

Clinical profile of patients with hoarseness – A retrospective study



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ABSTRACT

Background: Hoarseness is one of the common complaints in day-to-day ear, nose, and throat practice. Elaborate history and examination along with laryngoscopy are essential to diagnose the underlying pathological condition. **Aims and Objectives:** This study was carried out to evaluate the clinical profile of patients presenting at our center with hoarseness, understanding the etiological conditions, its association with occupation, and the predisposing factors. **Materials and Methods:** This is a retrospective study done on patients above the age of 10 years, who presented to our outpatient department with hoarseness between January 2022 and December 2023. The demographic data, clinical history, and laryngoscopic findings were analyzed. **Results:** A total of 196 patients were assessed with M: F ratio of 1.17:1. The majority of patients (30.10%) presented in the 31–40 years age group. Maximum patients (74%) belong to rural areas. Housewives covered the major number of patients (23.47%). The etiology that was most commonly observed was acute laryngitis (28.57%) followed by chronic laryngitis (22.44%). Smoking was the leading predisposing factor seen in 33.16% of patients. **Conclusion:** The etiological range for hoarseness runs the gamut from minor voice disorders to lethal conditions like malignancy. Careful and thorough evaluation of every case helps in early diagnosis. Appropriate intervention is to be done at the earliest to reduce the morbidity and mortality caused by underlying disease and help the patient to get their normal voice back.

Key words: Hoarseness of voice; Laryngoscopy; Laryngitis; Voice disorders; Vocal nodule; Vocal polyp

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INTRODUCTION

The human voice is an important means of communication and a strong tool to reveal complex to subtle human emotions. The laryngeal, respiratory, and resonance systems play a vital role in the production of voice.¹ Any change in the voice can exhibit a great toll on the patient's professional, emotional, and social life. It is very difficult to describe a normal voice but a disordered voice is termed as hoarseness if it is breathy, rough, and harsh in nature.²

Hoarseness is a common symptom seen in ear, nose, and throat (ENT) practice that is caused by multiple

etiologies affecting the larynx ranging from inflammatory to neoplastic conditions, both benign and malignant as well as neuromuscular disorders.²

Hoarseness is divided into acute and chronic types. The most common cause for acute onset is acute laryngitis, other etiologies being a viral infection, smoking, vocal abuse, laryngeal trauma, and iatrogenic causes e.g. thyroid surgeries.³ The causes for chronic onset is usually due to chronic laryngitis, benign and malignant lesions of the larynx, laryngopharyngeal reflux (LPR) disease, vocal abuse, post-nasal discharge, thyroid neoplasms, tumors of the esophagus and lungs, systemic diseases such as

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diabetes mellitus and chronic granulomatous disease like tuberculosis.^{4,5}

As this symptom can be due to serious underlying pathology, it should not be ignored and early intervention should be done. Hence, to bring down the mortality and morbidity of the patients, a thorough history taking and careful examination are a must to reach the exact pathology of hoarseness. This study aims for an extensive understanding of the hoarseness of voice – its etiology, predisposing factors, etc. in our region.

Aims and objectives

The aims of this study were as follows:

- To study the etiological factors and their incidence in cases of hoarseness of voice
- To study the etiological relationship of hoarseness with occupation and personal habits.

MATERIALS AND METHODS

This is a retrospective study conducted in the Department of Otolaryngology at a rural tertiary care hospital in Punjab. The data were collected from January 2022 to December 2023 for a period of 2 years duration. All the patients who presented with hoarseness of voice above the age of 10 years during this time period were included in this study.

Exclusion criteria

- Age group below 10 years
- Other speech-related disorders, for example, Rhinolalia Aperta, Rhinolalia Clausa, and disorders of articulation
- Neurological causes such as multiple sclerosis, Bulbar palsy, and Parkinson's disease.

The study pro forma was designed considering the objectives of the study. Necessary approvals were taken before starting the study. Informed consent was taken from the participants who were eligible for inclusion in this study. All the demographic features, clinical history, laryngoscopic findings, histopathology data (wherever required), and final diagnosis were collected from the hospital record. Collected data were analyzed and represented as frequency percentage.

RESULTS

Out of a total of 18947 new cases attending the ENT outpatient department in 2 years, 201 patients presented with hoarseness of voice. Out of this 201, three patients were lost to follow-up and two patients denied diagnostic laryngoscopy under general anesthesia, hence excluded from the study. Hence, this study includes 196 patients

of hoarseness. Hence, the incidence was observed to be 1.03% among new cases.

Among the 196 cases, males and females were 106 (54.08%) and 90 (45.91%) in number, respectively. We observed the male-to-female ratio of 1.17:1 in this study. The age of patients ranged from 11 to 78 years. The major bulk of patients (30.10%) belong to the 31–40 years of age group (Table 1). There was a predominance of patients from rural areas and constituted 74% of total subjects whereas subjects from urban areas were only 26%.

The patients with hoarseness had a variety of professions. Housewives constituted the largest group of patients (23.47%), followed by farmers (19.90%) and laborers (18.36%). However, among the professions demanding excessive use of voice, teachers constituted 10.71% of patients, followed by street vendors/hawkers (8.16%) and priests (7.14%) (Table 2).

Patients had other associated complaints such as cough, vocal fatigue, fever, and foreign body sensation in descending frequency along with hoarseness. Various other symptoms were noted as per Table 3.

In the present study, hoarseness was reported in different vocal pathologies. The most common etiologies encountered were acute laryngitis (28.57%) followed by chronic laryngitis (22.44%) and vocal nodules and vocal cord palsy (15.82%). Detailed distribution of study subjects has been demonstrated in Table 4 as per the etiology.

Smoking and upper respiratory tract infections (URTI) were the most observed predisposing factors causing hoarseness constituting 33.16% and 30.10% respectively. Other predisposing factors noted were tobacco chewing, alcohol consumption, LPR, vocal misuse, thyroid surgery, etc. (Table 5).

DISCUSSION

In the present study, hoarseness was seen in 196 patients. The incidence was computed to be 1.03%. In contrast to this study, Sheth et al., found much higher incidence (12.4%) of hoarseness.⁶ In another study by Rathi et al., the incidence among new cases was 1.15% which correlates with our study.⁷

There is male-to-female ratio of 1.17:1 in the present study showing the predilection of hoarseness in males. Other studies by Rathi et al., Baitha et al., and Banjara et al., also showed male dominance with male-to-female ratios of 1.68:1, 2:1, 2:1, and 1.89:1, respectively.⁷⁻⁹ This can be described by the fact that addictions such as smoking,

Table 1: Age and Sex-wise distribution of study subjects

Age group (in years)	Males, n (%)	Females, n (%)	Total, n (%)
11–20	3 (2.83)	6 (6.67)	9 (4.60)
21–30	11 (10.3)	10 (11.11)	21 (10.71)
31–40	31 (29.24)	28 (31.11)	59 (30.10)
41–50	20 (18.87)	18 (20)	38 (19.38)
51–60	16 (15.09)	8 (8.89)	24 (12.24)
61–70	22 (20.75)	19 (21.11)	41 (20.92)
>70	3 (2.83)	1 (1.11)	4 (2.04)
Total	106 (54.08)	90 (45.91)	196 (100%)

Table 2: Distribution on the basis of profession

Profession	n (%)
Housewives	46 (23.47)
Farmer	39 (19.90)
Laborer	36 (18.36)
Teacher	21 (10.71)
Vendor/Hawker	16 (8.16)
Priest	14 (7.14)
Shopkeeper	11 (5.61)
Singer	8 (4.08)
Student	5 (2.55)

Table 3: Distribution based on the clinical features

S. No.	Presenting symptoms	No. of cases (%)
1	Change in voice	196 (100)
2	Cough	62 (31.63)
3	Vocal fatigue	48 (24.49)
4	Fever	40 (20.41)
5	Foreign body sensation/throat irritation	32 (16.32)
6	Pain in throat	29 (14.79)
7	Dysphagia	16 (8.16)
8	Hemoptysis	7 (3.57)
9	Neck swelling	6 (3.06)
10	Dyspnea	2 (1.02)

Table 4: Distribution based on the etiology

S. No.	Etiology	Number (%)
1	Acute laryngitis	56 (28.57)
2	Chronic laryngitis	44 (22.44)
3	Vocal nodule	31 (15.82)
4	Vocal cord palsy	30 (15.31)
5	Vocal polyp	15 (7.65)
6	Carcinoma larynx	8 (4.08)
7	Laryngeal tuberculosis	5 (2.55)
8	Reinke's edema	3 (1.53)
9	Vocal cord cyst	3 (1.53)
10	Laryngeal trauma	1 (0.51)

tobacco chewing, and alcoholism are more common in males. Furthermore, exposure to occupational hazards is more common in men than women who spend most of their time indoors.¹⁰ However, in a study by Sebastian et al, females form the majority which does not correlate with the present study.¹¹ The reason for this finding can be the study

population being confined to the teachers which is not the case in our study as it did not cater to any specific profession.

The majority of patients (30.10%) belonged to the 31–40 years of age group in our study. This is in correlation with studies by Baitha et al., Ahmmed et al., and Vengala et al., who also found the majority of patients 28.18%, 22.30%, and 36.98% in the 31–40 years age group, respectively.^{8,12,13} In contrast to our study, Banjara et al., stated majority of patients (22.31%) fall within the sixth and fourth-decade group.⁹ Gupta and Jamwal found 20% of patients in the fifth decade.¹⁴ Deosthale et al., stated that the largest number of patients were seen in the third decade (32%) with the fourth-decade patients (23%) forms the second largest group.⁵

In our study, rural people formed almost three-fourth of the cases (74%), and only one-fourth (26%) were formed by the urban population. These findings are in consistent with the study by Rathi and Sharma with rural and urban people constituting 71.42% and 28.57% of subjects respectively.⁷ Similar results were also seen in Baitha et al., study where 75.5% of patients belonged to the rural areas.⁸ The location of our hospital in the rural area might explain the incidence of hoarseness more in the rural population in our study.

Subjects had different occupations in the present study. Housewives formed the major bulk of patients in our study (23.47%). Farmers (19.90%) and laborers (18.36%) formed the second and third largest group respectively. Our results correlate with researches done by Gupta et al., Banjara et al., and Ghosh et al.^{4,9,15} However, Laborers topped the list of patients with hoarseness followed by housewives in a study by Shamsheer et al., Deosthale et al., and Baitha et al.^{3,5,8} Similar to our study, housewives (46%) constituted the majority of patients in a study by Khurshid et al., followed by students (20%), businessmen (15%) and teachers (11%).¹⁶ The observation of different results in various studies may be explained by the hospital locations and different professional percentages in the general set of population. We found 70 cases (35.71%) among the professions demanding excessive use of voice (teachers, street vendors/hawkers, singers and priests, etc.). In a study by Batra et al., 31.4% of patients with voice-demanding professions had hoarseness.¹⁷ However, the majority (64.29%) of patients in the current study did not have profession demanding the voice. This conveys that voice-related disorders are more commonly observed in non-voice demanding professions and can be explained by the presence of other predisposing factors. Herrington-Hall et al., stated that the various laryngeal pathologies depend on the amount of the voice use and the various conditions and environments under which voice was used (includes stress and noise). Hence, the population that works in noisy stressful conditions can

Table 5: Association between different etiologies and predisposing factors

Etiology	N	Predisposing factors						
		Smoking	Vocal abuse	Tobacco chewing	Alcohol	LPR	URTI	Thyroid surgery
Vocal nodule	31	2	26	-	1	-	-	-
Vocal polyp	15	4	10	2	-	-	-	-
Vocal cord palsy	30	1	-	-	2	-	-	3
Acute laryngitis	56	25	7	2	8	5	38	-
Chronic laryngitis	44	20	6	4	7	28	21	--
Reinke's edema	3	3	-	-	-	-	-	-
Laryngeal tuberculosis	5	2	-	-	-	-	-	-
Carcinoma larynx	8	8	-	6	3	-	-	-
Laryngeal trauma	1	-	--	-	-	-	-	-
Vocal cord cyst	3	1	3	-	-	-	-	-
Total	196	65 (33.16%)	52 (26.5%)	14 (7.14%)	21 (10.71%)	33 (16.83%)	59 (30.10%)	3 (1.53%)

LPR: Laryngopharyngeal reflux, URTI: Upper respiratory tract infections

have more chances of voice-related disorders despite having a non-voice demanding profession.¹⁸

Apart from the symptom of hoarseness of voice that is seen in 100% of cases in the current study, patients had other common associated complaints such as cough, vocal fatigue, fever, and foreign body sensation in descending frequency. Parikh and Baitha et al., in their similar studies, noticed other associated clinical features such as cough, pain in throat, dyspnea, dysphagia, and loss of weight along with hoarseness.^{6,8}

We observed the most common etiology as acute laryngitis (28.57%), which was, followed by chronic laryngitis (22.44%) and vocal nodules and vocal cord palsy (15.82%). In a study by Vengala et al., acute laryngitis (30.82%) was the most common etiology observed whereas chronic laryngitis (19.86%) and malignancy (13.01%) were next on the list of patients with hoarseness.¹³

Gupta et al., and Baitha et al., observed similar results with acute laryngitis as the most common etiology.^{4,8} Deosthale et al., found chronic laryngitis (20%) as the commonest etiology followed by malignancy of the larynx (14%).⁵ Rath and Sharma and Pal et al., observed paralysis of vocal cords as the leading cause of hoarseness.^{7,19} Functional voice disorders constituted the largest group (16.33%) in Banjara et al., study.⁹ In another research project on 197 patients conducted by Kiakojoury et al., vocal nodules (24.4%) and Reinke's edema (23.4%) made up the commonest etiological factors observed for hoarseness.²⁰

Among the predisposing factors, smoking was the most frequent factor in our study (33.16%). Similar results were obtained in studies by Rath et al., Baitha et al., Vengala et al., and Pal et al., where a positive history of smoking was seen in 65%, 25%, 29.45%, and 33% of patients, respectively.^{7,8,13,19} However, in contrast to these studies, Nwaorgu found that smokers form only 14.49% of subjects.²¹ Smoking

along with habit of chewing tobacco plays a crucial role in causing laryngeal inflammations and malignancies. Most of the laborers and farmers who had a high addiction to bidi smoking belonged to rural areas that form three-fourth of our study subjects might contribute to the fact of association of smoking in causing laryngeal pathologies.

URTI formed the next frequently observed predisposing factor (30.10%) in this study by causing laryngeal inflammations. Similar results were noticed by Vengala et al., with URTI seen in 28.76% of subjects.¹³

We observed vocal abuse in 26.5% of cases and it mostly resulted in vocal nodules and vocal polyps. In contrast to our study, vocal abuse was the leading predisposing factor in studies by Baitha et al., Ghosh et al., and Singh et al.^{8,15,22}

In the current study, only 16.83% of patients were having LPR as the risk factor. This is in contrast to a study by Rath et al., where LPR constitutes 40% of cases.⁷ Gregory et al., and Smullen have observed the increasing trend of LPR disease as a risk factor for hoarseness of voice. This rise in the frequency of cases of LPR relates to lifestyle changes, changes in food habits, and high incidence of psychological stress among individuals.^{23,24}

Limitations of the study

There were few limitations for the study. If the sample size would have been larger, it would have better reflected the incidence of different etiologies in community. Secondly, since ours is a single centre study, there could be a variation in the etiologies in different geographical areas pertaining to different habits and profession of the people in that community.

CONCLUSION

In our study hoarseness is a common symptom seen in the rural population. Although voice is a main communication

tool, an optimal voice is not at the top of various health concerns especially in the rural people. This study provides a good insight into the trends of hoarseness of voice among the Indian population. Laryngeal inflammations, polyps, and nodules remain the major diagnosis. The wide spectrum of etiological factors mandates the elaborative examination of patients presenting with hoarseness of voice without any delay. Even the slightest of delays in diagnosis as in patients with laryngeal malignancies changes the stage of the disease and further changes the treatment from conservative to more radical. Appropriate intervention should be done at the earliest to reduce the morbidity and mortality caused by underlying disease and patients should be educated on the optimal use of voice and the harmful effects of tobacco.

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IG- Definition of intellectual content, literature survey, concept design, prepared the first draft of manuscript, implementation of study protocol, data collection, data analysis, manuscript preparation and submission of article; **MG-** Clinical protocol, manuscript preparation, analysis, and interpretation, editing, and manuscript revision.

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