



A clinicopathological study of hoarseness of voice – A Hospital based study

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Abstract

INTRODUCTION- Hoarseness of voice is one of the commonest symptoms in otorhinolaryngology practice. Hoarseness persisting for more than two weeks should not be ignored and must be thoroughly investigated for the underlying cause.

OBJECTIVES- The present study is an attempt to determine the incidence of Various etiologies and clinicopathological aspects of hoarseness of voice.

METHODS- A study comprising of 100 patients with hoarseness of voice was carried out in Department of ENT & Head Neck Surgery, a tertiary care hospital, from July 2019 to January 2021. *Study design:* cross-sectional study

RESULTS AND CONCLUSION -Male to female ratio was 2.1:1. Laborers (34%) contributed the single largest group. Majority of cases were from rural areas (63%). The commonest cause of hoarseness was carcinoma of larynx (23%). Smoking (28%) was the most common predisposing factor and dysphagia (24%) was the most common associated symptom.

Keywords: Hoarseness, voice, vocal folds, smoking

INTRODUCTION

Hoarseness is a symptom, not a disease. Hoarseness is defined as a change in normal voice quality that is rough, harsh, and lower in pitch than normal [1]. Hoarseness can be divided into acute or chronic [2]. Acute onset is more common and caused by acute laryngitis, viral infection, smoking, vocal abuse, laryngeal trauma or thyroid surgery [3]. The chronic onset is caused mainly by vocal cord nodules, vocal cord polyps, laryngeal papillomatosis, vocal cord tumor, functional dysphonia, smoking, vocal abuse, laryngopharyngeal reflux, post-nasal drip, vocal abuse, tuberculosis, diabetes mellitus, cancer of thyroid, esophagus and lung [4-6].

Hoarseness persisting for more than two weeks should not be ignored and must be thoroughly investigated for the underlying cause.

Pathophysiology of hoarseness of voice [7]: -

1. Insufficient glottic closure during phonation.
2. Change in vocal cord stiffness.
3. Imbalance in mechanical properties between two folds which impairs vibration.

Our present study is an attempt to determine the incidence of Various etiologies and clinicopathological aspects of hoarseness.

1. To study the various etiological factors in hoarseness of voice.
2. To study the age and gender distribution of various causes of hoarseness of voice.
3. To study the relation of hoarseness of voice with respect to various occupations.

MATERIALS AND METHODS

The present study was carried out on 100 patients attending the Department of Otolaryngology, a tertiary care hospital, for the period of July 2019 to January 2021. It was a cross-sectional study. Patients who had hoarseness of voice for more than two weeks were selected. After taking informed consent, a detailed history of symptoms like cold, cough, pain in the throat, dryness of the throat, dyspnea, stridor, swelling in the neck, history of any trauma or any complaint were noted. Mode of onset and patient’s vocal output was also inquired. History regarding chronic sinusitis, recurrent hoarseness of voice, history of surgery, radiation to the neck was asked for. History of tuberculosis, leprosy, syphilis was also noted along with family and personal history.

General physical examination along with local examination of the nose, oral cavity, nasopharynx, and ear was done. Routine investigations like HB, BT, CT, TLC, DLC, urine for albumin were done in all patients along with chest Xray – P/A view, X-ray STN -lateral view were done when required.

Special investigations like Indirect laryngoscopy and Direct laryngoscopy were performed to determine diagnosis. Biopsy was taken from the growth or any suspicious area for confirmation of diagnosis.

INCLUSION CRITERIA: - All patients presenting with hoarseness of voice for more than 2 weeks and age more than 18 years.

EXCLUSION CRITERIA: -

1. Age of the patient was less than 18 years of age.
2. Other voice disorders like rhinolalia clausa, rhinolalia aperta, articulation disorders, and CNS disorders like bulbar palsy, multiple sclerosis, Wegner’s granulomatosis, Parkinson disease and stroke.

Patients were divided in 4 groups based on the levels of vocal usage described by Koufman and Isaacson, 1991. [8]

1. Elite vocal performers, e.g., singers, actors.
2. Professional voice user, e.g., lecturers, clergyman, etc.
3. Non- vocal professional, e.g., teachers, doctors, lawyers, etc.
4. Non- vocal, non-professional e.g., laborer’s, clerks, farmers etc.

RESULTS

- In the present study of 100 cases, the incidence of hoarseness of voice was 0.22% for a period of one and half years.
- The peak incidence of hoarseness was recorded in the age groups between 40 to 50 years (36%). The youngest patient was 19 years old and the oldest being 82 years old as shown in table 1.

Table 1. Age distribution of the patients

Age group	Number of cases	Percentage
18 -30	10	10
30-40	13	13
40-50	36	36
50-60	22	22
60-70	14	14
70-80	3	3
80-90	2	2

The incidence of hoarseness of voice was observed to be more in males (68%) than females (32%).

- Among the 100 patients, 63 % patients were from rural areas and 37% were from urban areas.
- High incidence was seen in low socioeconomic status (72%) while 28% patients belonged to mid socioeconomic group.

- Maximum number of patients (40%) had hoarseness for a duration of 6 months to 1 year, while the least number of patients (5%) had hoarseness for a duration of 2 weeks to 1 month as shown in Table 2

Table 2. Distribution of cases according to duration of hoarseness

Duration of hoarseness	Number of cases	Percentage
2 weeks to 1 month	5	5
1 month- 6 months	24	24
6 months to 1 year	40	40
1 year onwards	31	31

Smoking (28%) was found to be the most common predisposing factor followed by vocal abuse (25%). The least common factor involved was GERD (2%) and alcohol consumption (3%) as shown in table 3. Table 3. Predisposing factors for hoarseness of voice.

Predisposing factors	Number of cases	Percentage
Smoking	28	28
Alcohol	3	3
Tobacco	13	13
Smoking & Tobacco	2	2
Smoking & Alcohol	6	6
GERD	2	2
Vocal abuse	25	25
URTI	18	18
Trauma	3	3

Maximum incidence was found among farmers (34%) followed by Labourers (32%) and least in bank clerks (1%) as shown in Table 4.

Table 4. Distribution of cases according to their occupation.

Occupation	Number of cases	Percentage
Labourer	34	34
Farmer	32	32
Student	9	9
Businessman	5	5

Teacher	8	8
Driver	4	4
Lawyer	3	3
Singer	2	2
Vendor	2	2
Bank clerk	1	1

In the present study, dysphagia was the most common complaint associated with hoarseness (24%) followed by throat pain (22%), while the least common was otalgia (3%) as shown in table 5.

Table 5. Table showing complains associated with hoarseness.

Associated Complaint	Number of cases	Percentage
Dysphagia	24	24
Cough	16	16
Pain throat	22	22
Foreign body sensation throat	14	14
Neck swelling	7	7
Halitosis	5	5
Dyspnea	4	4
Vocal fatigue	5	5
Otalgia	3	3

Among the various causes of hoarseness, the most common cause was Carcinoma of larynx (23%), followed by chronic laryngitis (21%) and the least was vocal cyst, Reinke edema and laryngeal web (1%) as shown in table 6. Among the patients of carcinoma larynx carcinoma, one patient presented with hoarseness as well as dysphagia and had a Supraglottic growth involving left Aryepiglottic fold and extending to glottis on FOL (flexible fiberoptic laryngoscopy), his left pyriform fossa was also involved as shown in fig 1. One patient had bilateral vocal fold leukoplakia as shown in fig 2. One of the patients presented with hoarseness associated with throat pain, as shown in fig 3 he was diagnosed as a case of acute laryngitis. On FOL, his epiglottis, AE folds and false vocal cords were congested and edematous.

Table 6. Diagnosis of hoarseness with respect to aetiology.

Causes	Number of cases	Percentage
Ca larynx	23	23
Acute laryngitis	9	9

Chronic laryngitis	21	21
Tubercular laryngitis	3	3
GERD	12	12
Trauma	2	2
Leukoplakia	2	2
Congenital laryngeal web	1	1
Functional	3	3
Vocal cord palsy	8	8
Vocal nodule	12	12
Vocal polyp	2	2
Vocal cyst	1	1
Reinke edema	1	1

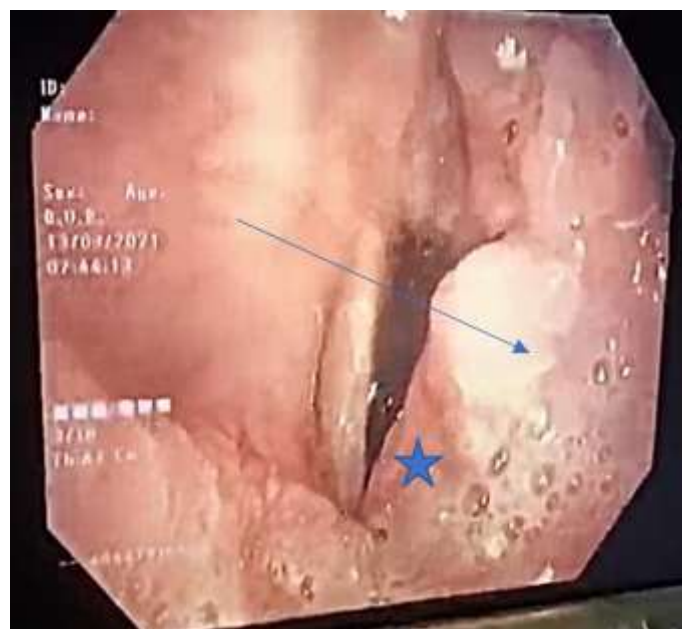


Fig 1 Supraglottic growth involving left Aryepiglottic fold extending to glottis and left PFF on FOL (flexible fibreoptic laryngoscopy)

- blue line showing growth of AE folds
- ★ blue star showing involvement of true and false vocal cords



Fig 2 bilateral vocal fold leukoplakia.

Blue lines showing whitish leukoplakic patches on both vocal cords

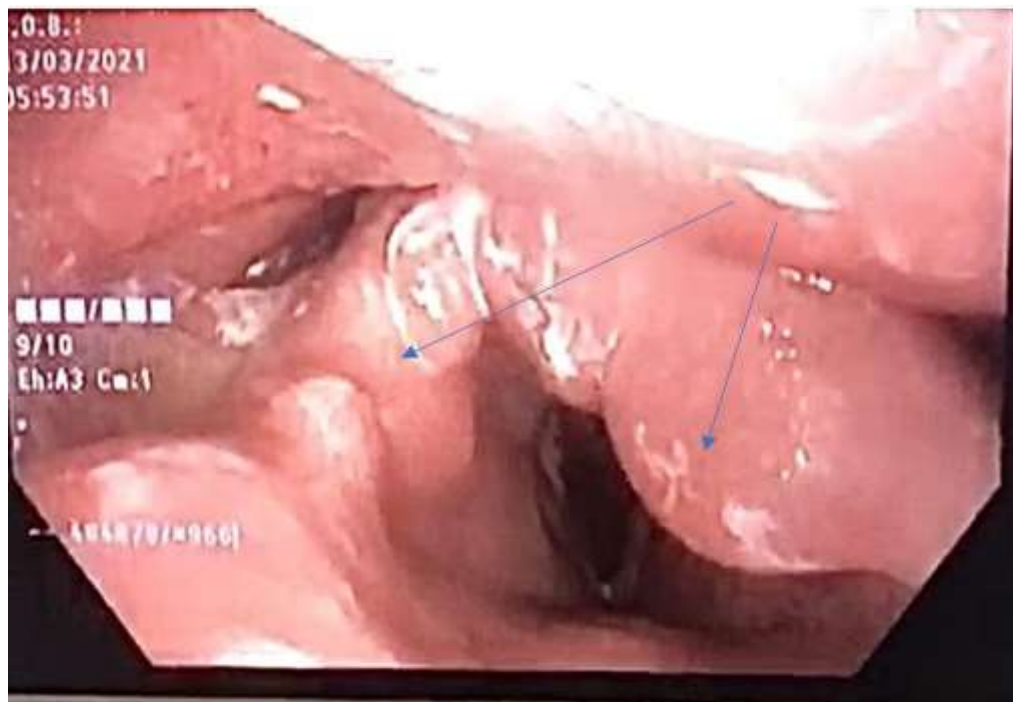


Fig 3 Acute laryngitis

Blue lines showing edematous and congested bilateral AE folds, With more edema on left AE fold.

DISCUSSION

In the present study, the age group which most commonly presented with hoarseness was 40-50 years (36%). Herrington – Hall et al., 1988 [9] in their study concluded that 57% patients were above 45 years, 22.4% were above 64 years. Also, Banjara et al., 2011 [10] in their study mentioned the majority of patients in the fourth to sixth decade of life. In contrast, Baitha et al., 2002 [11] in their study mentioned that the majority of patients were in the age group 30-40 years.

In the present study, the male to female ratio was 2.1:1. Similar observation was given by the study conducted by Khavasi and Prabhu, 2005 [12]. Banjara et al., 2011, also observed male preponderance with male to female ratio 1.89:1. Parikh, 1991 [13] found that hoarseness was more common in males, with a male to female ratio 2.03:1, which is similar to the findings of the present study. Higher male preponderance can be attributed to the fact that males indulge more in smoking, alcoholism, pollutant exposure, and misuse of voice. In contrary to our findings, Brodnitz, 1963 [14] in his study documented an equal number of both sexes.

In the present study, the maximum number of cases (40%) presented within 6 months to 1 year followed by 31% of cases presented 1 year onwards, 24% of cases presented during 1 month to 6 months and 5% presented during 2 weeks to 1 month.

Batra et al., 2004 [15] found 59% patients presented within the first 5 months and 86% were found to present within the first year.

The higher incidence in urban population is probably due to awareness and alertness which is not seen in rural population. Higher incidence in the lower income group is due to the larger population of this group. Malnutrition, lack of health education and awareness, ignorance regarding hoarseness, poor diagnosis, and untimely referral facilities in rural areas also play a vital role in higher incidence.

In the present study, smoking was the most common predisposing factor in 28% of cases. Our study correlates with the study of Banjara et al., 2011, where the maximum number of patients were associated with smoking (43%).

Dysphagia was the most common associated symptom (24%) in the present study. Banjara et al., 2011, in their

study also reported dysphagia to be the most commonly associated symptom (16%).

In the present study, carcinoma of larynx was the most common pathology (23%). Khavasi and Prabhu, 2005 in their study also mentioned carcinoma of larynx as the most common pathology (40%). Baitha et al., 2002, in their study documented chronic nonspecific laryngitis as the most common pathology (43%).

Banjara et al., 2011, in their study mentioned functional lesions as the most common pathology (16%). Behera et al., 2012 [16] in their study found chronic laryngitis as the most common pathology (25%).

CONCLUSION

Voice disorders are being encountered very frequently in the present days. Management of hoarseness can be a challenge. By proper history and examination, a diagnosis can be made. Direct laryngoscopy and fiberoptic laryngoscopy proved to be useful methods in detecting various causes of hoarseness.

Biopsy should be taken from any growth or suspicious area for confirmation of diagnosis so that proper management can be done. Stroboscopy is another tool for studying the mucosal wave patterns of the vocal cords in a patient with hoarseness in whom no obvious lesion is seen. Patients with risk factors like smoking, elderly age group, and those with hoarseness of very long duration should be evaluated immediately by laryngoscopy to rule out any sinister cause.

References

1. Jackson Chevalior : otolaryngology vol 4 (coatesschenk & miller editors)1955 chapt.25 PP1-4.
2. Dettelbach M, Eibling DE, Johnson JT (1994) Hoarseness from viral laryngitis to glottic cancer. *Postgrad Med* 95:143.
3. Chagnon FP, Moulder DS (1996) Laryngotracheal trauma. *Chestsurg Din North Am* 6:73–78.
4. Smit CE, Van Leeuwen JA, MathusVliegen LM, Semen A, Devriese PP, Tan J et al (2000) Gastropharyngeal and gastroesophageal reflux in globus and hoarseness. *Arch Otolaryngol Head Neck Surg* 126(7):827–830.
5. Woodson GE, Blitzer A (1995) Neurologic evaluation of the larynx and pharynx. In: Cummings

OW et al (eds) Otolaryngology head and neck surgery edition. Singular Publishing Group, Lous Mosby, pp 61–71.

6. Ramazan HH, Tarazi ARE, Baroudy FM (1993) Laryngeal tuberculosis presentation of 16 cases and review of literature. *J Otolaryngol* 22:39–41.

7. Bajwa RA, Jalil S. Hoarseness of voice: Clinicopathological Profile of 100 Cases. *Pak J Med Health Sci* Apr- Jun 2012;6(2):441-3.

8. Koufman JA, Isaacson G. The spectrum of vocal dysfunction. *Otolaryngol Clin North Am.* 1991 Oct;24(5):985-8.

9. Herrington-Hall BL, Lee L, Stemple JC, Niemi KR, MC Hone MM. Description of laryngeal pathologies by age, sex, and occupation in a

treatment-seeking sample. *J Speech Hear Discord* 1988;53:57-64.

10. 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.

11. Baitha S, Raizada RM, Kennedy Singh AK, Puttewar MP, Chaturvedi VN (2002) Clinical profile of hoarsens of voice. *Indian J Otolaryngol Head Neck Surg* 54(1):14–18.

12. Khavasi , Prabhu S. Aetiological study of hoarseness of voice. A thesis submitted for master of surgery (otorhinolaryngology) Rajiv Gandhi University of Health sciences, Bangalore, Karnataka ; 2005.