

# Does A Hyperflexible Tongue Cause Snoring?

H Cincik, E Cekin, A Gungor, E Poyrazoglu

## Citation

H Cincik, E Cekin, A Gungor, E Poyrazoglu. *Does A Hyperflexible Tongue Cause Snoring?*. The Internet Journal of Otorhinolaryngology. 2004 Volume 3 Number 2.

## Abstract

A sixteen years old boy was admitted to our clinic with suffering of snoring for three years. Physical examination showed an enlarged and elongated uvula. Endoscopic examination revealed hyperflexible tongue which is able to reach nasopharynx backwards and move there in different ways. From the history it was learned that he had been doing it for 6 years habitually. Snoring may have been the result of unusual tongue movement or secondary to enlarged and elongated uvula that may be caused by habitual backward movement of tongue. Laser-assisted uvulopalatoplasty was performed for snoring. No recurrence is noted in six months.

This case report was presented at 20th Congress of the European Rhinologic Society & 23rd international symposium on infection and allergy of the nose. June 18-25, 2004.

## INTRODUCTION

The snoring sound results from the passing air through the oropharynx, producing vibrations of the soft palate (1). During daytime, upper airway patency is maintained by increased muscle activity of the pharyngeal dilators. But, since decreased activity of pharyngeal dilators more than one muscle group is therefore important in maintaining upper airway patency during sleep. The nasopharynx is a site of primary narrowing in 80% of patients, and two or more sites of narrowing were commonly observed (2).

We present a patient with hyperflexible tongue with backward movement ability, accompanying snoring, in this article.

## CASE REPORT

A 16-years-old boy was admitted to our clinic with a history of snoring. He is a boarding student, whose friends have been disturbed of his snoring. We learned from his friends that he was not suffering from sleep apnea, but loud, disruptive snoring was present all night. There was no history of daytime sleepiness, concentration deficiency and daytime inattentiveness.

Physical examination revealed an enlarged and elongated uvula (Fig 1). There was no obesity and craniofacial abnormality. Endoscopic examination showed hyperflexible

backward movement of tongue that reaches to nasopharynx and is able to move there in left and right directions (Fig 2). Laser-assisted uvulopalatoplasty was performed for enlarged and elongated uvula. Snoring relieved in approximately 7 days after the operation. No recurrence and complication has been noted in 6 months of follow-up (fig 3).

## Figure 1

Figure 1: large and elongated uvula, and hyperflexible backward movement of tongue.



**Figure 2**

Figure 2: Hyperflexible backward movement of tongue, appearance through nose.



**Figure 3**

Figure 3: Postoperative appearance of the hyperflexible tongue.



## DISCUSSION

Snoring is usually considered to be a consequence of soft palate vibration caused by a partial or complete upper airway collapse during sleep. Snoring and obstructive sleep apnea are frequently caused by a deviated nasal septum, a low-hanging redundant palate, large tonsils, excessive pharyngeal mucosal folds, an enlargement of the uvula, prominent oropharyngeal folds and a large tongue base. Occasionally, there may be a mass in the pharynx such as cyst or tumor

(<sup>1,2</sup>). Our case's snoring may have been originated from enlarged and elongated uvula or his strange tongue movement. His tongue can reach to nasopharynx. It might be the direct cause of snoring or in another way of thinking habitual backward movement of the tongue might be the cause of enlarged and elongated uvula.

The muscles of tongue are paired, and they are grouped into an intrinsic and extrinsic set. Movement of the tongue is achieved by the coordinated action of both intrinsic and extrinsic muscles. Function of intrinsic muscles is to alter the shape of the tongue. Extrinsic muscles are composed of genioglossus, hyoglossus, styloglossus and palatoglossus. Much of the bulk of the tongue is made up of fibers of the genioglossus, which is a fan-shaped muscle that arises from the superior mental spine and widens as it extends backward into the tongue. When these muscles act together as a pair, they protrude the tongue. Styloglossus muscle arises from the styloid process and to be inserted into the side of the tongue. Contraction of this muscle causes the tongue to be drawn upward and backward. Palatoglossus muscle is originating from the palatine aponeurosis and inserting into the body of the tongue and responsible for the retraction of the tongue upward and backward (<sup>3</sup>).

The muscles surrounding the pharyngeal airway generally have a role in the pathogenesis of snoring and obstructive sleep apnea. It is characterized by the repetitive closure or abnormal narrowing of the collapsible pharyngeal airway during sleep (<sup>4</sup>). The hypoglossus nerve provides motor output to the intrinsic and extrinsic tongue muscles. In previous studies, investigators have demonstrated that stimulation of the hypoglossus nerve can increase in airway patency and prevent the tongue from prolapsing into the pharynx and relieve upper airway obstruction during sleep. Contraction of pharyngeal muscles can dilate and stiffen the pharyngeal airway. Pharyngeal muscle activation can also constrict and shorten the airway (<sup>3,4</sup>). Since a hyperflexible tongue does not seem to have hypoactive tongue muscles; we thought that our case's snoring was caused from elongated and enlarged uvula mainly. For that reason, we decided to treat only enlarged and elongated uvula. Laser-assisted uvulopalatoplasty was performed. We did not perform any operation to tongue and tongue base. Our case's snoring relieved in 2 weeks.

We found one case related to an idiopathic hypermobile tongue in English literature. This case was 45 year old male. He underwent an adenoidectomy operation for a history of

nasal obstruction and snoring. Two months after that, he could clean his nasopharynx using his tongue (3). Our case was young (16 years old) and did not undergo any operation for the complaint of adenoid vegetation and nasal obstruction or any other reason before. However our case had snoring, too.

### **CONCLUSION**

In conclusion, we thought that habitually backward tongue movement may cause enlargement and elongation of the uvula resulting as a complaint of snoring. Disappearing of the snoring complaint after LAUP operation supports our thesis about the cause of snoring.

### **CORRESPONDENCE TO**

Dr. Hakan CINCIK, GATA, Haydarpasa Egitim Hastanesi,

KBB Klinigi, 34668 Kadikoy / Istanbul / TURKEY Phone : +90 216 345 02 95 - 346 26 00 Fax : +90 216 348 78 80 E-mail : hcincik@ttnet.net.tr

### **References**

1. Hoffstein V. Apnea and snoring: State of the art and future directions. *Acta Otorhinolaryngol Belg* 2002;56:205-236.
2. Morrison DL, Launois SH, Isono S, et al: Pharyngeal narrowing and closing pressures in patients with obstructive sleep apnea. *Am Rev Respir Dis* 1993;48:606-611.
3. Kuna ST. Effects of Pharyngeal Muscle Activation on Airway Size and Configuration. *Am J Respir Crit Care Med*. 2001;164(7):1236-1241.
4. Williams PL: Alimentary system: tongue and pharynx. In: Bannister LH, editor. *Gray's anatomy*. New York: Churchill Livingstone; 1995. p.1721-1733.
5. Cinar F, Uzun L, Ugur MB, Agaoglu H: An unusual movement of tongue. *Plast Reconstr Surg*. 2004;113(2):773-774.

**Author Information**

**Hakan Cincik, M.D.**

Assistant Professor, Department of ENT, Haydarpasa Training Hospital, Gulhane Military Medical Academy

**Engin Cekin, M.D.**

Assistant Professor, Department of ENT, Haydarpasa Training Hospital, Gulhane Military Medical Academy

**Atila Gungor, M.D.**

Associate Professor, Department of ENT, Haydarpasa Training Hospital, Gulhane Military Medical Academy

**Ethem Poyrazoglu, M.D.**

Associate Professor, Department of ENT, Haydarpasa Training Hospital, Gulhane Military Medical Academy