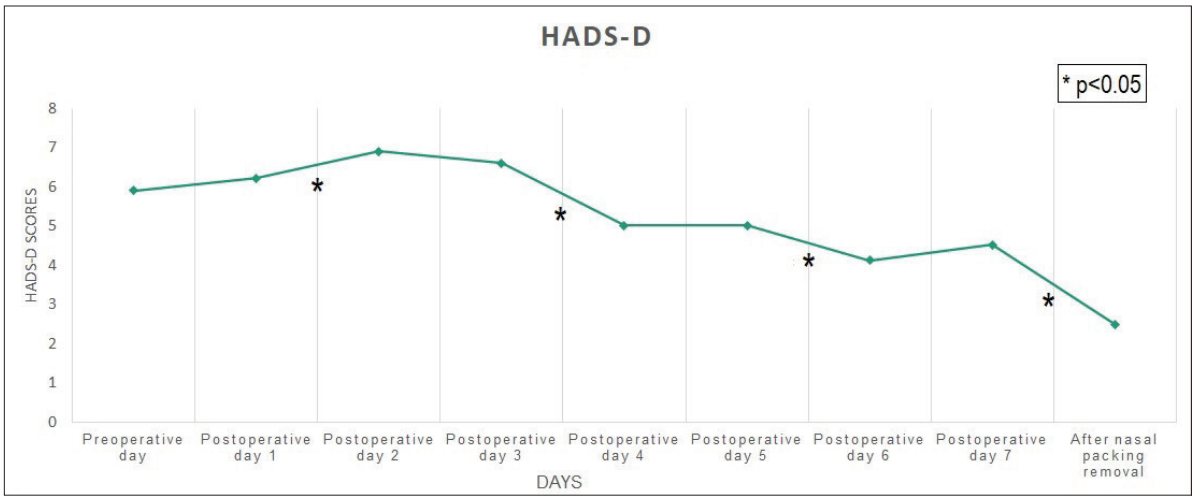

Figure 2. Comparison of Hospital Anxiety and Depression Scale-Depression (HADS-D) scores.

the patients' anxiety and depression (3, 4). This scale comprises two subscales—the anxiety scale (HADS-A) and the depression scale (HADS-D)—with seven questions each. The items are scored on a 4-point scale (0–3 points), and the total score for each subscale ranges from 0–21 (5). Scores of 7 and below are considered to represent normal emotional status (3). All the patients were asked to take the HADS test 1 hour before surgery and on each postoperative day until the internal nasal splints were removed.

The Visual Analog Scale (VAS), a 10-point scale ranging from 0 (no pain) to 10 points (severe pain) was used to evaluate POP. The patients were asked to rate their overall POP on the operation day and on each postoperative day until the removal of internal nasal splints. All the patients were asked "How painful do you think it would be to remove the internal nasal splints?" and answered using the VAS. The patients were also asked to indicate on the VAS their level of pain during internal nasal splint removal. Their preconceptions about the pain of internal nasal splint removal were evaluated by comparing their VAS scores before and after the procedure.

Outcome measures

The primary outcome measures in this study were the SRP patients' pre- and postoperative HADS-A, HADS-D, and POP scores. The secondary outcome measures were the correlations between the HADS-A, HADS-D, and POP scores.

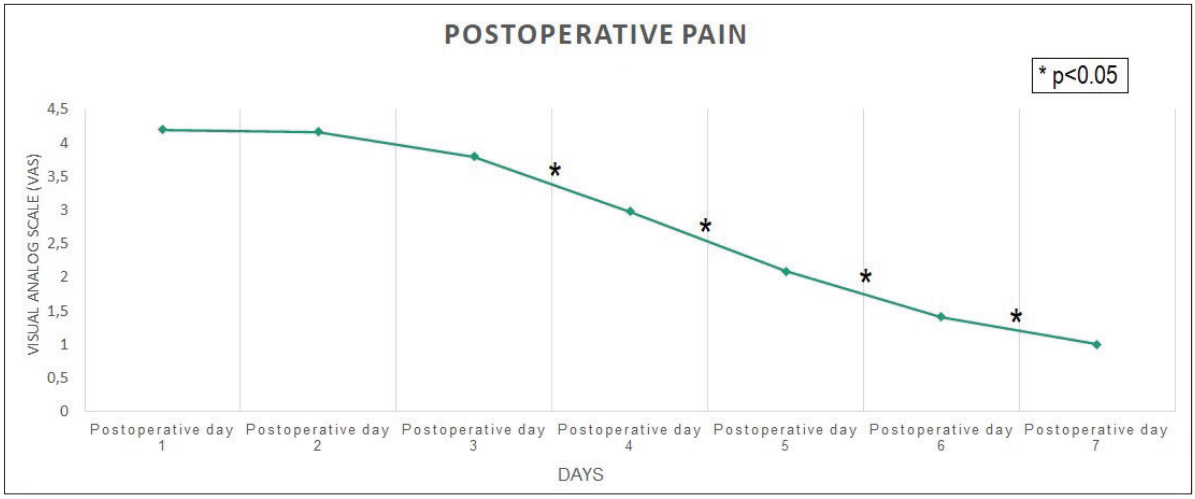

Figure 3. Comparison of postoperative pain scores.

Figure 4. Comparison of patients' predicted VAS scores for internal nasal splint removal pain and VAS scores after internal nasal splint removal($p<0.05$).

Statistical analysis

The sample size was calculated to be least 30 based on a previous study with a type I error (alpha) of 0.05 and a statistical power of 0.80 (6). Statistical Package for the Social Sciences software for Windows, version 22.0, was used for the statistical analysis (SPSS, Chicago, IL, USA). The descriptive statistics are presented as mean±standard deviation (SD) and median (minimum-maximum). The concordance of the continuous data to normal distribution was tested by the Kolmogorov-Smirnov test, and the comparison of dependent variables was analyzed with the Wilcoxon signed-rank test. The correlations between postoperative HADS-A and HADS-D scores and POP values were analyzed using Spearman correlation analysis. The significance level was set at 0.05 for all tests.

RESULTS

Of the 46 patients in the study, 20 were males and 26 were females; their ages ranged from 18 to 47 years (mean±SD: 31.65±8.01).

Comparison of the preoperative and first postoperative day HADS-A scores revealed a significant decrease in the scores ($p=0.001$). There were no significant differences on the other postoperative days ($p>0.05$), but there was a significant decrease in the HADS-A scores between the first and seventh post-

operative days (p=0.028). There was also a significant decrease in the HADS-A scores between the seventh postoperative day and after the removal of the internal nasal splints (p=0.001) (Figure 1).

HADS-D scores were also compared. There was no significant difference between the preoperative and first postoperative day scores (p=0.748), but there was a significant decrease between the first and second postoperative days (p=0.025). No significant difference was observed between the second and third postoperative days (p=0.071), but there was a significant decrease between the third and fourth postoperative days (p=0.000). No significant difference was observed again between the fourth and fifth postoperative days (p=0.365), but there was a significant decrease between the fifth and sixth postoperative days (p=0.000). There was no significant difference between the sixth and seventh postoperative days (p=0.228) but a significant decrease between the seventh postoperative day and after the removal of the internal nasal splints (p=0.000) (Figure 2).

A comparison of the POP scores within the group found no significant differences between the first and second (p=0.713) or second and third (p=0.267) postoperative days, but there were significant differences between the third and fourth (p=0.000), fourth and fifth (0.000), fifth and sixth (p=0.000), and sixth and seventh postoperative days (p=0.000) (Figure 3).

The correlation of the HADS-D and POP scores of all the patients was analyzed, and no significant correlation was found (p>0.05). However, when the correlation of HADS-A and POP scores of all the patients was analyzed, a positive correlation was found (p<0.001).

The patients' estimated VAS scores regarding pain during the removal of the internal nasal splints were compared with the VAS scores indicated after the removal of the splints. A significant difference was found (p<0.05) (Figure 4).

DISCUSSION AND CONCLUSION

The present study found a significant difference in anxiety scores between the preoperative and first postoperative day of the SRP patients. There were also significant differences in terms of anxiety and depression scores before and after the removal of internal nasal splints. A positive correlation was found between anxiety and pain.

Preoperative anxiety has been reported to occur in 11%–80% of adult patients (7). Although perioperative anxiety is considered a normal part of the surgical experience, it can cause several problems (8). Increased preoperative anxiety level negatively affects patients' postoperative recovery (1). The fear of post-operative pain, of undergoing a surgical procedure and of changes in the body image are some of the factors known to be the causes of perioperative anxiety (8).

Intranasal packing is an essential procedure after SRP that prevents synechiae formation and septal hematoma while stabilizing the fractured bones and newly created nasal septum. Internal nasal splints can cause side effects, such as nasal congestion, sore throat, and headache, that negatively affect quality of life. The present study found that SRP patients' anxiety and depression scores decreased significantly after the removal of internal nasal splints. The patients' preconceptions about pain during internal nasal splint removal were also investigated, and it was found that they held a preconception that the pain would be high. The significant differences in HADS-A and HADS-D scores before and after the removal of internal nasal splints show that internal nasal splints play an important role in the anxiety and depression levels of SRP patients.

A number of conditions have been reported in patients with anxiety, including dysregulation of the pituitary-adrenal axis, sympathoadrenal hyperactivity, alteration in autonomic nervous system activity, alteration in platelet receptors and reactivity, and immunological changes (9). Consequently, anxious patients have a prolonged recovery time and an increased need for postoperative medication (1). Preoperative anxiety also directly affects patients' hemodynamic parameters. Increased anxiety triggers stress hormones, resulting in increased heartrate and arterial blood pressure (10). Controlling anxiety makes it easier to avoid the complications, such as epistaxis, that these hemodynamic changes may cause in SRP patients.

Informing patients preoperatively reduces anxiety. One study found that 82% of patients wanted more information about the planned surgical procedure, and the information they most wanted was length of hospital stay (11). Another study reports that patients asked more questions about pain, duration of anesthesia, and difficulty in performing daily activities and

fewer questions about anesthetic drugs and surgical complications (12). In light of these findings, it would be beneficial to provide detailed information to SRP patients to assuage their fear regarding internal nasal splints as demonstrated in our study.

Several studies have investigated various methods to reduce preoperative anxiety. One study investigated the use of essential oils in the preoperative period but found no significant decrease in anxiety levels (13). Another study investigated the effect of relaxation techniques on POP and anxiety; again, no significant results were observed (14). However, it has been shown that playing music to patients while they waited in the ward before surgery decreased their anxiety levels significantly (15). One of the more effective methods of reducing preoperative anxiety is to inform patients appropriately (11). Controlling preoperative anxiety reduces the length of hospital stay, healthcare-related costs, and postoperative complications (10). Care must be taken to reduce SRP patients' anxiety perioperatively, so further studies are needed to investigate alternative methods of decreasing their anxiety.

This prospective study has some limitations. All the internal nasal splints were removed at the seventh postoperative day, so it would be worthwhile to compare our study group with another group of SRP patients whose internal nasal splints were removed on the second postoperative day, which would provide a better understanding of SRP patients' anxiety regarding internal nasal splints. General anesthesia is a possible cause of postoperative depression, so further studies are needed to investigate the possible relationship between anesthetic drugs and postoperative depression.

Perioperative anxiety and depression should be carefully monitored in patients undergoing SRP. It would be beneficial to provide detailed information to such patients to assuage their fear regarding internal nasal splints. Early removal of the internal nasal splints must be considered to reduce patients' anxiety and depression levels.

Conflict-of-interest and financial disclosure

The author declares that she has no conflict of interest to disclose. The author also declares that she did not receive any financial support for the study.

REFERENCES

1. Tulloch I, Rubin JS. Assessment and Management of Preoperative Anxiety. J Voice. 2019;33(5):691-6.
2. Fodale V, Tripodi VF, Penna O, et al. An update on anesthetics and impact on the brain. Expert Opin Drug Saf. 2017;16(9):997-1008.
3. Stern AF. The hospital anxiety and depression scale. Occup Med (Lond). 2014;64(5):393-4.
4. Paker N, Bugdayci D, Midik M, Celik B, Kesiktas N. Reliability of the Turkish version of the hospital anxiety and depression scale in the people with traumatic spinal cord injury. NeuroRehabilitation. 2013;33(2):337-41.
5. Yang Y, Ding R, Hu D, Zhang F, Sheng L. Reliability and validity of a Chinese version of the HADS for screening depression and anxiety in psycho-cardiological outpatients. Compr Psychiatry. 2014;55(1):215-20.
6. Cho CH, Song KS, Hwang I, Coats-Thomas MS, Warner JJP. Changes in Psychological Status and Health-Related Quality of Life Following Total Shoulder Arthroplasty. J Bone Joint Surg Am. 2017;99(12):1030-5.
7. Caumo W, Schmidt AP, Schneider CN, et al. Risk factors for preoperative anxiety in adults. Acta Anaesthesiol Scand. 2001;45(3):298-307.
8. Bailey L. Strategies for decreasing patient anxiety in the perioperative setting. AORN J. 2010;92(4):445-57;quiz 58-60.
9. Székely A, Balog P, Benkö E, et al. Anxiety predicts mortality and morbidity after coronary artery and valve surgery--a 4-year follow-up study. Psychosom Med. 2007;69(7):625-31.
10. Baytar C, Bollucuoglu K. Effect of virtual reality on preoperative anxiety in patients undergoing septorhinoplasty. Braz J Anesthesiol. 2021.
11. Kiyohara LY, Kayano LK, Oliveira LM, Yamamoto MU, Inagaki MM, Ogawa NY, et al. Surgery information reduces anxiety in the pre-operative period. Rev Hosp Clin Fac Med Sao Paulo. 2004;59(2):51-6.
12. Bugge K, Bertelsen F, Bendtsen A. Patients' desire for information about anaesthesia: Danish attitudes. Acta Anaesthesiol Scand. 1998;42(1):91-6.
13. Stirling L, Raab G, Alder EM, Robertson F. Randomized trial of essential oils to reduce perioperative patient anxiety: feasibility study. J Adv Nurs. 2007;60(5):494-501.
14. Seers K, Crichton N, Tutton L, Smith L, Saunders T. Effectiveness of relaxation for postoperative pain and anxiety: randomized controlled trial. J Adv Nurs. 2008;62(6):681-8.
15. Yung PM, Chui-Kam S, French P, Chan TM. A controlled trial of music and pre-operative anxiety in Chinese men undergoing transurethral resection of the prostate. J Adv Nurs. 2002;39(4):352-9.