



Benign Etiological Factors of Hoarseness: Insights from a Tertiary Care Hospital in India

Bidhan Das¹, Biswanath Das², Dipjyoti Majumdar³, Biswajit Sukla⁴

ABSTRACT

Background: Hoarseness of voice is a common symptom in otolaryngology, ranging from benign to serious causes. The American Academy of Otolaryngology–Head and Neck Surgery reports that nearly one-third of people experience voice problems, with 1 in 13 adults affected annually. While often due to vocal strain or infections, persistent hoarseness beyond two weeks may indicate malignancy.

Aim: To analyze the clinical presentation of patients with hoarseness, focusing on prevalent benign etiologies and associated predisposing conditions.

Methods: This cross-sectional and longitudinal study was conducted over 18 months (January 2024–July 2025). Patients presenting with hoarseness underwent detailed clinical evaluation and diagnostic investigations. Data were analyzed using frequency and percentage distributions, supported by SPSS (version 23) and Microsoft Office.

Results: A total of 117 patients were enrolled. Middle-aged groups (31–40 and 51–60 years) showed the highest prevalence. Males (58.97%) outnumbered females (41.03%), yielding a ratio of 1.43:1. Chronic laryngitis was the most frequent cause (26.49%), followed by vocal cord nodules (21.36%) and polyps (13.67%). Less common etiologies included tuberculosis, cysts, and functional voice disorders.

Conclusion: Hoarseness arises from diverse conditions, from mild inflammation to malignancy. Careful history, examination, and appropriate investigations are essential for timely diagnosis and management.

Keywords: hoarseness, laryngitis

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3*Corresponding: Dipjyoti Majumdar, MS ENT (PGT 2nd year), Tripura Medical College & Dr. BRAM Teaching Hospital. (Email: dipjyotiwanderer.dm8@gmail.com) 1. Bidhan Das, MS ENT, Associate Professor, Tripura Medical College & Dr. BRAM Teaching Hospital. 2. Biswanath Das, MS ENT, Assistant Professor, Tripura Medical College & Dr. BRAM Teaching Hospital. (Email: dbiswanath3@gmail.com) 4. Biswajit Sukla, MS ENT, Professor & Head of Department, Tripura Medical College & Dr. BRAM Teaching Hospital.

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INTRODUCTION

Voice refers to the perceptible sound generated by the larynx, characterized by attributes such as pitch, volume, tonal quality, and dynamic variation. It serves as a natural and expressive medium, uniquely suited for conveying emotions and intentions.¹ The term 'hoarseness' is commonly used to describe alterations in voice quality. In truth, the human voice is a remarkable evolutionary adaptation—capable of expressing intricate ideas as well as delicate emotional nuances.²¹

At the moment of birth, the infant's cry stands as the most anticipated and universally recognized sign of life. This vocal expression reflects the successful activation of vital physiological functions essential for survival. Few, if any, human organ systems are required to operate so promptly and efficiently from the very instant of birth.²⁴ Hoarseness typically denotes an alteration in voice quality, which may present as breathy, strained, rough, raspy, tremulous, strangled, or weak vocal tones, or as a noticeable shift in pitch—either higher or lower than usual.^{2,3,4}

It is commonly linked to irregularities affecting the vibrating edges of the vocal folds.⁵ Although the term may be used to describe irregularities throughout the vocal tract—from the oral cavity to the lungs—'hoarseness' is most accurately defined as a laryngeal disorder resulting from abnormal vocal fold vibration.² Hoarseness represents a clinical symptom rather than a standalone disease entity.⁶ Hoarseness, frequently encountered as a voice disturbance, often arises from vocal cord lesions that can be either non-cancerous or cancerous in nature.⁷

Hoarseness can arise from a wide array of underlying factors, including anatomical abnormalities, functional impairments, neurological conditions, infections, environmental exposures, and neoplastic processes. While common etiologies like vocal strain or viral laryngitis are typically benign and self-resolving, more serious conditions such as laryngeal carcinoma pose significant health risks. This broad differential makes the assessment and management of patients with

hoarseness both complex and, at times, quite formidable.^{8,9} Hoarseness is frequently observed in vocally demanding professions like teaching, singing, preaching, sales, and leadership due to excessive or improper voice use.⁴ In children, hoarseness is commonly linked to vocal abuse, especially frequent screaming and shouting.¹⁰ Hoarseness is a common complaint in otolaryngology clinics, though rare causes like Ortner's syndrome (cardiovocal syndrome) also warrant consideration.¹¹ Hoarseness can signal serious underlying conditions and should never be overlooked. Hoarseness may be the earliest—and sometimes sole—indicator of serious local or systemic disease. Practicing vocal hygiene and utilizing voice therapy can help prevent and manage certain conditions effectively.

AIM

The objective of this study is to evaluate the clinical presentation, identify prevalent benign etiological factors, and examine associated predisposing conditions contributing to hoarseness of voice, irrespective of age & gender.

MATERIALS AND METHODS

This cross sectional, non-randomized & longitudinal study was conducted from January 2024 to July 2025 on 117 patients visiting the outpatient clinic at Department of ENT of Tripura Medical College & Dr. BRAM Teaching Hospital, Hapania. Participants were selected based on the presence of hoarseness of voice.

The criteria for selection are as follows:

Inclusion Criteria:

Patients who arrived in OPD with complaint of having hoarseness of voice, irrespective of age and sex.

Exclusion Criteria:

1. Patients with critical systemic comorbidity
2. Individuals with a history of prior laryngeal surgeries.
3. Patients with a history of previous tracheostomy
4. Those with recurrent laryngeal nerve (RLN) palsy due to lung, thoracic or oesophageal malignancy

5. Patients with a prior history of neck injuries
6. Those who have a prior history of laryngeal or any other neck malignancies

Methods and measurement and outcome

117 patients (both sexes) with significant hoarseness of voice were included in the study. All participating patients were thoroughly informed about the procedure and their role in the study, and written voluntary informed consent was obtained from each individual. A comprehensive evaluation was conducted for every patient, including clinical history, physical examination, and ENT assessments such as

indirect laryngoscopy, fiber optic laryngoscopy, along with other routine investigations necessary for establishing a diagnosis. The collected information was systematically recorded on a predesigned data sheet and subsequently subjected to detailed analysis. The final results were analyzed by SPSS software version 23.

RESULTS

This study included 117 patients of both genders diagnosed with hoarseness of voice. Among the 117 cases, 69 (58.97%) were males & 48 (41.03%) were females. A male predominance was observed with a male: female ratio of 1.43:1. Sex distribution of the patients is shown in Table I.

Table 1: Sex distribution of patients (n= 117)

Sex	No. of patients (%)
Male	69 (58.97 %)
Female	48 (41.03 %)
Total	117

Participant ages ranged between 9 years to 80 years, The majority, 26 (22.2%) were aged between 51 and 60 years, followed by 20

(17.09%) between 31 and 40 years and lowest number 3 (2.56%) were >70 years as shown in Table II.

Table 2: Age distribution of patients (n= 117)

Age (years)	No. of patients (%)
0-10	04 (3.41 %)
11-20	17 (14.52 %)
21-30	19 (16.23 %)
31-40	20 (17.09 %)
41-50	13 (11.11 %)
51-60	26 (22.22 %)
61-70	15 (12.82 %)
71-80	03 (2.56 %)
Total	117

Table III presents the distribution of various benign etiological factors contributing to hoarseness. The leading cause identified was chronic laryngitis, accounting for 31 cases (26.49%). This was followed by vocal cord nodules with 25 cases (21.36%), vocal cord

polyps with 16 cases (13.67%), and acute laryngitis with 14 cases (11.96%). Other notable causes included vocal cord cysts (10 cases, 8.54%), hypothyroidism (5 cases, 4.27%), and vocal cord palsy (7 cases, 5.98%). Additional less frequent etiologies comprised

Table: Etiology of hoarseness of voice in patients (n= 117)

Etiology	No. of patients (%)
Chronic laryngitis	31 (26.49 %)
Vocal cord nodule	25 (21.36 %)
Vocal cord polyp	16 (13.67 %)
Acute laryngitis	14 (11.96 %)
Vocal cord cyst	10 (8.54 %)
Vocal cord palsy	7 (5.98 %)
Hypothyroidism	5 (4.27 %)
Tuberculosis	4 (3.41 %)
Reinke's oedema	3 (2.56 %)
Functional	2 (1.70 %)

Table IV highlights that voice alteration was the most prominent symptom, observed in all 117 patients (100%). Other commonly reported symptoms included vocal fatigue,

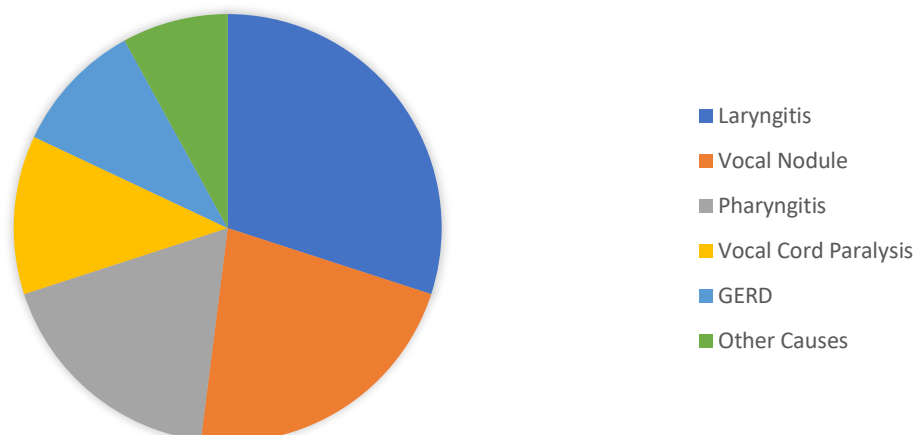
throat irritation or foreign body sensation, cough, heartburn, fever, weight loss, difficulty in swallowing (dysphagia), neck swelling, and shortness of breath (dyspnoea).

Table 4: Clinical presentation of patients with hoarseness

Presentation	No. of cases (%)
Change in voice	117 (100 %)
Vocal fatigue	60 (51.28 %)
Foreign body sensation/ irritation/pain	49 (41.88 %)
Cough	45 (38.46 %)
Heart burn	26 (22.22 %)
Fever	08 (6.83 %)
Weight loss	05 (4.27 %)
Dysphagia	03 (2.56 %)
Neck swelling	04 (3.41 %)
Dyspnoea	02 (1.70 %)



CAUSES OF HOARSENESS



DISCUSSION

As daily stress intensifies, pollution levels climb, and lifestyle habits continue to evolve, the incidence of hoarseness and voice-related disorders is steadily on the rise. In the current study involving 117 cases, 69 patients (58.97%) were male, resulting in a male-to-female ratio of 1.43:1, which aligns closely with the findings reported by Adobamen PO in 2015.¹⁴ Comparable findings were reported in studies conducted by Anwar K and Wani AA et al. (2012), both of which demonstrated a higher prevalence of cases among males compared to females.^{2,15} However, this contrasts with the findings of Sebastian S et al. (2012), where the majority of cases were female, indicating a lack of correlation with the present study.¹⁶ This discrepancy may be attributed to the fact that the referenced study focused specifically on teachers, whereas the present study encompassed individuals from diverse occupational backgrounds. In our study, the highest number of cases—26 (22.22%)—were observed in the 51–60 age group, followed closely by 20 cases (17.09%) also within the 31–40 age range. These findings are consistent with those reported by Vengala RR et al. (2015), Banjara H et al. (2011), and Shrestha BL et al. (2013).^{16, 17, 18} A similar observation was made in a study by Babu VS.²⁰ In the present study, chronic

laryngitis emerged as the most prevalent condition, accounting for 31 cases (26.49%). This was followed by vocal cord nodules, vocal cord polyps, vocal cord cysts, acute laryngitis, vocal cord palsy & hypothyroidism among others. A similar trend was observed in the study conducted by Baitha et al., where laryngitis was also the most common finding, followed by vocal cord nodules and polyps, closely mirroring the results of our study.²¹ Studies conducted by Reiter R and Kataria G et al. also identified laryngitis as the most frequently occurring condition, thereby reinforcing the findings of the present study.²²

Studies conducted by Shrestha BL et al. and Baitha S et al. also explored the etiological distribution of hoarseness. While certain aspects of their findings align with those of the present study, others show notable differences.^{13,19}

In our study, voice change was observed in all patients (100%), accompanied by symptoms such as vocal fatigue, throat irritation, cough, dysphagia, heartburn, weight loss, neck swelling, dyspnoea, and fever. Similar findings were reported by Kumar H and S Seth²³, as well as Baitha and Kataria G et al., with voice change present in 100% of cases and other associated symptoms largely consistent with our observations.^{1,13}

**Limitations:**

This study, while offering valuable insights into the benign etiological factors of hoarseness of voice, is subject to certain limitations that may affect the generalisability of its findings.

Firstly, the non-randomized nature of the study restricts the ability to establish causal relationships and may introduce selection bias. Secondly, there was an over-representation of male patients and specific middle-aged groups, which may not accurately reflect the broader population distribution of individuals experiencing hoarseness.

Furthermore, as the study was conducted in a tertiary care hospital, the patient cohort is likely to include individuals with more severe or persistent symptoms. This may result in an under-representation of patients with mild or transient hoarseness, who are more likely to seek care at primary or secondary healthcare facilities.

Consequently, the findings may not fully represent the general population with benign causes of hoarseness. Future research employing randomized sampling methods and multi-centre participation, including primary care settings, would enhance the representativeness and external validity of the results.

Conclusion:

Hoarseness often serves as an early clinical indicator of an underlying pathology, ranging from benign conditions such as viral laryngitis to potentially life-threatening

malignancies. The spectrum of etiological factors varies significantly across different geographic regions and healthcare settings, underscoring the importance of context-specific evaluation. Therefore, each case of hoarseness warrants a meticulous and comprehensive assessment to facilitate early diagnosis. This is crucial not only for effective treatment but also for preventing progression to more severe disorders.

Lifestyle factors play a pivotal role in the development and persistence of voice disorders. The avoidance of vocal strain—particularly in professions that demand extensive voice use—along with cessation of smoking, alcohol consumption, and tobacco use, can substantially reduce the incidence and burden of hoarseness. Moreover, environmental pollutants and allergens, which are increasingly prevalent in urban settings, may exacerbate laryngeal irritation and contribute to chronic voice changes. Patients may report symptoms such as vocal fatigue or a progressive decline in voice quality throughout the day, both of which should prompt clinicians to investigate the root cause rather than dismiss them as transient or trivial. A thorough understanding of the clinicopathological profile—including patient history, occupational exposure, and associated systemic conditions is essential for accurate diagnosis and tailored management. Ultimately, restoring vocal function not only improves communication but also enhances the patient's overall quality of life, especially in vocally demanding professions such as teaching, public speaking, and performing arts.



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