

Original Article

Aetiological factors of hoarseness of voice in patients attending in a district level hospital

Ahmmad Taous¹, Sheikh Md. Rafiqul Hossain², Md. Mustafizur Rahman²

Abstract

Background: Information about causes or related factors involving voice change was studied mainly in central tertiary level hospitals previously, not in hospital in peripheral districts in Bangladesh.

Objective: To find out and evaluate the aetiological factors of hoarseness of voice irrespective of age and sex.

Setting: Pabna medical college, a 250 bedded hospital in Bangladesh.

Methods: This was a cross sectional, non- randomized and longitudinal study conducted from 1st august 2011 to July 2017. All the patients with history of hoarseness underwent clinical examination, routine as well as special investigation to find the diagnosis. The final results were analyzed by simple manual analysis with frequency and percentage using SPSS program in 2017.

Results: There were total 200 patients included in the study. Among them the age groups of 21 – 30 years and 31 – 40 years were mainly suffer from hoarseness. Similarly, among 200 patients 144 (72%) were males whereas 56 (28%) were females with male to female ratio of 2.5:1. The most common cause as per the distribution was acute laryngitis with frequency of 34% followed by acid peptic laryngitis, 25.5%, neoplasms of larynx 12%, whereas tuberculosis of larynx, intubation granuloma, trauma was very few.

Conclusion: There was etiological variation in hoarseness ranging from simple laryngitis to malignancies. So it is important not to ignore the hoarseness and precise history, examination and investigations should be done.

Key words: hoarseness, laryngitis;

Introduction

Hoarseness is the term often used by common people to describe changes in their voice quality. Actually the human voice is

an extraordinary attainment, which is capable of conveying not only complex thought but also subtle emotion¹. At every child birth the most singularly and universally awaited sign of life is the infant's cry. The cry signals a fulfilled physiological capability required for the infant's survival. Probably no other human organ system need work so immediately and effectively after birth². "Although the voice is not visible to the eyes during speech production but its absence or malfunction is obvious". Hoarseness is the

1. Associate Professor, Department of ENT-HNS, Pabna Medical College, Pabna.

2. Assistant Professor, Department of ENT-HNS, Pabna Medical College, Pabna

Address of Correspondence: Dr. Ahmmad Taous, Associate Professor, Department of ENT-HNS, Pabna Medical College, Pabna, e-mail: atlincoln71@gmail.com, Phone: 01717033773

term used to describe a change in normal voice quality. It is non-specific term, similar to patient's complaint of dizziness when describing symptoms from lightheadedness to true vertigo. Hoarseness may imply breathiness, roughness, voice breaks or unnatural changes in pitch. Term dysphonia is used by laryngologists to describe abnormal voice quality. Complaints of hoarseness may represent serious disease, therefore, should not be ignored³. In the words of Chevalier Jackson "Hoarseness is a symptom of utmost significance and calls for a separate consideration as a subject because of the frequency of its occurrence as a distant signal of malignancy and other conditions"⁴.

The causes of hoarseness are determined after obtaining a detailed medical history of the circumstances preceding the onset of hoarseness and performing a thorough physical examination. The latter may include visualization of the vocal cords, possibly indirect laryngoscopy, flexible nasendoscopy or videolaryngoscopy. In the absence of an upper respiratory tract infection, any patient with hoarseness persisting for more than two weeks requires a complete evaluation. When the patient has a history of tobacco use, cancer of the head and neck must be considered and ruled out. Voice abuse is one of the most common causes of hoarseness and can lead to other vocal pathologies such as vocal nodules. Good vocal hygiene can prevent and treat some pathologies, and voice therapy is a cornerstone of management in some cases of hoarseness^{5,6,7}.

If one has hoarseness for more than 3 weeks, it could be a sign of laryngeal cancer. This is one of the most common symptoms. But many other things can cause a hoarse voice. One of the most common causes is acute laryngitis. This usually happens due to a cold, a chest infection or over use of the voice, such as shouting or screaming. Smoking can also cause hoarseness because it irritates the throat lining (mucous

membranes). Other special causes that usually under rated for hoarseness includes acid reflux, post nasal drip, allergies, thyroid problems and laryngeal injury⁸.

Many people develop hoarseness as they get older. Acid reflux is acid leaking from your stomach up into your oesophagus. It can cause hoarseness, as stomach acid comes back up the oesophagus and irritates the larynx. Post nasal drip means mucus dripping from the back of your nose down into your throat. This can happen in cold, allergy or smoking. It produces cough and a hoarse voice⁹.

Psychological factors may be a predisposing, precipitating or perpetuating agent in cases of voice disorder. Sudden loss of voice may be caused by conversion reaction. Muscle tension dysphonia is a common cause of hoarseness. It may also co-exist with other voice disorder. This condition results from an imbalance of the synergist and antagonist muscles affecting vocal fold position. Puberphonia is a condition in male where normal change of the pitch of voice at puberty is hampered or delayed. Patient may have double voice. Presbylaryngis is age related change in the voice where the vocal becomes stiffened, bowed and atrophic-looking^{7,9,10}. But these physiological and psychological voice changing factors were not included in this series.

The well-known risk factors for voice disorders are female, age (40-59yrs), vocal abuse, high vocal demand, extraoesophageal reflux, chemical exposures, smoking, frequent cold / sinus infection. Women are more prone to develop functional voice disorders because of vulnerabilities such as stress, anxiety, depression and coping with negative emotions. Professional voice users like singers, teachers, actors, politicians, announcers, call centres/ telephone workers are more at risk of developing occupational voice disorders¹³

Methods

This is a cross sectional, non- randomized and longitudinal study conducted from August 2011 to July 2017 in department of otorhinolaryngology of Pabna Medical College Hospital, Bangladesh. All the patients who presented with history of hoarseness were included in the study. The detailed history, clinical examination, routine as well as special investigation (flexible nasopharyngolaryngoscopy and direct laryngoscopy) was performed to find the diagnosis. In this hospital there was no facility of video laryngoscopy or flexible nasopharyngoscopy. So the patients were sent to Dhaka or Rajshahi for this endoscopic procedure.

Physiological, psychological, surgical conditions (i.e. thyroidectomy) or conditions outside the neck (i.e. RLN palsy due to lung or thoracic oesophageal malignancy) was excluded from study.

The final results were analyzed by SPSS 11.5 software.

Results

There were total 200 patients included in the study. Among them the age groups of 21 – 30 years and 31 – 40 years were mainly suffer from hoarseness as shown in table 1.

Table-I
Age distribution of patients (n=200)

Age (years)	Number of patients (%)
0 -10	2 (1%)
11 – 20	18 (9%)
21 -30	68 (34%)
31 -40	62 (31%)
41 – 50	28 (14%)
51 – 60	17 (8.5%)
>60	15 (7.5%)

Similarly, among 200 patients 144 (72%) were males whereas 56 (28%) were females with male to female ratio of approximately 2.5:1 as shown in table 2. The table 3 showed the distribution of hoarseness as per etiology. Among them, the most common cause was acid peptic laryngitis with frequency of 37.8% whereas tuberculosis of larynx, papillary carcinoma of thyroid and papilloma of vocal cord accounts for only 0.4% each.

Table II
Sex distribution of patients (n=200)

Sex	Number of patients (%)
Male	144 (72%)
Female	56 (28%)

Table III
Clinical features

Sl. no	Presentation	No. of cases
1	Change of voice	200
2	Cough	33
3	Fever	44
4	Vocal fatigue	18
5	Irritation/Sore throat	36
6	Weight loss	22
7	Painful vocalization	10
8	Dysphagia	8
9	Neck mass	4
10	Painful Swallowing	7
11	URTI	21
12	Heart burn/vomiting	70
13	Respiratory distress	11
14	Haemoptysis	3
15	Stridor	3

Table V
Occupation of the patients

Name of the occupation	No of patients (n=200)	Percentage (%)
Teacher	08	04
Student	40	20
Manual labour	24	12
Housewife	36	18
Service	24	12
Singer	04	02
Others	48	24

Table VI
Distribution of patients according to etiology (n=200)

Etiological factors	Number (%)
1. Inflammatory	
Acute laryngitis	68 (34%)
a. Chronic non specific laryngitis	
Acid peptic laryngitis	51 (25.5%)
Chronic simple laryngitis	28 (14%)
Vocal cord nodule	10 (5%)
Reinke's edema	3 (1.5%)
Vocal cord polyp	6 (3%)
b. Chronic specific laryngitis	
Tuberculosis of larynx	2 (1%)
2. Neoplastic	
Carcinoma larynx	14 (7%)
Carcinoma Hypopharynx	8 (4%)
Papillary carcinoma thyroid	1 (0.5%)
Papilloma of vocal cord	1 (0.5%)
3. Neurological	5 (2.5%)
4. Laryngeal trauma	1 (0.5%)
5. Endocrinal	
Hypothyroidism	1 (0.5%)
Intubation granuloma	1 (0.5%)

Discussion

In this series, the frequency of hoarseness in age group ranged from 21 – 40 years was 65% which is similar to study performed by Smit and Leewen et al⁹, Woodson and Blitzer et al¹⁰, Ramazan and Tarazi et al¹¹, but differs from the study performed by Baitha S, Raizada RM et al¹² in which maximum number of patients with hoarseness falls within 5 -15 years. The maximum number of patients with hoarseness in our study was within productive age group because they were mostly involved in voice abuse and also more concerned regarding their problem.

In our study, the male: female ratio was 2.6:1, like that of study performed by Woodson GE et al¹⁰, Baitha S et al,^{9,12} Saeed M and Ramazan¹¹ Kumar H et al¹³ but in contrast with study performed by Khan FA, Jawaid I¹⁴ which showed almost equal number of male to female ratio. Such a huge difference between male and female in our study could be because of male dominated society and they involved in smoking, alcoholism, exposure to pollutant and voice abuse whereas female from rural areas are unaware of their health problem.

In this study, the frequency of acid peptic laryngitis was 25.5% which contrast with the study performed by Banjara H and Varsha M et al¹⁵ which showed only 1.81%. Such higher frequency in this study could be because most of the patients suffer from gastro-esophageal reflux disease.

Likewise, the frequency of acute laryngitis was 34.6% in our study which is comparable to study performed by Baith S et al^{9,16} and Baitha S et al¹² but contrast with the study performed by Woodson GE et al¹⁰.

The frequency of chronic simple laryngitis was 14% in this study which is similar to other studies¹³⁻¹⁶. The frequency of vocal nodule, Reinke's edema and vocal polyp was 5%,

1.5% and 3% respectively. Our findings were different from other studies which showed somehow higher or lower frequencies of these diseases^{9, 17}.

In the present series, the frequency of laryngeal tuberculosis was only 1% which was much lower than the study performed by Woodson and Ramazan et al^{10,11} and Iqbal K et al¹⁶. The reason could be because of more prevalence but early diagnosis and treatment of pulmonary tuberculosis in south east Asia¹⁷.

The neoplastic and neurological cause reported to be 12% and 2.5% here. The frequencies were lower than other different studies^{9,12,18}.

In our study, the frequency of intubation granuloma was 0.5%, only 1 case was found. The results were comparable to study performed by Smit CE et al⁹ but very lower than the other studies¹⁸⁻²². The lower frequency in our study could be timely elective tracheostomy of needy patients.

The hypothyroidism was 0.5% in our study like that of Mohsin A²¹ and Ramazan HH¹¹ but differ from Ahmed and Hussain et al²² which showed 83.3%. It could be in our place the prevalence of hypothyroidism is not so high.

Conclusion

There was variation in etiologies in hoarseness ranging from simple laryngitis to malignancies. So it is important not to ignore the hoarseness and precise history, examination and investigations should be done.

References

1. Bhatia S, Raizada R M, Singh A K K, Puttewar M P, Chaturvedi V N , Predisposing Factors and Aetiology of Hoarseness of Voice , Indian Journal of Otolaryngology and Head and Neck Surgery 2004;56(3):186-190.
2. Mackenzie K. Chronic laryngitis. In: Gleeson M, DBrowning G G , JBurton M, Clarke R , Hibbert J, Jones N S et al, eds. Scott-Brown's Otorhinolaryngology Head and Neck Surgery, London, ©2008 Edward Arnold (Publishers) Ltd. 2008: p-2262
3. McGlashan J, Disorders of the voice . In : Gleeson MD Browning GG, J Burton M, Clarke R , Hibbert J, Jones NS et al, eds. Scott-Brown's Otorhinolaryngology Head and Neck Surgery, London, ©2008 Edward Arnold (Publishers) Ltd. 2008: 219-28
4. Kuo M and Primrose J.W, Juvenile onset Recurrent Respiratory Papillomatosis In: Gleeson M, D Browning GG , J Burton M, Clarke R , Hibbert J, Jones NS et al, eds. Scott-Brown's Otorhinolaryngology Head and Neck Surgery, London, ©2008 Edward Arnold (Publishers) Ltd. 2008: Chapter: 91, P-117-125.
5. Roy N. McGrory JJ, Tasko SM, Bless DM, Heisy D. and Ford GN. Psychological Correlates of Functional Dysphonia : An Investigation Using the Minnesota Multiphasic Personality Inventory, Journal of Voice 1997; 4:24-44.
6. Sasaki TC , Kim YH. Anatomy and physiology of the larynx, Snow Jr JB MD and Ballenger JJ in Ballenger's Otorhinolaryngology Head and Neck Surgery , Sixteenth Edition eds Spain © 2003 BC Decker Inc.
7. Voerman MS, Langveld A P M, Rossum MA. IRetrospective study of 116 patients with non-organic voice disorders: efficacy of mental imagery

- and laryngeal shaking; *The Journal of Laryngology & Otology* 2009; 123:528–534
8. Dettelbach M, Eibling DE, Johnson JT. Hoarseness from viral laryngitis to glottic cancer. *Postgrad Med* 1994; 95:143.
 9. Smit CE, Van Leeuwen JA, Mathus Vliegen LM, Devriese PP, Semen A, Tan J et al. Gastropharyngeal and gastroesophageal reflux in globus and hoarseness. *Arch Otolaryngol Head Neck Surg* 2000;126 (7): 827–30.
 10. Woodson GE, Blitzer A. Neurologic evaluation of the larynx and pharynx. In Cummings OW et al, *Otolaryngology Head and Neck Surgery* edition, St. Louis Mosby 1995: 61-17.
 11. Ramazan HH, Tarazi ARE & Baroudy FM. Laryngeal tuberculosis presentation of 16 cases and review of literature. *J Otolaryngol* 1993; 22: 39-41.
 12. Baitha S, Raizada RM, Singh AK, Puttewar MP, Chaturvedi VN. Clinical profile of hoarseness of voice. *Indian J of Otolaryngol Head Neck Surg* 2002; 54(1):14-18.
 13. Kumar H, Seth S, Kishore D. Aetiological study of 100 cases of hoarseness of voice. *Gujrat Journal of Otolaryngology and Head and Neck Surg* 2011; 8(1): 23.
 14. Khan FA, Jawaid I, Hasnny SF, Iqbal H, Musani A, Sohail Z et al. Clinical profile of patients with presenting hoarseness. *Ann Abbasi Shaheed Hosp Karachi Med Dent Coll* 2010; 1: 213-15.
 15. Banjara H, Varsha M, Singh D, Gupta A. Hoarseness of voice: A Retrospective Study of 251 Cases. *International journal of phonosurgery and Laryngology* 2011; 1(1): 21-27.
 16. Iqbal K, Udaipurwala IH, Khan SA, Jan AA, Jalisi M. Laryngeal involvement in pulmonary tuberculosis. *J Pak Med Assoc.* 1996; 46(12): 274-6.
 17. Kumar H, Seth S. Clinicopathological profile of hoarseness of the voice. *The internet journal of Otolaryngol* 2011 ; 13(1): 57-61
 18. Maruyama K, Sakai H, Miyazawa H, Toda N, Iinuma Y, Mochizuki N et al. Sore throat and hoarseness after total intravenous anaesthesia. *Br. J. Anaesth* 2004; 92 (4): 541-543.
 19. Benuett MH, Isert PR. Post operative sore throat and hoarseness following tracheal intubation using air or saline to inflate the cuff: a randomized controlled trial. *Anaesth Intensive care* 2000; 28(4): 408 – 13.
 20. Jones MW, Catling S, Evans E. Hoarseness after tracheal intubation. *Anesthesia* 1992; 47(3): 213 -6.
 21. Mohsin A, Zaidi NA, Bajwa AH. Complications of endotracheal intubation in open heart surgery patients. *Ann King Edward Med Uni* 2000; 2(6): 176 – 8.
 22. Ahmed B, Hussain T. Clinical presentation of hypothyroidism. *J Coil Physicians Surg Pak* 2001; 11: 676-8.