

Etiopathology of Hoarseness of Voice: A Clinical Study

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ABSTRACT

Aim: Hoarseness of voice is generally due to change in quality of voice. The etiology of hoarseness of voice varies from benign conditions to malignant disease, hence should not be ignored. All cases of hoarseness of voice persisting for more than 3 weeks should be investigated for the underlying disease. It may indicate either malignancy of larynx or silent bronchogenic carcinoma. A retrospective study of cases of hoarseness of voice was done in MediCiti Institute of Medical Sciences for a period of 5 years. The etiopathological factors, age and duration of presentation, and type of condition were analyzed to arrive at different etiopathological conditions responsible at different age groups.

Keywords: Hoarseness of voice, Etiology, Predisposing factors.

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INTRODUCTION

Hoarseness of voice is one of the commonest symptoms in otolaryngology outpatient clinic. It may be due to various diseases ranging from inflammatory conditions – neoplasm, which may be benign or malignant – to neurological conditions. Hoarseness of voice is described as change in normal voice quality. It may indicate breathiness, roughness, voice breaks, or abnormal changes in the pitch. Dysphonia is used to describe abnormal voice quality. Complaints of hoarseness of voice may indicate sometimes serious underlying disease and should not be ignored.

MATERIALS AND METHODS

A retrospective study by simple random sampling of 100 cases of hoarseness of voice out of 140 cases attending ear, nose, and throat (ENT) outpatient department (OPD)

was done at a tertiary care hospital for a period of 5 years, i.e., from January 2011 to December 2015. One hundred patients were selected based on patient cooperation and consent for the study. Age, sex incidence, etiological factors, and type of condition is evaluated and analyzed. All the cases underwent detailed history, including predisposing causes like occupation, addictions, thorough clinical evaluation, and video endoscopy. Results obtained were further analyzed in terms of age, occupation, addictions, and type of clinical condition.

RESULTS

The incidence of hoarseness of voice was around 0.51% between January 2011 and December 2015. A total of 27,000 cases attended at ENT OPD during the above period, and 100 patients presented with hoarseness of voice.

Age Incidence

A majority of the patients were seen in the age group of 21 to 50 (68%) – and most common in the 4th decade – and in the age group of 60 to 70 years (Table 1).

Sex Incidence

Hoarseness of voice is commonly seen in males, and male-to-female ratio is around 2:1.

Cause

The commonest cause for hoarseness of voice in our series is laryngitis (36%), followed by vocal nodule (24%), and the third commonest cause is neurological (16%).

Occupation

Hoarseness of voice is more commonly seen in laborers (36%), homemakers (20%), farmers (18%), teachers and singers (16%), hawkers (9%), and students (1%).

Table 1: Age and sex distribution of patients of hoarseness of voice

Sl. no.	Age group	Male	Female	No. of cases
1	1–10	2	–	2
2	11–20	8	1	9
3	21–30	7	9	16
4	31–40	21	13	34
5	41–50	12	6	18
6	51–60	11	2	13
7	>60	7	1	8

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Table 2: Incidence, age, sex distribution, and occupation of hoarseness of voice

Etiology	Incidence (%)	Age group (decade)	Sex (male:female)	Occupation	Distribution
Laryngitis	36	3, 4, 5	1:1	Laborers, homemakers	Rural
Vocal nodule	24	2, 3, 4	1:1.5	Teachers, singers, homemakers	Urban
Neurological	16	2, 3, 4	2:1	Laborers, farmers	Rural
Neoplastic	13	4, 6, 7	Males	Laborers	Rural
Vocal cord polyp	8	3	2:1	Laborers, hawkers	Urban and rural
Foreign bodies	1	2	1:0	Student	Urban
Aryepiglottic fold cyst	1	5	1:0	Laborer	Rural
Puberphonia	1	2	1:0	Student	Rural

The incidence, age, sex distribution, and occupation of subjects with hoarseness of voice are shown in Table 2.

Rural/Urban Distribution

Hoarseness of voice is predominantly seen in rural areas, roughly around 70%. Only 30% are from urban area, and rural-to-urban ratio is 2.3:1.

Habits and Addiction

In our study, history of smoking is seen in 32%, tobacco chewing in 11%, and alcohol consumption in 21% of cases. Broek¹ reported smoking as one of the important predisposing factors for hoarseness of voice. Parikh found smoking in 20% of patients. Shaw² mentioned that chronic irritation of mucosa by smoking, intake of alcohol, and tobacco chewing are responsible for hoarseness of voice. Carcinoma larynx is extremely rare in nonsmokers, and risk increases with the intensity of smoking. Risk of carcinoma in smokers increases 4 to 40 times as compared to nonsmokers.³ In our study, the incidence of smoking in neoplasms is 84%. Intake of alcohol increases the risk of laryngeal cancer, by 3 to 4 times. Thompson et al⁴ reported about 47.1% of patients taking alcohol with tobacco intake. Smoking along with alcohol intake is seen in 69.2% of cases producing carcinoma of larynx in our study. Figure 1 shows the carcinoma of larynx.

Vocal Abuse

In our series, vocal abuse was seen in 53% of patients. Rosen et al,⁵ in 1988, found vocal abuse as one of the

**Fig. 1:** Carcinoma of larynx

most common cause of hoarseness of voice. Kaluskar,⁶ Mehta⁷ and Parikh⁸ gave higher incidence, i.e., 62.5, 49, 56% respectively.

Duration of hoarseness of voice: Ranged from 1 day to 5 years. Fifty percent of patients presented within 6 months. The predisposing factors of hoarseness of voice mentioned above in correspondence to those observed in study group are shown in Table 3.

Presentation

Apart from the change of voice (93%), other associated symptoms are vocal fatigue (12%), painful vocalization (8%), breathy voice (6%), swelling in the neck (13%), recurrent upper respiratory tract infection (URTI) (7%), cough (4%). These symptoms of hoarseness of voice in

Table 3: Etiology and predisposing factors in hoarseness of voice

Etiology	Vocal abuse		Smoking		Alcohol		Tobacco chewing		Oral sepsis		Predisposing factors (%)
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
Laryngitis	20	16	10	26	9	27	8	28	18	18	36
Vocal nodule	21	5	16	10	6	20	1	25	1	25	26
Vocal cord polyp	6	2	4	4	3	5	2	6	1	7	08
Neoplastic	5	7	11	1	9	3	9	3	5	7	12
Neurological	1	15	6	10	8	8	4	12	1	15	16
Foreign bodies	0	1	0	1	1	0	0	1	0	1	01
Cysts	1	0	1	0	1	0	0	0	1	0	1

Table 4: Presenting symptoms in hoarseness of voice

Presenting symptoms	Percentage of occurrence
Hoarseness of voice	93
Vocal fatigue	12
Painful vocalization	8
Breathy voice	6
Swelling in the neck	13
Recurrent URTI	7
Cough	4

the closed group corresponding to the percentage of occurrence are shown in Table 4.

Septic Focus

Obvious dental infection, sinusitis, and tonsillitis are seen in 40% of patients. Mehta⁷ and Parikh⁸ reported incidence of septic foci in 43% of their patients, whereas Kaluskar⁶ has reported higher incidence of septic foci (59%) in patients of hoarseness of voice.

Videolaryngoscopy (VLS) Findings and Diagnosis

Laryngitis was seen in 36% of patients with finding of congestion of vocal cord in 31%. Thickening and leukoplakia was seen in 5% cases. Vocal nodule was seen in 26% of cases. Vocal cord palsy was seen in 16% of patients. Neoplasm was seen in 12%, of which 10% are malignant and 2% are benign tumors (papillomas and fibroangiomas). Vocal cord polyp was seen in 8%. Foreign body producing hoarseness of voice was seen in 1%. Cysts causing hoarseness of voice was seen in 1%.

Chronic laryngitis (Fig. 2), vocal cord palsy (Fig. 3), foreign body (Fig. 4), and aryepiglottic cyst (Fig. 5) cause hoarseness of voice.

DISCUSSION

In our study, incidence of hoarseness of voice in total OPD is 0.51%. The incidence of different causes leading to hoarseness of voice is seen in Table 2. The leading cause for hoarseness of voice is acute laryngitis is 35%, followed

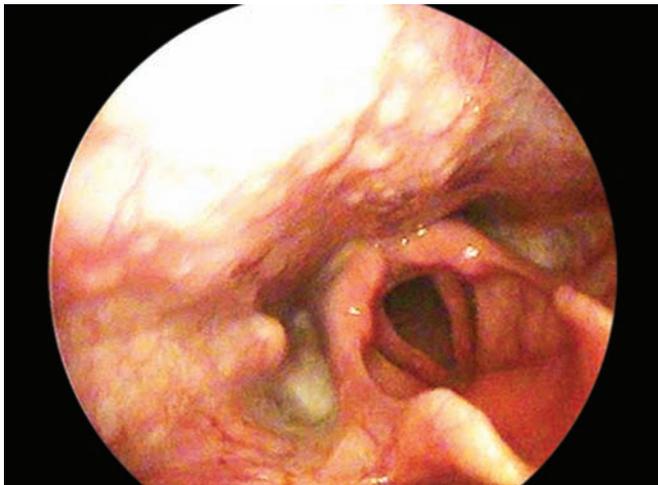


Fig. 2: Chronic laryngitis



Fig. 3: Left vocal cord palsy

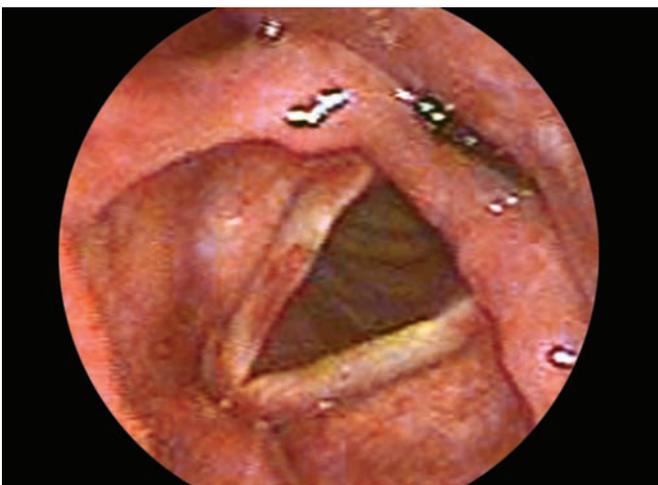


Fig. 4: Foreign body with laryngitis

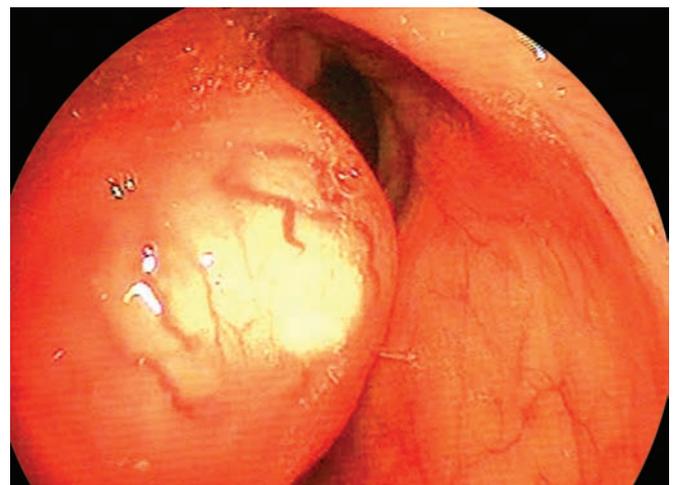


Fig. 5: Ary-epiglottic fold cyst

by vocal nodule (26%). The commonest age incidence of hoarseness of voice is the 4th decade of life, and male-to-female ratio is 2.3:1, indicating male predominance. Some common etiological factors are dental infection and addiction to tobacco. Mehta⁷ and Hirschberg et al⁹ reported higher incidence in urban population. In our study, rural-to-urban ratio is 2:1. More commonly, in rural areas, farmers, laborers, and those who are habituated to tobacco are presenting with hoarseness. The duration of hoarseness of voice ranged from 1 day to 5 years, while 50% of patients presented within 6 months. Chopra and Kapoor¹⁰ noted that 68.65% of patients with duration of hoarseness of voice of less than one year. Septic focus in oral cavity is seen in 40% of cases. In the present study, hoarseness of voice is the presenting symptom in 93% along with vocal fatigue in 12% of cases. Hansa et al¹⁰ have also shown hoarseness as a major complaint (95.61%). Mehta⁷ and Baitha et al^{8,11} have done similar studies. Associated symptoms are painful vocalization (8%), breathy voice (6%), swelling in the neck (13%), recurrent URTI (7%), and cough (4%). Among the predisposing causes, smoking is seen in 47%, alcohol intake in 39%, chewing tobacco in 24%, and vocal abuse in 53%. In a study conducted by Hansa et al,¹⁰ smoking was observed in 43% of cases, vocal abuse in 31%, alcohol intake in 29.48%, and tobacco chewing in 29.48%. In our study, high incidence of vocal abuse is seen (53%) due to occupations like laborers, hawkers, homemakers, singers, and teachers.

CONCLUSION

The incidence of hoarseness of voice in OPD is 0.17%. Male-to-female ratio for this incidence is 2.3:1. Hoarseness of voice is commonly noted in 4th decade of life. The commonest cause of hoarseness is chronic laryngitis followed by vocal nodule. The commonest etiological factors responsible for hoarseness of voice are occupation, smoking, tobacco chewing, and oral sepsis. In presenting symptoms, hoarseness of voice is seen in 93% of cases, along with vocal fatigue (12%). Other common causes of hoarseness of voice are laryngitis (36%), vocal nodule (26%), vocal cord palsy (16%).

CLINICAL SIGNIFICANCE

The etiopathological study of hoarseness of voice is done to know various etiological factors responsible for hoarseness of voice and the disease caused by it. Finding out the role of addictions like alcohol, smoking, tobacco chewing highlights the need to caution the public about the dangerous consequences like malignancies.

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