ORIGINAL ARTICLE

JOURNAL OF AD-DIN AKIJ MEDICAL COLLEGE

Vol. 1 ▮ No. 1 ▮ July 2022
JAAMC 2022; 1(1): 29–33

# Study of benign vocal cord lesions causing hoarseness

**Mamun AA[1], Arifuzzaman M[2], Mannan MM[3], Hossain S[4], Sultan S[5]**

1. Abdulla Al Mamun, Assistant Professor and Head, Department of ENT & Head-Neck Surgery, Ad-din Akij Medical College Hospital, Khulna.
2. Md Arifuzzaman , Specialist, Department of ENT & Head-Neck Surgery, Square Hospitals Ltd., Dhaka.
3. Md.Mahedi Mannan, Specialist, Department of ENT & Head-Neck Surgery, Square Hospitals Ltd., Dhaka.
4. Sabrina Hossain, Consultant, ENT & Head-Neck Surgery, BRB Hospital, Dhaka.
5. Saad Sultan, Medical Officer, ENT & Head-Neck Cancer Hospital & Institute, Dhaka.

**Correspondence**

Dr. Abdulla Al Mamun, Assistant Professor and Head, Department of ENT & Head-Neck Surgery, Ad-din Akij Medical College Hospital, Khulna, Mobile: +8801712284280.
E-mail:drmamunent@gmail.com

**Received:** 20 Feb 2022
**Accepted:** 14 Mar 2022

## *Abstract*

***Background:*** *Voice is the leading way of communication among human beings. Causes of hoarseness of voice may be localised vocal cord pathology, e.g. vocal fold nodule, vocal fold polyps, vocal fold cyst, laryngeal papillomatosis, acute or chronic laryngitis, vocal cord palsy, laryngeal tumor, non-specific voice disorders, functional dysphonia. Neurological impairment of the vocal cord or larynx may result in hoarseness.* ***Objectives:*** *This study aims to see the relationship between age, sex, profession, and socioeconomic status intake with hoarseness of voice.* ***Materials and Methods:*** *100 patients were studied in 06 months from 1st July 2014 to 31st December 2014 in the Department of ENT & Head-Neck Surgery, Uttara Adhunik Medical College Hospital, Dhaka. The detected cases of hoarseness of voice patients were nominated according to the eligibility standards by purposive sampling. Statistical analysis was done by SPSS version 21.* ***Results:*** *Maximum number of benign lesions causing hoarseness of voice were vocal fold nodules (49%), then vocal fold polyps (32%), followed by vocal fold cysts (13%) and vocal cord granuloma (3%). Males were affected more than females (1.94:1). Most patients were in the age group of 21 to 40 years. Peak frequency was the age group of 30-40 years. Service holders formed the predominant group. The majority of cases were from middle socioeconomic conditions. Smoking and tobacco were related to 41% of cases.* ***Conclusion:*** *Hoarseness is just an indicator with a very distinct aetiology. The aetiology varies in different geographical places, so each case should be sensibly and meticulously evaluated to know the diagnosis and causal pathology for early and timely management.*

***Keywords:*** *Hoarseness, benign vocal cord lesions, tobacco intake complications*

## Introduction

Voice is the primary way of communication among human beings. The vibration of the vocal cords of the larynx forms the glottal sound. The rest of the vocal tract modifies this essential vibratory sound to produce an identifiable voice quality (1). Hoarseness is the voice's perceived rough, harsh, or breathy quality (2). Hoarseness may result from any deviation of the vocal cord structure, function, or both.

Causes of hoarseness of voice may be localised vocal cord pathology, e.g. vocal fold nodule, vocal fold polyps, vocal fold cyst, laryngeal papillomatosis, acute or chronic laryngitis, vocal cord palsy, laryngeal tumor, non-specific voice disorders, functional dysphonia (3). Neurological impairment of the vocal cord or larynx may result in hoarseness. The most important one is vocal cord palsy resulting from recurrent laryngeal nerve palsy. Left vocal cord palsy is the most common due to the long intra-thoracic course of the left recurrent laryngeal nerve. Psychological factors may be a predisposing, precipitating agent in cases of voice changes. A hysteric conversion reaction may initiate a sudden loss of voice (4).

Women are more prone to develop functional voice changes because of exposures such as worry, anxiety, and depression. Congenital anomalies in the form of the laryngeal web may give rise to hoarseness in infants and newborns. This condition may result from failure of complete canalisation of the larynx during embryogenesis (5). More than 50% of patients with voice complaints have a benign disorder. The most common benign lesions of the vocal cord are vocal cord nodules, vocal cord polyps, papillomas, Reinke's oedema, and vocal cord cyst. Reinke's oedema is a term used to describe the vocal folds when they become chronically and irreversibly swollen. It occurs almost exclusively in moderate to heavy smokers (2). Granulomas are benign inflammatory lesions. Men tend to develop granulomas secondary to hyperfunction, while women develop them more commonly due to intubation.

## Materials and Methods

This is a descriptive type of cross-sectional study that was conducted in the Department of ENT and Head Neck Surgery, Uttara Adhunik Medical College Hospital (IRB no. UAMC/ERC/Rec-28/2014), Dhaka with a sample size of 100 which was taken purposively from 1st July 2014 to 31st December 2014. All patients were clinically diagnosed as benign vocal cord lesions causing hoarseness of voice by Fiber optic laryngoscopy and Direct Laryngoscopy. Patients were randomly registered, matching the inclusion and exclusion criteria.

*Inclusion criteria:*

Patients of all ages and sex groups with hoarseness of voice.

*Exclusion criteria:*

1. History and examination reveal malignant, psychological, traumatic, and other causes of voice change except for benign lesions.
2. Patients who refuse to be included in the study.

## Results

Most hoarseness patients were in the 31-40 years and 21-30 years age groups (39% and 26%, respectively) shown in **Table 1.** Regarding sex, male patients were more (66%) than female (34%) shown in **Figure 1.** Most respondents (81%) were found in the Non-vocal nonprofessional group **(Table 2).** Regarding the causes of hoarseness, we discovered that vocal cord nodule (49%) was the highest number, followed by vocal cord polyp (33%) and vocal cord cyst (13%), which are shown in **Table 3.**

**Table 1:** Age distribution of the study population with hoarseness of voice (n=100)

| Age group (Years) | Study patients | Percentage (%) |
|---|---|---|
| 0-10 | 1 | 1 % |
| 11-20 | 3 | 3 % |
| 21-30 | 26 | 26 % |
| 31-40 | 39 | 39 % |
| 41-50 | 23 | 23 % |
| 51-60 | 5 | 5 % |
| >60 | 3 | 3 % |
| Total | 100 | 100 % |

Most of the patients were in the age group of 31-40 years.

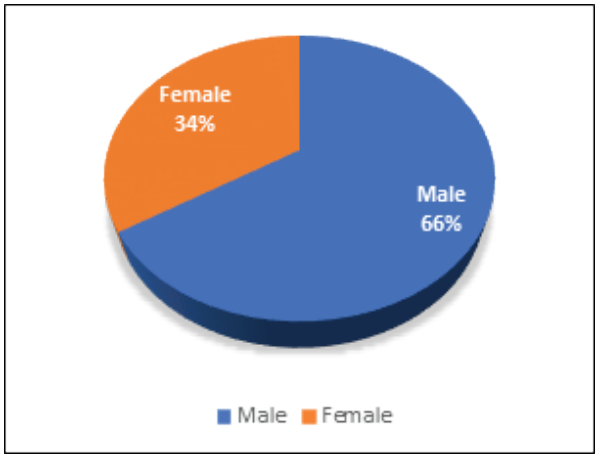


**Fig 1.** Sex distribution of the study population with hoarseness of voice

**Table 2:** Profession/ Nature of work causing hoarseness according to Koufman and Isaacson classification in study population (n=100)

| **Koufman classification level** | **Occupation/ Nature of work** | **Study patient no.** | **Percentage (%)** |
|---|---|---|---|
| **Level I** Elite vocal performer | Singer | 2 | 2 |
| **Level II** Professional voice users | Teacher<br>Political leader<br>Imam<br>Telephone operator | 5 | 5 |
| **Level III** Non-vocal professional | Students<br>Service holder | 12 | 12 |
| **Level IV** Non-vocal non-professional | Housewife<br>Businessman<br>Labourers<br>Bus helper<br>Others | 81 | 81 |
| | **Total** | **100** | **100%** |

**Table 3:** The distribution of causes of hoarseness in the study population (n=100)

| **Cause of hoarseness** | **No of patients** | **Percentage ( %)** |
|---|---|---|
| Vocal cord nodule | 49 | 49 % |
| Vocal cord polyp | 33 | 33 % |
| Vocal cord cyst | 13 | 13 % |
| Vocal cord granuloma | 03 | 3 % |
| Reinke's oedema | 01 | 1 % |
| Recurrent laryngeal papillomatosis | 01 | 1 % |
| Total | 100 | 100 % |

## Discussion

A total of 100 patients were involved in this study. The majority were seen in the 31-40 (39 %). Chinthapeta K K (6) found that the majority of patients (34%) were in the age group of 31 to 40 years. Reddy D (7) found the most prominent group comprising 32% in the 31 to 40 age group. Muniraju M (8) found 44.44% of patients in the 31-40 years age group. My study result is similar to the effects of all these studies.

In my study, male patients were 66 (66%) and female patients 34 (34%), with male numerousness and a male-female ratio of 1.94:1. This matches with a study by Chinthapeta K K (6); Reddy D S (7) Banjara H (9); Siddapur G K (10) and Nimish P (11). All these studies showed male predominance and a male-female ratio between 1.88:1 to 2.12:1.
In this study, according to Koufman and Isaacson's classification (12), we uncovered 2% elite vocal performers, 5% professional voice users, 12% non-vocal professionals, and 81% non-vocal non-professionals. Banjara found 1.59% elite performers, 3.59% experienced voice users, 9.56% non-vocal professionals, and 85.26% non-vocal non-professionals. So, our study almost correlates with the study of Banjara H (9).

In this study, vocal cord nodule (49%) was found as the most common aetiology of hoarseness of voice. Other causes were vocal cord polyp (32%), vocal cord cyst (13%), followed by vocal cord granuloma (3%), Reinke's oedema (1%), and vocal cord papilloma (1%). This study result fluctuates from the survey of Chinthapeta K K (6), Reddy DS (7), Muniraju. M (8); Siddapur GK (10) and Shinde KJ (13) with vocal cord nodules as a cause of hoarseness of voice in 36%, 41%, 35.1%, 24%, and 42.85%, respectively.

Vocal cord polyp was one of the crucial causes of change of voice (32%). Our study differs from Chinthapeta K K (7) with 27% of cases, Reddy D S (8) with 48% of patients with vocal cord polyp but almost correlates with Shinde K J et al. (28.57%) (6).

Vocal cord cysts were found in 13% of cases. Chinthapeta K K (6) found a vocal cyst in 15% of patients and Siddapur G K (10) found it in 15.8% of cases. So, our study almost correlates with these studies.

Vocal fold granuloma was found in 3% of cases. This result varies with the study of Shinde K J (13), with 21.48% cases.

## Conclusion

A maximum number of cases of hoarseness of voice was due to vocal fold nodule (49%), following vocal fold polyp (32%), vocal fold cyst (13%), and vocal cord granuloma (3%). Males were involved more than females (1.94:1). Most cases were in the age group of 31 to 40 years. Non-vocal non-professionals created the pre-dominant group. The majority of patients were from the middle socioeconomic groups. Smoking and tobacco use were the communal predisposing factors.

Source(s) of Support: Nil
Conflict of Interest: Nil

## References

1. Flood L. Scott-Brown's Otorhinolaryngology, Head and Neck Surgery, MJ Gleeson, ed Hodder Arnold 2008 ISBN 9780340808931 (HB) pp 3900 Price£ 395. The Journal of Laryngology & Otology. 2008;122(9):1016-7.

2. McGlashan J, Gleeson M, Browning GG, Burton MJ, Clarke R, Hibbert J. Scott-Brown's Otorhinolaryngology and Head and Neck Surgery, 7th edition. London 2008.

3. Williams N, O'Connell PR. Bailey & Love's Short Practice of Surgery, 25th edition: CRC Press; 2008.

4. McGrory JJ, Tasko SM, Bless DM, Heisey D, Ford CN. Psychological correlates of functional dysphonia: An investigation using the Minnesota Multiphasic Personality Inventory. Journal of voice. 1997;11(4):443-51.

5. Baily M, Gleeson M, Browning GG, Burton MJ, Clarke R, Hibbert J. Scott-Brown's Otorhinolaryngology Head and Neck Surgery, 7th edition. 2008

6. Chinthapeta KK, Srinivasan M, Babu KM, Pa A, Jeeva G, Sampath C. Prevalence of Benign Lesions of Vocal Cord in Patients with Hoarseness–A Cross Sectional Study. Sch J App Med Sci. 2015;3(7B):2518-21.

7. Reddy DS, Rathod J, Dham R, Babu AS, Nagaraj K, Srinivas K, et al. Benign lesions of larynx: a clinical study of 50 cases. J Evid Based Med Healthc. 2016;3(2):72-7.

8. Muniraju M, Vidya H. Clinical study of benign lesions of larynx. International Journal of Medical Research and Review. 2017;5(3).

9. Singh D, Banjara H, Mungutwar V, Gupta A. Hoarseness of voice: a retrospective study of 251 cases. International Journal of Phonosurgery & Laryngology. 2014;1(1):21-7.

10. Geetha KS, Kishan RS. Comparative study of benign vocal fold lesions in a tertiary health centre. International Journal of Otorhinolaryngology and Head and Neck Surgery. 2015;1(2).

11. Parikh NP. Aetiological study of 100 cases of hoarseness of voice. Indian Journal of Otolaryngology. 1991;43:71-3.

12. Koufman JA, Isaacson G. The spectrum of vocal dysfunction. Otolaryngologic Clinics of North America. 1991;24(5):985-8.

13. Shinde K, Hashmi SIH. Clinicopathological Study of Laryngeal Masses.