

Dysphonia: Gender based Study in a District level Hospital in Bangladesh

Ali MI¹, Alam M², Hossain SMR³, Rashid MH⁴, Rahman MM⁵

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Abstract

Background: Hoarseness of voice is one of the commonest symptoms in otolaryngological practice and it indicates diseases ranging from totally benign condition to sinister pathology like malignant disease. Thorough history and physical examination along with fiberoptic laryngoscopy and other special investigations may have to be performed to diagnose the cause of hoarseness.

Setting: Study was done in Pabna medical college. Patient was collected from its outpatient departments of ENT, Medicine and Gynaecology and Obstetrics.

Methods: This was a cross sectional study with purposive random sampling, which includes 112 patients. Duration of study was 2 years, from January 2020 to December 2021. The targeted study population was female patients with hoarse voice to find out the underlying cause.

Results: Among 112 patients, 73 were male and 39 were female. Age range was 4 years to 82 years. Among the female patients, 16 were housewives, 10 teachers, 6 singers.

Conclusion: Hoarseness of voice is just a symptom with a very diverse etiology. The etiological data varies in different geographical location and center to center, so every case should be carefully and thoroughly evaluated to know the early diagnosis of underlying pathology for prevention and accurate management.

Introduction

Phonation is the production and utterance of speech sounds. Phonation is also referred to as voicing, which is to express sounds like words or parts of words that have meaning. This can be the use of sound in language, music, and other forms of verbal communication. Any changes in voice may be referred as hoarseness of voice, broadly called 'Dysphonia' that impairs social and professional communication, is definitely an abnormal voice. The term hoarseness and dysphonia are often used interchangeably, although hoarseness is a symptom of altered voice quality and dysphonia is a diagnosis¹. Hoarseness is a coarse or rough quality of voice. In this article,

both terms will be used synonymously. Changes to the voice can occur suddenly or gradually over time. The voice can be described as hoarse, rough, raspy, strained, weak, breathy, or gravely. There may be voice breaks where it completely stops or cuts out. There may be pitch changes, either higher or lower for the patient². The patient may have a complete loss of voice for a period of time as well. Sometimes the patient will complain of pain with speaking or singing and difficulty projecting the voice. Most commonly, dysphonia is caused by an abnormality with the vocal cords but there can be other causes from problems with airflow from the lungs or abnormalities with the structures of the throat near the vocal cords³.

1. Dr. Md. Idris Ali, Assistant Professor, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

2. Dr. Md. Morshed Alam, Assistant Professor, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

3. Dr. Sheikh Md. Rafiqul Hossain, Associate Professor (ENT), Pabna Medical College

4. Dr. Md. Harun-or-Rashid, Assistant Professor (ENT), Pabna Medical College, Bangladesh

5. Dr. Md. Mostafijur Rahman, Assistant Registrar, Pabna Medical College Hospital, Bangladesh

Correspondence: Dr. Md. Idris Ali, Assistant Professor, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. E-mail: dridrshalient72@gmail.com, Mobile no. +8801712790646

Combined with other voice-related changes, it falls under the umbrella diagnosis of dysphonia. Hoarseness has a number of causes, ranging from simple inflammatory processes to less common psychiatric disorders to more serious systemic, neurologic, or cancerous conditions. Medication-induced hoarseness is not uncommon and should be considered⁴. The initial evaluation begins with a targeted history and physical examination, while also looking for signs of potential systemic aetiologies. Direct visualization of the larynx and vocal folds by fiberoptic laryngoscopy (FOL), commonly mislabeled as vocal cords, should be performed within three months if an etiology has not been determined or if conservative management has been ineffective^{4,5}. But now a days, this is done routinely for most of the voice cases if facility available. Patients who experience symptoms lasting longer than two weeks and who have risk factors for dysplasia (e.g., tobacco use, heavy alcohol use, hemoptysis) may require initial laryngoscopic evaluation by FOL⁵.

Hoarseness may be episodic or persistent. Persistent hoarseness needs wider evaluation. The diagnosis of hoarseness is based on clinical criteria that may be reported by the patient or his or her attendants, identified by the physician, or both⁶. Hoarseness may be accompanied by discomfort with speaking, increased phonatory effort, weak voice, and altered voice quality (e.g., shakiness, breathiness, raspiness). Evaluation is needed in patients with significant voice change, or limited voice change but significant other symptoms⁷.

Vocal professionals are classified by Koufman and Isaacson based on their voice use and risk.²

1. Level I (Elite vocal performers): Singers and actors are included in this group. Their career is at stake if slight vocal difficulty present.
2. Level II (Professional voice users): For whom even moderate vocal difficulty would hamper adequate job performance. Lecturers, teachers, politicians, public speakers, and telephone operators are at this level.
3. Level III (Nonvocal professionals): They can do their jobs with slight or moderate dysphonia. With severe difficulty they are in problems in performing their jobs.
4. Level IV (nonvocal/nonprofessionals): Include laborers, homemakers and clerk. They usually do not face any problem performing their work with dysphonia.

The evaluation should include critically and objectively listening to the patient's voice; characterizing the severity of voice change and other symptoms; and obtaining a medical history, including medication use. Quality of life may be affected because of communication problems (e.g., difficulty being heard) or decrements in physical, social, and emotional aspects of life. The input of the patient's attendant is important, especially for children and patients with cognitive impairment, because they may not recognize symptoms themselves⁸.

Methods:

This was a cross sectional non-randomized longitudinal study, conducted in between January 2021 to December 2022 with 1 year duration. All patients who came with complain of hoarseness of voice irrespective of age and sex. Then male and female patients were categorized to analyze the various components of their disease presentation. Patients were collected from Outpatient departments (OPD) of ENT, Medicine and Gynaecology and obstetrics. Demographic parameters and disease related factors were also analyzed. Total number of patients under study was 112. Postsurgical cases i.e. Thyroidectomy, tracheostomy, laryngectomy, and patients with accompanying emergency like respiratory distress and stridor and other critically ill patients were excluded from study.

History, physical examination including Indirect Laryngoscopy and other investigations like Fiberoptic Laryngoscopy findings were recorded in a prescribed form. Some children were not examined by Indirect Laryngoscopy due to inconvenience. Direct laryngoscopy was done in appropriate cases mainly for treatment purpose.

Results

Table 1: Age and gender distribution (n=112)

Age	Male	Female	Total
4-10	6 (5.36%)	2 (1.78%)	8 (7.14%)
11-20	9 (8.03%)	5 (4.46%)	14 (12.5%)
21-40	23 (20.53%)	16 (14.28%)	39 (34.82%)
41-60	22 (19.64%)	09 (8.03%)	31 (27.67%)
60 and above	13 (11.6%)	7 (6.25%)	20 (17.85%)
Total	73 (65.17%)	39 (34.82%)	112

Table II: Number of cases according to profession

Profession	Male (%)	Female	Total
Housewife	-	13 (11.6)	13 (11.6)
Laborer	8 (7.14)	2 (1.78)	10 (8.92)
Businessmen +office worker	11(9.82)	3 (2.67)	14 (12.5%)
Student	17(15.17)	4 (3.57)	21 (18.75)
Teacher	12 (10.7)	5 (4.46)	17 (15.53)
Singer	1(0.89)	5 (4.46)	6 (5.35)
Factory worker	12 (10.71)	2 (1.78)	14 (12.5)
Politician	3 (2.67)	1(0.89)	4 (3.57)
Police/ Army	2 (1.78)	0	2 (1.78)
Retired person	4 (3.57)	1 (0.89)	5 (4.46)
Healthcare provider	3 (2.67)	3 (2.67)	6 (5.35)
Total	73 (65.17)	39 (34.82)	112 (100)

Table III: Duration of hoarseness of voice (n=112)

Duration	Male	Female
<1 week	11 (9.82)	10 (8.92)
1 wk-1 month	10 (8.92)	8 (7.14)
1month-3 months	19 (16.96)	3 (2.67)
3months-6 months	16 (14.28)	7 (6.25)
6 month-1 year	12 (10.71)	7 (6.25)
>1 year	5 (4.46)	5(4.46)

Table IV: Presenting complaints of patients (n=112)

Presenting complaints	Male (%)	Female (%)	Total (%)
Change of voice	73 (65.17)	39 (34.82)	112 (100)
Fever	8 (7.14)	6 (5.35)	14 (12.5)
Cough	11 (9.82)	6 (5.35)	17 (15.17)
Sore throat	10 (8.92)	5 (4.46)	15 (13.39)
Heart burn	9 (8.03)	5 (4.46)	14 (12.5)
Weight loss	2 (1.78)	1 (0.89)	3 (2.67)
Painful speech	3 (2.67)	2 (1.78)	5 (4.46)
Dysphagia	4 (3.57)	2 (1.78)	6 (5.35)
Vomiting	4 (3.57)	2 (1.78)	6 (5.35)
Haemoptysis	1 (0.89)	2 (1.78)	3 (2.67)
Difficulty in breathing	9 (8.03)	2 (1.78)	11 (9.82)
Vocal fatigue	5 (4.46)	3 (2.67)	8 (7.14)
Odynophagia	5 (4.46)	3 (2.67)	8 (7.14)
URTI	10 (8.92)	5 (4.46)	15 (13.39)
Stridor	2 (1.78)	1 (0.89)	3 (2.67)
Palpable Neck gland	3 (2.67)	0	3 (2.67)
Foreign body sensation	5 (4.46)	9 (8.03)	14 (12.5)
Nasal voice	2 (1.78)	1 (0.89)	3 (2.67)
Sneezing	5 (4.46)	6 (5.35)	11(9.82)

*Some patients had more than one clinical feature

Table V: Diagnosis (n=112)

Diagnosis	Male (%)	Female (%)	Total (%)
Chronic laryngitis	24 (21.42%)	11 (9.82%)	40 (31.25)
Acute laryngitis	9 (8.03%)	8 (7.14%)	17 (15.17)
Functional Dysphonia	2 (1.78%)	4 (3.57%)	6 (5.35)
LPRD	7 (6.52%)	3 (2.67%)	10 (8.92)
Vocal cord nodule	2 (1.78%)	4 (3.57%)	6 (5.35)
Vocal cord Palsy	5 (4.46%)	2 (1.78%)	7 (6.25)
Carcinoma larynx	5 (4.46%)	1 (0.89%)	5 (4.46)
Carcinoma hypopharynx	2 (1.78%)	1 (0.89%)	1 (0.89)
Multiple papilloma larynx	3 (2.67%)	0	3 (2.67)
Vocal polyp	3 (2.67%)	1 (0.89%)	2 (1.78)
Vocal Oedema	3 (2.67%)	2 (1.78%)	5 (4.46)
Tuberculosis	1 (0.89%)	0	1 (0.89)
Laryngeal rhinosporidiosis	1 (0.89%)	0	1 (0.89)
Laryngeal trauma/Hanging	1 (0.89%)	1 (0.89%)	2 (1.78)
Abductor Palsy	1 (0.89)	1 (0.89%)	2 (1.78)
Hypothyroidism	1 (0.89%)	0	1 (0.89)
Parkinsons disease	1 (0.89%)	0	1 (0.89)
SLE	0 (0.89%)	1 (0.89%)	1 (0.89)
Lung Cancer	2 (1.78%)	0	2 (1.78)

*LPRD- Laryngopharyngeal reflux disease

Discussion

In the present series, the number of patients' with hoarseness of voice was 112, which is 0.84% of total OPD patients of department of ENT during the study period of 2 years, only 12 patients were referred from department of Medicine and department of Gynae and obstetrics. This is slightly higher than the study of Sambhu Baitha et al. They got the figure in Maharashtra, India 0.32 to 0.66% respectively for old and new cases.^{1,8}

In the present series, 65.17% patients were male and 34.82% were female which is almost same to the different series of world research. Here male female ratio is 1.87:1. Banjara et al studied 251 patients in Chattishgarh, India. And there, male: female ratio of 1.89:1 with male predominance was observed⁹. Series of Shamvu Baitha et al, showed slightly lower in female, ratio was 2:1. All these are because of similarity regarding environmental, cultural and personal and habit in the subcontinent¹⁰. In the series of Taous A and Hossain SMR (2017), got slightly higher

incidence in male (2.6:1)⁴. This picture is quite different from the later study. Female patient is increased due to more health care seeking by women in comparison to previous situation. These result was contradictory to the survey of Khan FA and Jawaid I which showed number of cases was equal in male and female. Male dominated society may be the cause of large difference between gender facts in other studies. Study of Salah Uddin et al shown the male female ratio slightly closer, 1.49:1

Most of the aetiological factors of hoarseness of voice were present in young adult and middle aged people according to the most of the reports. But in this series it is slightly different from those surveys. It is because inclusion of the medical illness causing hoarseness, mainly collected from department of Medicine in the present series. Chronic laryngitis of professional voice user shows increasing age incidence including Ca larynx, Ca lung also added with this group. Baitha et al (2002) and found majority of patients (28.18% and) in the age group of 31 to 40 years.¹ Taous A et al

found largest group comprising 34% in 21-30 years age group in study of 2017.⁴

The study clearly states the most frequent laryngeal pathologies found in the older age group because cancers and vocal cord palsy due to different disease is more evident in those people. In some cases personal habit of smoking or ingestion of Paan Jarda Gul, alcohol affects the diseases. Smoking is not common culture for females in Bangladesh. So laryngeal cancer is far common cause of hoarseness in male than female. But other benign diseases are commoner in female, and it occurs at a slightly younger age group⁵.

This statement supports finding of the present study. Difference of incidence of male and female become narrowed in younger age group. In 21-40 years age group, male is 20.53% but female is 14.28%. Contrary to this, in older age group, 41-60 and above 60 years, marked male preponderance was found; other authors also mentioned the hoarseness as major complaint. Associated symptoms of these patients were dyspnea, dysphagia, throat pain and foreign body sensation.^{4,7} Symptoms of typical laryngopharyngeal reflux disease include dysphonia, mild dysphagia, chronic cough, excessive throat mucus, heart burn, vomiting and nonproductive chronic throat clearing.¹²

Duration of hoarseness was 7 days to more than 1 year. Most of the presenting complaints (61.35%) were seen within 3 months, most of them were male (35.50%), with few female patients (18.25%). Most of the patients, both male and female (8-10%) of acute laryngitis presented their symptoms like fever, sore throat, changed voice and dysphagia within one week.

About 8.92% patients had complaints of more than 1 year duration, equally in male and female. Batra et al (2004) found 59% patients within first five months of appearance of symptoms and 86% of patients were found to present within first year of appearance of symptoms.⁹ Baitha et al (2002) noted duration range from 1 day to 5 years and 50% patients had duration of hoarseness in month.⁴ Hoffman (2006) have noted 68.65% patients with duration of hoarseness of less than one year.¹³

Injudicious and excessive use of voice is injurious to vocal cord and follows formation of vocal masses. In the present study, people involved in active

educational job, student and teachers are majority victim of voice changes, specially most of the students were from Madrasah who recites religious contents with loud sound for long times, total number of student and teacher is 32 male (28.57%), and 9(8.03%) female. 13 (11.6%) patients were pure housewives. Businessmen and office workers specially who were involved in public dealing and used to talk for long duration developed dysphonia, among them 9.8% were male and 2.67% female, with total 12.5%. Total 6 (5.25%) patients were singer, among them, 5 (4.46%) were female. In a study by Ghosh et al (2001) majority of patients (29%) were housewives.¹⁰ Laborer constituted the single largest group of patients (36.36%) followed by housewives (21.81%) in another study.⁴

Al Jilani & Lefevre et al reported that professionals with the highest risk of having voice problems are singers, followed by consultants, teachers, lawyers, pastors, telemarketers, salespersons, and health professionals. An important point is that a professional voice user will seek medical help only if he or she is aware of its importance among other things.^{14,15} Ward EC et al (2002) concluded that teaching was a high-risk occupation for voice disorders with the possibility of significant work-related consequences.¹⁶

Boominathan et al (2008) surveyed 400 voice professionals (100 singers, 100 teachers, 100 politicians and 100 vendors) in India and reported that 86% of politicians and 74% of vendors had voice problems. Politicians and vendors had the highest point prevalence of voice problems when compared with that of teachers and singers. 59% of singers and 49% of teachers also reported to have voice problems.^{17,18}

In present study functional voice disorders (5.35%) comprised a small group, associated with a normal vocal fold morphology and movement. It includes muscle tension dysphonia, aphonia, and psychogenic dysphonia. Among them male were 1.78% and female 3.57% with 1:2 ratios. No pathological lesion was included in this group. But Pasikh et al accounted 51% of functional voice disorder, which included vocal nodule, polyps and granulomas under functional disorder, since this lesion have been shown to be secondary to vocal abuse/misuse. According to Aslam MJ et al (2006) functional voice disorders may account for up to 40% of the cases of dysphonia referred to a multidisciplinary voice clinic.^{22,23}

Chronic and acute laryngitis is the commonest (57 patients, 46.52%) lesions in the present study followed by Laryngopharyngeal reflux disease (LPRD). In these cases, male predominates clearly. Functional dysphonia and vocal cord nodule found commoner in female though number of cases were small. These findings are inconsistent with the study of Aziz et al.⁸. They got vocal cord nodule as most common lesion (11.95%) with M: F ratio 1:1.7. Vocal nodule was the commonest etiology in study by Birchall et al. with 43.3 and 56.7% in males and females respectively.⁷ In the study of Ila Upadhyay, vocal cord nodule was commonest lesion causing hoarseness of voice, 37.78%, and among them, female was affected more (26.66% and 11.11%) than male.⁸ Pfister DG et al. (2006) found most of the cases was functional (16.33%), and it was male predominant (68.29%)¹². In the study of Banjara, chronic laryngitis was (9.56%) and malignancy (9.56%) with equal incidence. In chronic laryngitis male predominance was seen with male to female ratio 3:1. Other two studies chronic laryngitis was commonest etiology comprising of 48% in each.^{4,7} Whereas studies of Hansa Banjara & Sambu et al. it was only 6% and 8% respectively.^{9,10}

Second most common pathology was LPRD in this study (8.92%) after chronic and acute laryngitis, and among them male was more common sufferer (6.52% male and 3.67% female). Laryngopharyngeal reflux disease (LPRD) refers to laryngopharyngeal and other associated respiratory organs mucosal inflammation, caused by a reflux of stomach contents into the esophagus (GERD). LPRD is considered to be a relatively new clinical entity with a vast number of clinical manifestations which are treated through different fields of medicine, often without a proper diagnosis. It is a sequela of GERD.^{24,25,26}

Vocal cord palsy was found in 6.25% patients, Male female ratio was 2.5:1. Two male patients had Lung cancer. Others had laryngeal or hypopharyngeal cancer. About 4.46% male had laryngeal cancer, and female was 0.89%. Male predominance was seen with M:F ratio 2.5:1. Incidence of other conditions was multiple papilloma larynx (all were child as the rule), vocal cord polyp, vocal cord oedema, laryngeal trauma, abductor palsy. Some other diseases i.e. laryngeal TB, Laryngeal Rhinosporidiosis, Hypothyroidism, Parkinson's Disease and SLE were found 1 case each. Last 3 cases were found in department of Medicine.

2 lung cancer cases were found, all were male. It was presented with left vocal cord palsy, cough and haemoptysis as major features. In the series of Milena SFC (1916), among 36 patients, 19 had vocal fatigue and 17 had hoarseness of voice.

Conclusion

Hoarseness of voice is just a symptom with a very diverse etiology. The etiological data varies in different geographical location and center to center, so every case should be carefully and thoroughly evaluated to know the early diagnosis of underlying pathology for prevention and accurate management.

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