



## Clinico-Aetiological Study of Hoarseness of Voice

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### Abstract

**Objective:** To study incidence, predisposing factors, causes, clinical presentation of hoarseness of voice. After taking detailed history of patient, complete examination of ear, nose and throat has been carried out. Indirect and direct laryngoscopy was done.

**Method:** This study was carried out on 150 patients presented in the department of ENT from february2015 to August2016 with complaint of hoarseness of voice.

**Result:** Incidence was found to be 0.30%. Males were more affected (86%) than females (14%). Highest incidence was found in the age group of 51-60 years. Maximum patients (45.33%) were having hoarseness for the period since 1-12 weeks. Labourers (33.33%) were most commonly affected. Smoking (34%) was the most common predisposing factor and dysphagia (38.7%) was the most common associated symptom of hoarseness of voice. Chronic laryngitis (35.3%) was the most common cause.

**Conclusion:** Hoarseness for longer duration may be because of underlying malignancy so every patient with hoarseness should be investigated thoroughly through direct laryngoscopy. Our study is a Government Institution based study and patients are more from low socio-economic strata, which are more prone to chronic laryngeal infections and cancer larynx due to their poor nutrition, addiction habits and occupational exposure.

**Keywords:** Hoarseness, Vocal cords, Recurrent laryngeal nerve.

### Introduction

Any condition that alters the regular, repetitive, synchronous vibrations of vocal cords in conjunction with the breath stream that activates them may create the sounds that are called

hoarseness<sup>[1]</sup>. A voice quality that is harsh, rough, discordant and whose pitch is lower than normal is hoarseness<sup>[2]</sup>.

When the regularity of vibratory pattern is lost, the resulting vocal sound is heard as hoarseness.

The hoarseness can be of acute onset or chronic onset<sup>[3]</sup>. The acute onset is more common and mainly caused by inflammation like acute laryngitis whereas other cause could be viral infection, smoking, voice abuse, laryngeal trauma or thyroid surgery<sup>[4]</sup> Vocal cord polyp, vocal cord tumors, vocal nodule, laryngopharyngeal reflux, laryngeal papillomatosis, functional dysphonia, voice abuse, smoking, thyroid tumors, oesophageal malignancy, lung malignancy, chronic granulomatous diseases like tuberculosis or systemic diseases like diabetes mellitus are causes of chronic onset of hoarseness.<sup>[5-7]</sup> The complaints of hoarseness may imply serious disease, so it should not be ignored<sup>[8]</sup>.

### Materials and Method

The present study was carried out on 150 patients presented with complaint of hoarseness of voice in the ENT OPD, patients admitted in ENT ward and cases referred from medical and surgical departments. For the purpose of this study, patients of age group above 5 years with complaint of hoarseness of voice with other associated complaints like dysphagia, cough, pain in throat, dyspnea, neck swelling, trauma etc. or without other associated complaints were considered. Past history of chronic sinusitis, recurrent hoarseness of voice, history of surgery, past history of radiation to neck, history of tuberculosis, syphilis or leprosy was noted. Personal history and Family history was enquired. General condition of patients, external examination of neck, systemic examination were done. Local examination of nose, oral cavity, throat, nasopharynx and ears were done. Indirect laryngoscopy was done. The detailed history, clinical examination, routine as well as special investigations (direct laryngoscopy) were performed to find out the diagnosis. Biopsy was also taken from growth over larynx for confirmation of diagnosis.

### Results

The present study was carried out on 150 patients presented with complaint of hoarseness of voice in the ENT, Head & Neck Surgery OPD, patients admitted in ENT ward and cases referred from medical and surgical departments.

- Incidence of hoarseness of voice in patients attending Otorhinolaryngology OPD and admitted in Hospitals is 0.30% for a period of 1.5 years.
- In our study, the peak incidence of hoarseness, was recorded in the age group between 51-60 years (28%).
- The incidence of hoarseness of voice was observed to be more in males (86%) than females (14%).
- Among 150 patients 110(73.33%) were from rural areas while 40(26.67%) were from urban areas.
- Highest incidence (76.7%) of hoarseness of voice was seen in low socio economic status group. While 23.3% patients were belonging to mid socio-economic group.
- In our study 45.33% patients were having hoarseness since 1-12 weeks, 28% patients were having hoarseness since 3 months to 6 months, only 6% patients were having hoarseness since more than 1 year.
- Maximum incidence of hoarseness of voice was found among Labourers (33.33%). Next higher frequency was found among farmers (28%) and least in bank clerk(0.7%).
- Smoking (34%) was found to be the most common predisposing factor for hoarseness of voice, followed by vocal abuse(30%) and least common factors were Alcohol(2.7), smoking+alcohol (2.7%), GERD(2.7%).
- In our study difficulty in swallowing ie. dysphagia (38.7%) was the most common associated complaint with hoarseness of voice, followed by cough(25.33%) and least common associated complaint was otalgia(8%).
- Among various causes of hoarseness of voice chronic laryngitis was the most common

cause of hoarseness of voice 35.3%, followed by carcinoma larynx 28% and least common causes were vocal cyst 0.7%, Reinke's oedema 0.7%, Benign Mucinous Cyst 0.7%.

**Table No. 1:** Incidence of Hoarseness of Voice in Different Age Groups

Age group (years)	No. of cases	Percentage
0-10	1	0.7
11-20	7	4.7
21-30	16	10.7
31-40	14	9.3
41-50	24	16
51-60	42	28
61-70	33	22
71-80	11	7.3
81-90	2	1.3
TOTAL	150	100

**Table No. 2:** Duration of Hoarseness

Time Period	No. of Cases	Percentage
<1 Wk	8	5.33
1-12Wks	68	45.33
3 Months – 6 Months	42	28
6 Months -9 Months	12	8
9 Months -1 Year	11	7.33
>1 Year	9	6
Total	150	100

**Table No. 3** Occupation wise incidence

Occupation	Numbers	Percentage
Labourers	50	33.33
Farmers	42	28
Students	12	8
Businessmen	12	8
Dependent	11	7.33
Housewives	7	4.7
Teacher	6	4
Driver	3	2
Lawyer	2	1.33
Singer	2	1.33
Vendor	2	1.33
Bank clerk	1	0.7

**Table No. 4:** Predisposing factors for hoarseness of voice

Predisposing factors	No. of cases	Percentage
Smoking	51	34
Alcohol	4	2.7
Tobacco chewing	21	14
Smoking+alcohol	4	2.7
Smoking+tobacco chewing	21	14
GERD	4	2.7
Vocal abuse	45	30
URTI	14	9.3
Trauma	5	3.3

**Table No. 5:** Clinical presentation of patients with hoarseness

Clinical presentation	No. of cases	Percentage
Change in voice	150	100
Dysphagia	58	38.7
Cough	38	25.33
F.b.sensation/irritation/throat clearing	30	20
Dyspnea	28	18.7
Neck swelling	23	15.33
Halitosis	20	13.3
Otagia	12	8
Vocal fatigue	26	17.3
Pain in throat	27	18
Painful vocalization/difficulty in speech	20	13.3

**Table No. 6:** Causes of Hoarseness of Voice

Causes	No. of cases	Percentage
CA Larynx	42	28
Acute Laryngitis	8	5.3
Chronic Non Specific Laryngitis	38	25.3
-Chronic Simple Laryngitis	15	10
-Chronic Hypertrophic Laryngitis		
Chronic Specific Laryngitis (Tubercular laryngitis)	12	8
Tumor like Lesions		
-Vocal Nodule	8	5.3
-Vocal Polyp	6	4
-Vocal Cyst	1	0.7
-Reinke's Oedema	1	0.7
-Benign Mucinous Cyst	1	0.7
Vocal Cord Palsy	15	10
Functional	3	2

**Discussion**

This study was conducted on the patients attending E.N.T OPD and admitted in wards of hospital. A total of 49,954 patients attended the Otorhinolaryngology department during the period of February 2015 to August 2016, out of which 150 patients with hoarseness of voice were included in this study. Thus the incidence of hoarseness of voice was noted to be 0.30% for a period of 1.5 years, which is comparable to study by Sombhu Bhatia (1999) where the incidence was 0.32%<sup>[9]</sup>.

Hoarseness is so common in the population that it evokes little concern unless it is marked or chronic.

In our study age group most commonly presented with hoarseness of voice is 51-60 years. Herrington-Hall et al (1988) found that vocal cord pathologies are common in elderly since vocal cord palsy and carcinoma of vocal cord are common causes in elderly. In his study, 57% patients were above 45 years, 22.4% were above 64 years. This statement supports our finding that majority of cases were present in 51-60 years age group.

In our study male: female ratio is 6.14:1. Parikh NP (1991) also found that hoarseness was more common in males (2.03: 1)<sup>[11]</sup>. Our study is also showing male predominance. The variation in ratio could be due to different population size. This could be explained by the fact that the change in voice is not a noticeable thing in women unless they develop associated complaint of dysphagia and/or dyspnea so they approach hospital only when they develop dysphagia and/or dyspnea. Also due to social customs, females are bound to their household tasks due to which they are mostly bounded to home and do not take medical advice until the symptoms hamper their daily routine. Male predominance could also be explained because of different habits eg. smoking, chewing tobacco with lime, alcohol intake which is not common in females in our locality. Males are also exposed to occupational hazards, while females mostly lead indoor life.

In our study maximum cases (45.3%) presented with 1-12 weeks of onset of hoarseness followed by 28% between 3-6 months, 8% between 6 months to 9 months, 7.3% between 9 months to 1 year, 6% more than 1 year. Batra et al (2004) found 59% patients presented within first five months and 86% patients were found to present within first year of appearance of symptoms<sup>[12]</sup>

In our study chronic laryngitis (35.3%) was the most common cause of hoarseness of voice. Behera et al found chronic laryngitis as the most common cause of hoarseness of voice and found in 25% cases<sup>[13]</sup>. Carcinoma larynx was found as a cause of hoarseness of voice in 28% patients. Banjara H et al found carcinoma larynx as a cause

of hoarseness of voice in 9.56% patients<sup>[14]</sup>. A little higher incidence of carcinoma of larynx in our study could be explained by the fact that our medical college and hospital is only government medical college and hospital for a large population, with well equipped operation theatre and well functioning pathological laboratory where histopathology is available which helps in making diagnosis of carcinoma larynx. There is also separate oncology department in our medical college so patients are referred from surrounding areas. Vocal cord palsy was found in 10% patients in our study. Our study correlates with study of Behera et al with vocal cord palsy as a cause of hoarseness in 11.88% patients<sup>[15]</sup>. Tubercular laryngitis was found in 8% of cases. These results correlate with study of Baitha et al 4.54% cases<sup>[16]</sup>. Vocal cord nodule was found in 5.3% of cases. Acute laryngitis was found in 5.3% of cases in our study. Vocal cord polyp was found in 4% of cases. Functional lesion was found in 2% of cases. Vocal cyst was found in 0.7% patients. Reinke's oedema in 0.7% and Benign mucinous cyst was found in 0.7% of patients.

In our study, smoking was the most common predisposing factor for hoarseness of voice in 34% cases. Our study correlates with the study of Banjara H et al with 43% patients were associated with smoking<sup>[17]</sup>. Tobacco chewing was found in 14% patients. The additive effect of smoking and tobacco was found in 14% of the cases. Smoking and tobacco chewing together constitute major predisposing factor in malignancy, acute and chronic laryngitis. Excessive alcohol intake, tobacco chewing and smoking in Asian people causes chronic irritation in mucosa and forms important etiological factors for hoarseness. Voice abuse was found in 30% of patients in our study. It correlates with the study of Banjara H et al with 31% patients with vocal abuse respectively<sup>[17]</sup>. Vocal abuse was main predisposing factor for vocal nodules, vocal cord polyp and vocal cyst. It was observed that in India and other developing countries the prevailing lower socioeconomic status, poor nutrition and general health, vocal

habits, smoking and habits, unhealthy environment, and different social customs influence the incidence of hoarseness of voice. URTI was found in 9.3%, trauma 3.3%, Alcohol 2.7%, Smoking+Alcohol 2.7%, GERD in 2.7% of cases of hoarseness of voice as predisposing factor.

In our study change in voice was found in 100% of cases. Dysphagia was found as associated symptom in 38.7% of cases, followed by cough in 25.3%, foreign body sensation/irritation/throat clearing in throat in 20%, dyspnoea 18.7%, neck swelling 15.3% of cases. Vocal fatigue was found in 17.3% of cases. Sambu Baitha et al also found similar associated symptoms in patients with hoarseness of voice<sup>[16]</sup>. Pain in throat was found in 18%, halitosis in 13.3%, painful speech/dysphonia in 13.3% and bitter taste was found in 3.3% of cases of hoarseness of voice.

### Conclusion

Voice is an important tool for communication. Any disruption in voice quality has great impact on individual's personal and social life.

Management of hoarseness can be a challenge. By detailed history and proper examination diagnosis of hoarseness can be easily made. If hoarseness persists for more than three weeks then patient should be referred to a voice specialist.

Direct laryngoscopy proved to be useful method in detecting various causes of hoarseness of voice and making the diagnosis. Biopsy should be taken from any growth or any suspicious area for the confirmation of diagnosis so that proper management can be given.

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