

Day Care Office Procedures for Management of Simple Palatal Snoring

Zafarullah Beigh^{1,*}, Raja Salman Khursheed², Omar Mohammad Shafi¹ and Rafiq Ahmad Pampori^{1,3}

¹Department of Otorhinolaryngology, Government Medical College, Srinagar, India

²Department of Otorhinolaryngology, Zain and Alsabah Hospital, Kuwait

³Government Medical College, Srinagar, India

*Corresponding author: Dr. Zafarullah Beigh MBBS, MS, 90 feet road Bachapora Srinagar, Jammu and Kashmir-190001, India, Tel: 9419055531; E-mail: beighzafarullah@yahoo.com

Received date: Sep 21, 2015, Accepted date: Oct 21, 2015, Published date: Oct 28, 2015

Copyright: © 2015 Beigh Z, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Introduction: Snoring is the production of sound by the upper aero digestive tract during sleep. Snoring is commonly regarded as a laughable circumstance or a source of irritation to the observer, about which little can be done but to awaken the unwitting culprit habitual loud snoring may be socially unacceptable, and may constitute a reason for sleeping apart, marital disharmony, divorce, aggression and homicide. There are various treatments for snoring, both medical and surgical depending upon severity of snoring and site of snoring sound production. Aim of this study was to compare three surgical treatments for palatal snoring done under local anesthesia, sling Snorplasty, modified sling snorplasty and injection snorplasty.

Material and method: This study was conducted in the department of Otorhinolaryngology Head and Neck Surgery, Government Medical College Srinagar and includes 48 patients who presented in our OPD with complaints of snoring or are referred from some other specialty or institution for the complaints of snoring. After thorough history and examination, all patients were evaluated with Mullers maneuver, overnight polysomnography and intensity of snoring sound measured with the help of sound level meter. All patients with Mullers maneuver documented soft palatal obstruction and PSG documented simple snoring were randomly distributed using random number table into three different treatment groups, Sling Snorplasty, modified Sling Snorplasty and injection Snorplasty.

Results: This study showed that there were Statistically significant ($P < 0.05$) improvement in percentage of snoring and intensity of snoring after 3 weeks, 3 months and 6 months of treatment in sling snorplasty and modified sling snorplasty treatment groups. Patients in injection snorplasty treatment group showed improvement in percentage of snoring and intensity of snoring after 3 weeks of treatment but that improvement was not statistically significant ($P > 0.05$) and no improvement was seen after 3 months and 6 months of treatment.

Conclusion: The present study suggested that modified sling snorplasty and sling snorplasty are day care procedures of choice for treatment of simple palatal snoring and should be offered to all patients with simple palatal snoring.

Keywords: Snoring; Mullers maneuver; Snorplasty

Introduction

According to the American Heritage Dictionary of the English Language it snoring is "to breathe during sleep with harsh, snorting noises caused by vibration of the soft palate" [1]. Naturally occurring or drug-induced sleep is a requirement for its appearance. Snoring is a breathing noise that appears during the inspiratory and sometimes also the expiratory phase of the respiratory cycle [2]. The source of the sound is the pharyngeal segment of the upper airway. Relative atonia of the upper airway dilator muscles during sleep induces narrowing and increased resistance at this level [3]. As a consequence, airflow becomes turbulent and the pharyngeal tissues vibrate as the air passes through. More specifically, snoring is characterized by oscillations of the soft palate, pharyngeal walls, epiglottis and tongue [4,5].

Snoring is commonly associated with abnormalities of the soft palate or uvula. An overly long or floppy soft palate may vibrate irregularly with airflow. This abnormal vibration makes a sound

snoring. It may be that simple snoring does not exist because when the sleep of a bed partner is disturbed snoring constitutes a social nuisance [6]. The sleep disturbance to a bed partner has been linked to chronic insomnia and its consequences. Previous research also suggests that snoring constitutes excessive bedroom noise exposure and may cause hearing problems [7].

It is known to be an important clinical hallmark of Obstructive Sleep apnea (OSA) [8] and, as such, may be a useful and an easily accessible marker to screen for obstructive sleep disordered breathing (SDB).

Materials and Methods

This study was conducted in the department of Otorhinolaryngology Head and Neck Surgery, Government Medical College Srinagar and includes 48 patients who presented in our OPD themselves with complaints of snoring or are referred from some other specialty or Institution. After thorough history and examination all patients were evaluated with mullers maneuver, overnight

polysomnography and intensity of snoring sound measured with the help of sound level meter.

The Muller's Maneuver was performed with the patient in the sitting position after topical nasal anesthesia was achieved with 4% lidocaine and 0.5% ephedrine spray. A flexible nasopharyngoscope was inserted through the anesthetized nasal cavity to the lower oropharynx. Collapse of the lateral pharyngeal walls (LPWs) and the base of tongue (BOT) were assessed during a maximal inspiratory effort against a closed mouth and sealed nose ("reverse Valsalva"). The nasopharyngoscope was withdrawn to a level just cephalad to Passavant's ridge. Collapse of the soft palate (PAL) was assessed, again during a maximal inspiratory effort against a closed mouth and sealed nose.

Full night sleep study (PSG) that included the determination of sleep stages (electroencephalogram), nasal airflow with nasal thermisters. SpO₂, with a pulse oximeter and thoracoabdominal movements by respiratory inductive plethysmography calibrated by the isovolume method. Snoring percentage during sleep was calculated in addition to number of apnea and hypopnea episodes during sleep. During PSG Net Intensity of snoring sound was measured with the help of sound level meter. Net snoring intensity was calculated by subtracting intensity of background sound in sleep lab room when patient was not present from intensity of snoring sound with patient snoring in sleep lab room.

All patients with mullers maneuver documented soft palatal obstruction and PSG documented simple snoring were randomly distributed using random number table into three different treatment groups, Sling Snorplasty, modified Sling Snorplasty and injection Snorplasty.

Results

Results of treatment were documented on the basis of PSG findings and intensity of snoring sound measurement done after 3 weeks, 3 months and 6 months of treatment (Tables 1-4).

Age (year)	N	%age
20-30	07	14.58
31 to 40	15	31.24
41 to 50	22	45.83
>50	4	8.33
mean \pm SD	43.4 \pm 7.2 (20, 60)	

Table 1: Age wise distribution of patients (n=48).

Sex	No. of patients	Percentage
Males	31	64.58
Females	17	35.41
Total	48	100

Table 2: Sex wise distribution of patients.

Percentage of Snoring Procedure	Before treatment	3 weeks after treatment	3 months after treatment	6 months after treatment	P value
Modified sling snorplasty (n=15)	72%	21%	17%	17%	<0.05*
Sling snorplasty (n=17)	70%	19%	17%	17%	<0.05*
Injection snorplasty (n=16)	71%	60%	71%	71%	>0.05**

Table 3: Percentage of snoring before and after 3 weeks, 3 months and 6 months of treatment in various treatment groups (*Statistically significant, **Statistically non-significant).

Mean net Intensity of Snoring in dB Procedure	Before treatment	3 weeks after treatment	3 months after treatment	6 months after treatment	P value
Modified sling snorplasty (n=15)	42 dB	17 dB	11 dB	11 dB	< 0.05*
Sling snorplasty (n=17)	43 dB	21 dB	11 dB	11 dB	<0.05*
Injection snorplasty (n=16)	41 dB	33 dB	41 dB	41 dB	>0.05**

Table 4: Net snoring intensity before and after 3 weeks, 3 months and 6 months of treatment in various treatment groups (*Statistically significant, **Statistically non-significant).

Discussion

This study was conducted in the department of Otorhinolaryngology Head and Neck Surgery, Government Medical College Srinagar from September 2012 to august 2013 and includes 48 patients who presented in our OPD themselves with complaints of

snoring or are referred from some other specialty or institution. In our study majority of patients were (45%) in age group 41 to 50 years, majority of patients in our study were male (64. 84 5). Marianne J Davey [9] studied 1075 patients, the principle finding of this study was that from the 1075 participants who were not pre-selected from any one homogenous group 41.5% reported, or were reported to be,

snorers. Of those snorers, 69% were male, 31% were female (2.2:1). Olsen et al. objectively studied 441 subjects aged 35-69 years with a population bias towards snorers and those with subjective sleep complaints. 56% of them were men. Results of our study are in accordance with these studies.

All 48 patients were examined thoroughly and diagnosed as having obstruction at soft palate level by muller's maneuver. Weitzman et al. [10] and hill et al. [11] were the first to report the use of fiber-optic endoscopy in awake state in order to investigate pharyngeal collapse in patients with snoring and sleep apnea.

In our study 15 patients of simple palatal snoring undergo modified sling snorplasty procedure, 17 patients undergo sling snorplasty procedure and 16 patients undergo treatment by injection snorplasty method.

Sling Snoreplasty with a permanent thread [12] is performed under local anesthesia and in the sitting position. The instrument requirements include a nylon no. 4 suture, two needle-holders (or one needle-holder and a straight kelly), and a tongue depressor. Sling snoreplasty with a permanent thread is a retention suture technique applied to three portions of redundant soft palate in a triangular, tetragonal or pentagonal shape.

Sling snoreplasty could be called a three-dimensional retention suture technique to shorten, conglomerate, and tense the soft palate. It also elevates the soft palate forward and upward, and widens the oral cavity and nasopharyngeal space. The suture not only provides a sling effect in the soft palate but also incorporates into the soft palate musculature, imparting rigidity to the airway like tongue suspension suture. Patients have only a little pain and normal diet on the day after surgery. There are minimal postoperative complications.

Modified sling snoreplasty [13] is Double triangle shaped suture uvulopalatopexy can lead to anterosuperior repositioning of the soft palate by giving tonus. The final knot is embedded into soft palate via a horizontal incision after the completion of suturing. The retropalatal airway is enlarged and palatal collapse is reduced with this technique

Injection Snoreplasty [14]; is a nonsurgical treatment for snoring that involves the injection of a hardening agent (sodium tetradeceyl sulphate) into the soft palate. Injection snoreplasty is performed on an outpatient basis under local anesthesia. After numbing the soft palate with topical anesthetic, a hardening agent is injected just under the skin on the top of the mouth in front of the uvula (soft palate), creating a small blister. Within a couple of days the blister hardens, forms scar tissue, and pulls the floppy uvula forward to eliminate or reduce the palatal flutter that causes snoring.

patients who were treated by modified sling snorplasty and sling snorplasty showed statistically significant ($p < 0.05$) improvement in

percentage of snoring and intensity of snoring after 3 weeks, 3 months and 6 months of treatment. Patients who were treated by injection snorplasty showed improvement in percentage of snoring and intensity of snoring after 3 weeks, but that improvement was not statistically significant ($P > 0.05$) and no improvement was seen after 3 months and 6 months of treatment.

Conclusion

Large randomized controlled studies are needed to compare different types of treatment for simple snoring but this study showed that modified sling snorplasty and sling snorplasty are day care procedures of choice done under local anesthesia.

References

1. The American Heritage dictionary of the English language (2000) Boston, Houghton Mifflin Company.
2. Guilleminault C, Stoohs R, Duncan S (1991) Snoring (I). Daytime sleepiness in regular heavy snorers. *Chest* 99: 40-48.
3. Skatrud JB, Dempsey JA (1985) Airway resistance and respiratory muscle function in snorers during NREM sleep. *J Appl Physiol* (1985) 59: 328-335.
4. Liistro G, Stănescu DC, Veriter C, Rodenstein DO, Aubert-Tulkens G (1991) Pattern of snoring in obstructive sleep apnea patients and in heavy snorers. *Sleep* 14: 517-525.
5. Lugaresi E, Cirignotta F, Montagna P (1988) Pathogenic aspects of snoring and obstructive apnea syndrome. *Schweiz Med Wochenschr* 118: 1333-1337.
6. Hoffstein V, Mateika S, Anderson D (1994) Snoring: is it in the ear of the beholder? *Sleep* 17: 522-526.
7. Prazić M (1973) Snoring and presbycusis. *Acta Otolaryngol* 75: 216-219.
8. The international classification of sleep disorders (2005) (2nd edn). Westchester: American Academy of Sleep Medicine.
9. Marianne J Davey, Epidemiological study of snoring from a random survey of 1075 participants, British Snoring & Sleep Apnoea Association.
10. Weitzman ED, Pollak C, Borowiecki B, Burack B, Shprintzen R, et al. (1977) The Hypersomnia Sleep-Apnea Syndrome: site and mechanism of upper airway obstruction. *Trans Am Neurol Assoc* 102: 150-153.
11. Hill MW, Guilleminault C, Simmons FB (1978) Fiber-optic and EMG studies in hypersomnia-sleep apnea syndrome. *Sleep apnea syndromes* new york: Alan r. liss inc 249-58.
12. Hur J (2008) A new treatment for snoring: sling snoreplasty with a permanent thread. *Acta Otolaryngol* 128: 1381-1384.
13. Enöz M, Lapeña JF, İnançlı HM, Hafız G (2010) Modified sling snoreplasty: Double triangle shaped suture uvulopalatopexy. *Kulak Burun Bogaz İhtis Derg* 20: 51-55.
14. Brietzke SE, Mair EA (2001) Injection snoreplasty: how to treat snoring without all the pain and expense. *Otolaryngol Head Neck Surg* 124: 503-510.