

Section **Otorhinolaryngology**

**Original Article**

# Predisposing and Aetiological Factors Causing Hoarseness of Voice

Rehan Mahmood<sup>1\*</sup>, PK Varshney<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of ENT, KD Medical College and Hospital, Mathura, UP, India. <sup>2</sup>Professor, Dept. of ENT, Jawaharlal Nehru Medical College, AMU, Aligarh.

## ABSTRACT

**Background:** This study was carried out in ENT OPD of Jawaharlal Nehru medical college hospital A.M.U Aligarh from February 2008 to November 2009, a total of about 50 patients were studied. **Methods:** Detailed history was taken regarding onset and progression of hoarseness of voice along complete examination of head and neck with particular stress on indirect laryngoscopy. Personal history regarding smoking, tobacco chewing, alcohol intake and vocal abuse was taken and results were analyzed. **Results:** Smoking was found to be the most common predisposing factor in 52% of cases and among the causes chronic non-specific laryngitis (42%) followed by carcinoma larynx (28%) and acute laryngitis (20%) were found. **Conclusions:** Smoking comes out to be the most common predisposing g factor of

hoarseness of voice than tobacco chewing, alcohol intake and vocal abuse.

**Key words:** Hoarseness, alcohol intake, smoking.

Received: 10.06.17 | Accepted:24.06.17

### Corresponding Author

Dr. Rehan Mahmood, Assistant Professor, Department of ENT, KD Medical College and Hospital, Mathura, UP, India

**How to cite this article:** Mahmood R, Varshney PK. A Predisposing and Aetiological Factors Causing Hoarseness of Voice. Int Arch BioMed Clin Res. 2017;3(3):95-97.DOI:10.21276/iabcr.2017.3.3.25

**Source of Support:** Nil, **Conflict of Interest:** None

**Copyright:** © the author(s) and publisher. IABCR is an official publication of Ibn Sina Academy of Medieval Medicine & Sciences, registered in 2001 under Indian Trusts Act, 1882. This is an open access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited


## INTRODUCTION

Human voice is an extra ordinary attainment which is an extremely sensitive indicator of emotional status and general health. Production of voice is a complex mechanism. The larynx is the vibratory source and supraglottal vocal tract (supraglottal pharynx, palate, tongue and lips) is the resonator, that shapes the sound into words. The lungs present to the larynx, a stream of air during expiration. The increasing sub glottal air pressure forces the vocal folds open. The term hoarseness describes various vocal abnormalities, including loss of upper register, roughness, pitch instability, difficulty in transition between singing registers and early vocal fatigue. The quality of the sound depends upon nature of vocal fold adduction during

phonation and the regularity of the mucosal waves of the lamina propria. Incomplete adduction of the vocal folds during phonation results in audible air leakage and breathy voice quality.

## METHODS

The present study was carried out on 50 patients of different age groups having complaints or history of hoarseness of voice visiting J. N. Medical college hospital A.M.U Aligarh. The study was conducted from February 2008 to October 2009. A detailed history regarding roughness, breathiness, asthenia or constriction in voice along with history of pain in ear, throat or on swallowing was taken. Presenting complaints were noted and relevant enquiries as to their nature, duration, progression, relieving or exacerbating factors and associated features were made. Personal history included enquiries about cigarette/bidi smoking, tobacco chewing and alcohol use; their duration and amount were

Access this article online	
Website: <a href="http://www.iabcr.org">www.iabcr.org</a>	Quick Response code 
DOI: 10.21276/iabcr.2017.3.3.25	

also recorded. Complete ENT examination with particular stress on indirect laryngoscopy and direct laryngoscopy. Presence of large mucosal lesions on vocal cords and paralysis of vocal cords was noted. All cases presenting with hoarseness of voice due to

- 1) Congenital disease
- 2) Nasal and nasopharyngeal pathology
- 3) Oral and oropharyngeal pathology
- 4) Speech defect due to CNS lesions were excluded

## RESULTS

The following observations were made:

### Etiology and predisposing factor causing hoarseness of voice

S.No.	Etiology	Vocal abuse		Smoking		Tobacco		Alcohol		Total
		Y	N	Y	N	Y	N	Y	N	
1.	Acute laryngitis	4	6	2	8	1	9	1	9	10
2.	Chronic Simple Laryngitis	1	4	1	4	2	3	1	4	5
3.	Chronic hyperplastic laryngitis	2	0	1	1	1	1	1	1	2
4.	Vocal nodule	4	1	1	4	1	4	-	-	5
5.	Vocal Polyp	1	1	1	1	1	1	-	-	2
6.	Acid peptic laryngitis	1	6	4	3	3	4	4	3	7
7.	Carcinoma Larynx	1	13	12	2	12	2	10	4	14
8.	TB Laryngitis	1	2	3	0	2	1	1	2	3
9.	Vocal Cord Palsy	1	1	1	1	-	-	1	1	2

Overall, 9 different diagnosis were made in 50 patients attending OPD for hoarseness of voice. Each cause had a different predisposing factor. In 10 cases of Acute laryngitis, vocal abuse was the most common predisposing factor in 40% of the patients. In Chronic simple laryngitis and Chronic hyper plastic laryngitis, the most common predisposing factors were vocal abuse and tobacco chewing. In vocal Nodule and vocal polyp patients, most common predisposing factor was vocal abuse. In 7 cases of acid peptic laryngitis most common predisposing factors were found to be smoking and Alcoholism. About 14 Cases of Carcinoma larynx were studied and in these patients smoking, Tobacco

chewing and alcoholism were equally prevalent in all cases as predisposing factors. As for TB Laryngitis smoking was found to be the most common predisposing factor.

### Prevalence of causes of hoarseness of voice

S.No	Diagnosis	Percentage
1.	Acute laryngitis	20%
2.	Chronic Simple laryngitis	10%
3.	Chronic hyperplastic	4%
4.	Vocal Nodule	10%
5.	Vocal Polyp	4%
6.	Acid Peptic laryngitis	14%
7.	Carcinoma larynx	28%
8.	TB Laryngitis	6%
9.	Vocal Cord Palsy	4%

Among the 50 cases studied, carcinoma larynx was found to be most common cause in 28% of patients followed by acute laryngitis in 20% of patients and acid peptic laryngitis in 14% of patients.

### Predisposing factors

Predisposing Factors	No. of Cases	Percentage
Vocal abuse	16	32
Smoking	26	52
Alcohol	19	38
Tobacco	23	46

As for predisposing factors, smoking was found to be most common in 52% of cases followed by tobacco in 46% of cases. Alcohol intake was found in 38% whereas history of vocal abuse was found in 32% of patients.

## DISCUSSION

Considering Chronic simple laryngitis, Chronic hyperplastic laryngitis, vocal nodule, vocal polyp and acid peptic laryngitis together as a single entity as Chronic Non-specific laryngitis, it was found that Chronic Non-specific laryngitis was the most common cause of hoarseness of voice in 42% of the patients studied, this is in accordance with S Baitha, R.M. Raizada (1999)<sup>[1]</sup> who found 43.63 % patients with Chronic non-specific laryngitis in their study. In other previous studies Parikh (1991)<sup>[2]</sup> reported 48% of patients with Chronic non-specific laryngitis which is close to our study.

The second most common cause in our study was found to be Carcinoma Larynx comprising 28% of total cases. This is in contrast with S Baitha, R.M. Raizada (1999) who reported 14.54% cases of malignancy. Parikh (1991) reported even lower cases of malignancy with 12% respectively. This suggests an increase in cases of malignancy in comparison

to previous studies. Smoking increases risk of cancer by 4 to 40 times than non-smoker (cowles 1983).<sup>[3]</sup> Heavy alcohol intake increases the risk by three times than non-drinkers (cowles 1983).<sup>[3]</sup>

The third most common cause of hoarseness was found to be Acute laryngitis comprising 20% of cases, which is in accordance with S. Baitha, R.M. Raizada (1999) who reported 23.63% of cases. Parikh (1991) reported 9% cases of acute laryngitis in their studies.

Regarding TB laryngitis, in our study we found 6% cases of TB laryngitis which is in accordance with S. Baitha and R.M. Raizada (1999) who reported 5.45% cases of TB laryngitis. However, Parikh (1991) reported 23% cases with TB laryngitis suggesting an overall decrease in the incidence of tubercular laryngitis causing hoarseness of voice. As far as vocal cord palsy is concerned, it comprised only 4% of the cases.

Smoking was found to be the most common predisposing factor in 52% of cases followed by Tobacco chewing in 46% of patients. Alcohol consumption and vocal abuse were found in 38% and 32% of the cases respectively. There were nearly 26% cases in which combination of two or more predisposing factors were found. Most commonly combination of smoking and tobacco chewing followed by smoking and alcohol and vocal abuse were found.

Cigarette/ bidi smoking comprised 52% of cases in our study which is in accordance with Kaluskar (1971).<sup>[4]</sup> who noted hoarseness upto the extent of 49% in smokers. Putney and O'keefe (1953)<sup>[5]</sup> and Norris and Peal (1963)<sup>[6]</sup> reported very high incidence of smokers (89.8% and 94% respectively) in patients with chronic laryngitis. Broek (1997)<sup>[7]</sup> has mentioned that inhaled irritant specially cigarette smoke as most important predisposing factor for hoarseness of voice. However, S. Baitha, R.M Raizada (1999) (25.45%), Parikh (1991) (20%) reported lower figures of smoking in their study.

In our study, vocal abuse was noted in 32% of cases contributing to hoarseness, Kaluskar (1971), Parikh (1991) and S. Baitha, R.M. Raizada (1999) have given a variable incidence that is 62.5% , 56% and 40.9% respectively. Rosen et al (1988)<sup>[8]</sup> mentioned vocal abuse as one of the commonest causes of hoarseness and can lead to other vocal pathologies.

Henry Shaw (1979)<sup>[9]</sup> concluded that chronic mucosal irritation by heavy smoking, excessive intake of alcohol and

chewing of tobacco and aromatic nuts in Asian countries play a significant role in aetiology of hoarseness.

Parikh(1991) observed that in India and other developing countries, the prevailing lower economic status, poor nutrition, poor general health of the population, different food habits, vocal habits, smoking and drinking habits, unhealthy environment and different social customs influence the incidence of hoarseness.

Salmon (1979)<sup>[10]</sup> noted that acute inflammatory changes in larynx may result from infection by a variety of pathogenic organisms, trauma of different kinds, chemical irritation, excessive heat, ionizing radiation and antigen antibody reaction.

## CONCLUSION

Smoking was found to be the most common predisposing factor of hoarseness of voice (52%) followed by tobacco chewing, alcohol intake and vocal abuse. Chronic non-specific laryngitis was found to be the most common cause of hoarseness of voice (42%) followed by neoplastic conditions of larynx comprising (28%) and acute laryngitis in 20% of cases.

## REFERENCES

1. Shambhu Baitha, R.M. Raizada, AK Kennedy singh, M.P. Puttewar, V.N. Chaturvedi: Indian journal of Otolaryngology and head and neck surgery, Vol 56. No. 3 2004
2. Parikh NP (1991): Aetiological study of 100 cases of hoarseness of voice. Indian Journal of Otolaryngology and Head and neck surgery; 43 (2): 71 – 73.
3. Cowles SR (1983): Cancer of larynx: Occupational and environmental associations. Southern medical journal; 76(6): 894 -898
4. Kaluskar (1971): Study on hoarseness of voice: A thesis submitted for Master of surgery (Otorhinolaryngology), Gujarat University
5. Putney FJ, O'Keefe JJ (1953): The clinical significance of keratosis of larynx as a premalignant lesion. Annals of otology; 62: 348 – 357
6. Norris CM, Peale AR (1963) Keratosis of the larynx, Journal of Laryngology and otology, 77 635- 647
7. Broek P (1997): Acute and chronic laryngitis. In Scott – Brown's Otolaryngology, 6<sup>th</sup> Edition, edited by John Hibbert, Oxford, Butterworth – Heineman; 5 / 5 / 1 – 20.
8. Rosen CA, Anderson D, Murray T (1998) Evaluating hoarseness keeping your patient's voice healthy AM fam physician 87(11) 2775-2782
9. Shaw HJ (1965) Journal of laryngology and otology 1965; 79:1-1
10. Salmon LFW (1979): Acute laryngitis. In scott browns diseases of the Ear, Nose and Throat, 4<sup>th</sup> edition, Edited by John Ballantyne, John Groves, London, Butterworth 345 – 379.