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Effects of seasonal conditions on septorhinoplasty patients

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Abstract

Our study aims to investigate the seasonal effects on the breath and quality of life (QoL) of patients who underwent septorhinoplasty (SRP). A total of 52 patients who underwent SRP between 2018-2023 were included in the study. Two groups those who operated in the winter (winter group, n=26) and those who performed in the summer (summer group, n=26) were evaluated with the NOSE (Nasal Obstruction Symptom Evaluation) scale to reveal the QoL after surgery. Compared with the summer group, NOSE scores in the winter group showed a statistically significant difference ($p<0.05$). Septorhinoplasty is a surgical procedure expected to increase the QoL of patients regardless of the season and climate. The low mean NOSE score observed in the winter showed that the postoperative patient comfort was significantly higher compared who underwent surgery in the summer. Therefore, encouraging patients to undergo surgery intensively during the winter months in SRP will be positive for postoperative QoL. Future studies may reveal more illuminating results for increasing patient comfort by considering different surgical techniques, climates, and months.

Keywords: Septorhinoplasty, climatic conditions, seasonal conditions, rhinoplasty, NOSE scale, quality of life

Introduction

Septum deviation is a common health problem that significantly affects patient comfort. It is well-known that septal deviation can cause many problems from frequent upper respiratory tract infections to chronic headaches [1]. Septorhinoplasty (SRP) is a surgery with a high level of patient satisfaction in terms of quality of life (QoL) [2].

NOSE (Nasal Obstruction Symptom Evaluation) scale scoring is an easy method to evaluate the patient's QoL [3]. The study of Kahveci et al. showed that the NOSE score results in septoplasty were compatible with computed tomography (CT) evaluation results and physical examination [2].

Regardless of the season, SRP improves the quality of life. However, in some cases, seasonal variables can be decisive in terms of postoperative comfort [4]. Recent studies have shown that the physical conditions in the nasal cavity and additional health conditions that affect the nasal cavity such as seasonal allergies are determinative of the QoL in the treatment of septum deviation [5,6].

In the literature, there is no study investigating the potency of the seasons in SRP patients who underwent dorsal preservation rhinoplasty and Cottle septoplasty in the same session. Our study aims to evaluate the effect of the season on the patient's QoL who underwent SRP.

Material and Methods

Ethics approval and consent to participate

The study was performed with the permission of Hatay Mustafa Kemal University Clinical Research Ethics Committee on 29.08.2023 with decision number 2023/06-26. In addition, our work complies with the Helsinki Declaration.

Participants and eligibility criteria

Patients who underwent septorhinoplasty in the Northern

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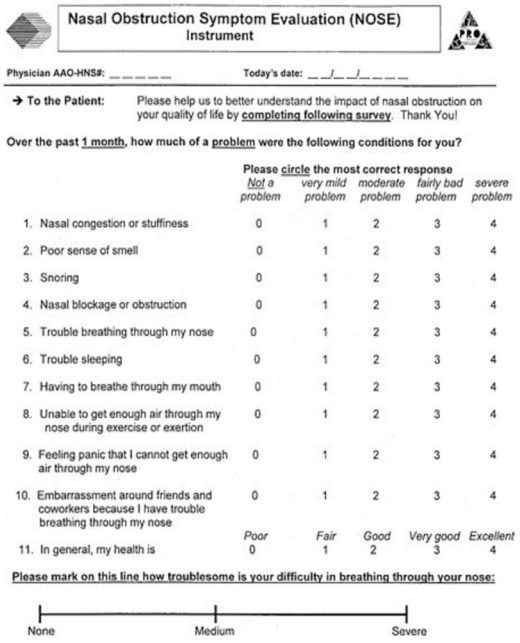
Hemisphere East Mediterranean climate in the Hatay region between 2018 and 2023 were included in our study. The hot season is from May to October, with an average daily high temperature above 87°F (The hottest month of the year at Hatay Airport is August, with an average high of 94°F and low of 78°F.). The cool season average daily high temperature is below 63°F (The coldest month of the year at Hatay Airport is January, with an average low of 41°F and high of 56°F.) (7). The same surgeon operated on all patients. Cottle septoplasty and dorsum preservation rhinoplasty were applied to the patients as a surgical procedure. No intranasal splints or dorsal splints were applied to any of the patients. Patients who may have extranasal airway obstruction such as asthma, chronic obstructive pulmonary disease, or airway hyperreaction, were excluded from the study.

Data collection

A total of 52 patients were included in the study. Two groups were formed among the patients: those who had surgery in the summer (May-October, summer group, n=26) and those who had surgery in the winter (November-April, winter group, n=26). To evaluate the QoL of all patients, scoring was done by completing the NOSE scale after surgery (Figure 1).



Nasal Obstruction Symptom Evaluation (NOSE) Instrument

Physician AAO-HNS#: _ _ _ _ _ Today's date: _ _/_ _/_ _ _ _

→ To the Patient: Please help us to better understand the impact of nasal obstruction on your quality of life by completing following survey. Thank You!

Over the past 1 month, how much of a problem were the following conditions for you?

Please circle the most correct response

	Not a problem	very mild problem	moderate problem	fairly bad problem	severe problem
1. Nasal congestion or stuffiness	0	1	2	3	4
2. Poor sense of smell	0	1	2	3	4
3. Snoring	0	1	2	3	4
4. Nasal blockage or obstruction	0	1	2	3	4
5. Trouble breathing through my nose	0	1	2	3	4
6. Trouble sleeping	0	1	2	3	4
7. Having to breathe through my mouth	0	1	2	3	4
8. Unable to get enough air through my nose during exercise or exertion	0	1	2	3	4
9. Feeling panic that I cannot get enough air through my nose	0	1	2	3	4
10. Embarrassment around friends and coworkers because I have trouble breathing through my nose	0	1	2	3	4
	Poor	Fair	Good	Very good	Excellent
11. In general, my health is	0	1	2	3	4

Please mark on this line how troublesome is your difficulty in breathing through your nose:

None Medium Severe

Figure 1. NOSE scale

Statistical analysis

The results were evaluated with the statistical program G*Power (current ver. 3.1.9.7; Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany). The NOSE scores of the groups were calculated as mean±standard deviation (SD) and standard error of mean=SEM. The results were evaluated with the Mann-Whitney U test. $p<0.05$ was considered significant.

Results

The mean±SD for the NOSE scale score in the winter group was found as 10.62±6.481. The mean±SD of the summer group was measured as 17.50±10.723. When the groups were compared with the Mann-Whitney U test, statistically significant improvement was observed in the winter group (Table 1, Figure 2) ($p<0.05$).

Table 1. NOSE scoring results

NOSE scale	N	Mean	Standard Deviation	Standard Error of Mean
Winter Group	26	10.62	6.481	1.271
Summer Group	26	17.50	10.723	2.103
			Mann-Whitney U	p=0.024

NOSE: nasal obstruction symptom evaluation

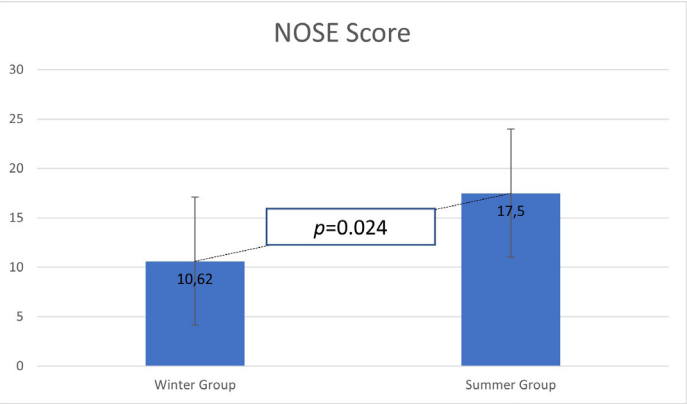


Figure 2. Comparison of two groups

Discussion

The evaluation of postoperative comfort from the patient's point of view depends on many physiological and psychological factors [1]. Not only the surgical technique but also the patient's expectation is important for QoL after surgery [2]. Recent studies have revealed that septoplasty causes high post-operative dissatisfaction in conditions such as allergies and sinonasal disorders accompanying septal deviation [2].

Septum deviation and related breathing problems are among the most important health problems affecting quality of life [2]. Conditions such as edema and material accumulation in the nasal cavity in the early and late periods after septorhinoplasty cause congestion and adversely affect the comfort and sleep quality of the patient [3]. Today, septoplasty is frequently applied as a simultaneous septorhinoplasty with aesthetic rhinoplasty surgeries [4]. Therefore, it should not be forgotten that the factors affecting the patient's QoL may adversely affect the satisfaction of aesthetic surgery and the public perspective on these procedures. It is obvious that studies examining and aiming to improve the quality of life of patients after surgery will positively affect current surgical practice.

Regardless of the effect of climate and season, septoplasty and septorhinoplasty increase the QoL of the patients [5]. However, some studies in the past have shown that physical conditions have an impact on the QoL. In a study conducted in 2009, the importance of atraumatic surgery emphasized the avoidance

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of wide dissection during surgery because the effects of the physical conditions on the nasal cavity were not fully understood [6]. Kang et al. showed that seasonal allergy was effective on the QoL after surgery and stated that it was a determinant in the success of treatment [5]. In the paper of Kar et al. in 2022, they stated that patients who underwent SRP in the summer season had more bleeding problems after surgery and stated that surgery to be performed in the winter season had an advantage over the QoL [4]. In our study, consistent with the literature, it was shown that the choice of the season in the treatment of septum deviation is effective in terms of postoperative patient comfort. In addition, previous studies have revealed that the winter season is advantageous in terms of QoL after surgery.

In the Mediterranean region, SRP is usually held during the summer season for reasons such as annual leave and summer vacation. According to the results of our study, planning SRP surgeries during the winter months will lead to higher satisfaction in terms of postoperative quality of life. It can be expected that this situation will lead to higher surgical procedure success in patient-based evaluations.

The fact that the NOSE scale was not directed to patients at regular intervals before and after surgery and non-similar mean values of seasons of different hemispheres and climates in the world can be considered as the limitation of this study. In addition, the application of the study in larger patient series in many health centers and in different climates may be beneficial for more confirmatory results.

In conclusion, encouraging patients to undergo surgery intensively in the winter months in septorhinoplasty applications will be positive in terms of the quality of life after surgery.

Future studies could compare activity between months of the year. More detailed results can be obtained with further investigations comparing the effectiveness of different surgical techniques and different climates.

Conflict of Interests
The authors declare that there is no conflict of interest in the study.

Financial Disclosure
The authors declare that they have received no financial support for the study.

Ethical Approval
The study was performed with the permission of Hatay Mustafa Kemal University Clinical Research Ethics Committee on 29.08.2023 with decision number 2023/06-26. In addition, our work complies with the Helsinki Declaration.

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