



*Original Contribution*

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## EFFECT OF ENDO-NASAL SURGERY ON SNORING

**Il. Doykov<sup>1</sup>, V. Stoyanov<sup>2\*</sup>, Il. Yovchev<sup>1</sup>**

<sup>1</sup>Otorhinolaryngology Department, Medical University – Plovdiv, Plovdiv, Bulgaria

<sup>2</sup>Otorhinolaryngology Department, Trakia University, Stara Zagora, Bulgaria

### ABSTRACT

In 74 patients with combined complaints from nasal obstruction and snoring endo-nasal surgery, septoplasty, pansinusotomy and electrocautery of the lower nasal conchae were performed. After treatment snoring was eliminated in 35 (47.30%) of the patients, in 18 (24.32%) snoring was decreased and in 17(22.97%) no change was observed. The best pansinusotomy affected the patients who underwent pansinusotomy with extirpation of the nasal polyps were best influenced by the treatment. No change was observed in the objective condition of patients with obstructive sleep apnea.

**Key words:** endonasal, snoring, septoplasty, pansinusotomy, electrocautery

### INTRODUCTION

It is known that diseases of the nose and paranasal sinuses result in partial or complete obstruction of nasal breathing. This fact leads to mouth breathing, which is directly related to a number of breathing disorders during sleep, such as snoring, apnea and hypopnea. It has been proven that the frequency and degree of nasal obstruction is directly related to sleep disorders and is a potential pathogenic factor (1, 2, 3). Habitually snoring patients have significantly lower flow through the nose compared with the non-snoring (4). Snoring occurs in the soft collapsible part of the upper airway at the level of the soft palate, the uvula, the tonsils, the tongue root, and the pharyngeal muscles and mucosa. It is an acoustic phenomenon due to vibration of tissues, caused by the airflow passing through narrow areas of the upper respiratory tract. Apnea and hypopnea occur when the force of the collapse caused by negative pressure upon inhalation, exceeds the expanding force of the pharyngeal muscles.

There is no absolute evidence of the role of nasal obstruction in the pathogenesis of breathing disorder during sleep. For the time being it is assumed that nasal obstruction appears to play some role in the pathogenesis of snoring and minimal role in the pathogenesis of obstructive sleep apnea (5).

There are many reports on the favorable response of varying degrees of snoring after surgical treatment of nasal obstruction (2, 3, 6, 7, 8).

### MATERIALS AND METHODS

To determine the role of nasal patency on the occurrence and development of snoring and obstructive sleep apnea, we studied 74 patients who were treated at the clinic for nasal breathing difficulties. The causes of nasal obstruction were: deviated septum - 20, chronic rhinosinusitis – 26, nasal polyposis – 28. In obtaining the history of the disease deliberate questioning of the patient and his relatives was carried out to reveal if the patient snores, when did snoring start and if there is a possible link of snoring with disturbance in nasal breathing, and also on the nature of the snoring, i.e. if it is constant and are there periods of apnea (apneic breaks). In

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\*Correspondence to: Prof.ValentinStoyanov, Ph.D.  
Head of Department of E.N.T.  
Trakia University, Stara Zagora  
Bulgaria; +359 888 611104

addition, patients' breathing was recorded for 30 minutes while sleeping.

Before surgery all 74 snored in varying degrees. Of these, 44 (59.46%) were snoring casually and in 26 (35.14%) snoring was constant /habitual/. Data on obstructive sleep apnea (OSA) were found in 4 patients (5.41%). Additional conversations and tape recordings revealed that these patients had apneic episodes and increased daytime sleepiness.

All patients were subjected to surgery for the removal of nasal obstruction. The most frequent surgery was aimed at removing nasal deviation with septoplasty, followed by extirpation of the nasal polyps, and electrocautery of the lower conchae. A month after surgery major examination was performed during which the patient was questioned in detail about changes in night breathing and a second 30-minute recording of sleep was auditioned.

## RESULTS AND DISCUSSION

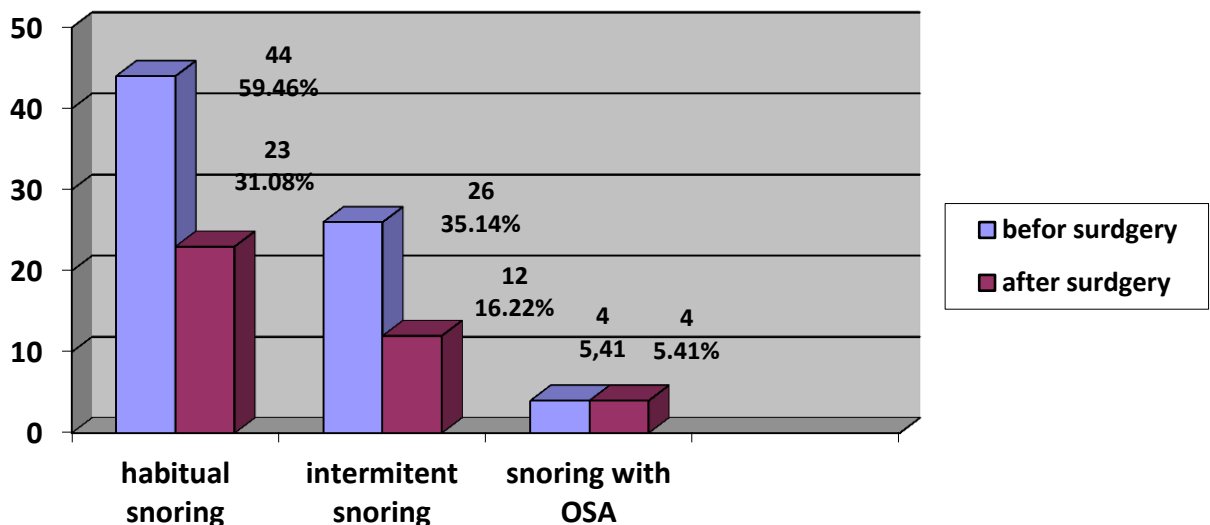
The following results were obtained after the surgical treatment of nasal obstruction. Out of 44 patients with intermittent snoring it was completely eliminated in 23 patients (52.27%), in 10 patients (22.72%) snoring measured a sharp fall, and in 11 (25%) snoring remained unchanged. For the group of 26 patients with habitual snoring in 12 (46.15%) snoring was completely eliminated, in 8 (30.77%) snoring was reduced and it turned into casual snoring. In

6 (23.07%) from all surgical patients there was no change in snoring.

Of the 74 snoring patients receiving endo-nasal surgical treatment for nasal obstruction in 35 (47.30%) snoring has been completely eliminated, in 18 (24.32%) snoring was decreased and in 17 (22.97%) there was no change in snoring. In 4 patients with symptoms of obstructive sleep apnea there was no change in either snoring or in apneic episodes (**Figure 1**).

Snoring was affected best in patients who underwent pansinusotomy with removal of nasal polyps (82% of all patients). Similar results are also reported by other authors (7). We can explain this by the fact that in pansinusotomy except removal of polyps, ethmoid cells are being removed, which increases the volume of the middle nasal passageway. Furthermore, in our patients, nasal polyposis had caused complete obstruction of nasal patency so that the subjective sense of relief breathing after surgery was the strongest.

In patients with deviated septum snoring response after septoplasty was minor (in about 27% of patients). Yu Li et al. report that in 51 patients with OSA, operated because of deviated septum, snoring was improved only in 12 patients.



**Figure 1.** The effect of endonasal surgery on snoring

**CONCLUSION**

Endo-nasal surgical procedures have a beneficial effect on snoring. They are most effective in lighter forms and less pronounced in habitual snoring and have no effect on the manifestation of obstructive sleep apnea.

In cases of obstructive sleep apnea alone these methods are suboptimal. They could be used as additional therapeutic procedures to normalize the nasal breathing along with other surgical procedures or to improve the effects of instrumental SIPAP treatment.

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