

Clinical Insights into Hoarseness of Voice: A Case Series from an Indian Medical Setting

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Abstract:

Background: Hoarseness of voice is a common symptom that can be a precursor to a range of pathologies, from benign to potentially life-threatening conditions. This study aims to elucidate the demographic characteristics, occupational influences, and clinical outcomes associated with hoarseness, highlighting its significance in medical diagnostics.

Methods: Conducted at the Department of ENT, Shadan Institute of Medical Sciences and Research Center from December 2016 to June 2018, this prospective study involved 60 patients presenting with hoarseness. Data collection followed a structured proforma, with diagnostic evaluations including direct and indirect laryngoscopy and biopsies where necessary. The study focused on adults with hoarseness, excluding those below 5 years or with neurological voice disorders.

Results: The majority of cases were males (63.3%), predominantly within the 41-50 age range (28.3%). Occupational data indicated a higher prevalence of hoarseness among labourers (48.3%). Rural residents were more affected (58.3%) than urban dwellers. The most common laryngoscopic findings were ulceroproliferative growths (33.3%) and vocal fold congestion (30.0%).

Conclusion: Hoarseness is influenced by demographic and environmental factors and can often indicate serious underlying conditions. The findings advocate for early diagnostic evaluation in patients presenting with hoarseness, particularly those engaged in high-risk occupations or living in rural areas.

Keywords: hoarseness of voice, laryngoscopy, vocal pathologies, occupational health, rural healthcare.

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Introduction

Voice embodies a vital medium through which human emotions and intellect are conveyed, serving as a bridge between the primal and the cultural realms of communication. It stands as a distinct human attribute that delineates us from other species, encapsulating a plethora of communicative functions beyond mere spoken language. These range from conveying subtle nonverbal cues to expressing complex emotional states, underscoring the voice's integral role in interpersonal interactions. [1,2]

The phenomenon of phonation is a remarkable human ability, where the larynx sets the air column into vibration, a process fundamental to the production of sound. However, disruptions in this mechanical process can lead to hoarseness—a symptom rather than a distinct condition—characterized by a rough, harsh vocal quality that deviates from an individual's normal pitch.

Hoarseness is not merely a benign inconvenience but a clinical marker that potentially signals various underlying pathologies ranging from benign to life-threatening conditions. [3,4] In clinical settings, especially within otolaryngology, hoarseness frequently prompts medical consultations, often serving as an early indicator of conditions affecting the vocal apparatus. This symptom warrants significant medical attention due to its potential association with malignancies and other serious disorders.

The evaluation of hoarseness involves a nuanced understanding of its multifactorial etiologies, influenced by factors such as socioeconomic status, nutritional health, and lifestyle choices including smoking and alcohol consumption, and environmental conditions, particularly in developing regions like India. [5,6,7] Recent decades have witnessed remarkable advancements

in laryngology, transforming diagnostic and therapeutic approaches. The advent of microlaryngoscopy and endolaryngeal microsurgery, along with the introduction of fiberoptic telescopic examinations, has diminished reliance on traditional mirror examinations.^{8,9} These technological innovations have significantly enhanced our capacity to diagnose and manage conditions presenting with hoarseness, thereby improving patient outcomes and enriching our understanding of voice disorders. Such progress underscores the importance of a vigilant, comprehensive approach to the evaluation of hoarseness, recognizing its potential as an early harbinger of critical underlying conditions.

Materials and Methods

Study Overview The human voice serves as a principal avenue for communication. Voice disorders, while typically not life-threatening, can significantly impact daily activities and quality of life. Persistent hoarseness, especially if lasting over two weeks, may indicate serious underlying conditions, including malignancies, necessitating thorough evaluation.

Study Setting The research was conducted in the Department of ENT at Shadan Institute of Medical Sciences and Research Center.

Study Duration The investigation spanned from December 2016 to June 2018.

Study Design This was a prospective study designed to capture data over the specified period.

Study Population Participants included patients who visited the ENT department of Shadan Institute of Medical Sciences and Research Center, as well as those referred from other departments within the same hospital. A total of 60 cases were examined during this timeframe.

Inclusion Criteria The study exclusively considered patients exhibiting hoarseness of voice.

Exclusion Criteria Patients were excluded from the study under the following conditions:

1. Age below 5 years.
2. Presence of voice disorders other than hoarseness, such as rhinolalia aperta, rhinolalia clausa, articulation disorders, and central nervous system disorders including bulbar palsy, Wegner's granulomatosis, multiple sclerosis, stroke, and Parkinson's disease.

Data Collection Methods:

A specific proforma was developed based on the study objectives, pretested, and subsequently modified for optimal data gathering (details provided in the annex). Utilizing this proforma,

detailed patient histories were taken, followed by comprehensive ENT and systemic examinations to establish clinical diagnoses, supported by relevant diagnostic tests. In cases where initial findings were inconclusive, further diagnostic procedures were employed, including direct laryngoscopy, suspension microlaryngoscopy, and flexible endoscopy, each potentially accompanied by a biopsy. Biopsy specimens were forwarded for histopathological analysis.

Data Analysis The collected data was meticulously analyzed using calculators and presented in various formats such as tables, figures, graphs, and diagrams, as appropriate. The results were then contextualized within the framework of similar studies, aligning with the study's objectives and discussed in subsequent chapters.

Results

This study investigated the demographic and clinical characteristics of 60 patients presenting with hoarseness of voice. The age and sex distribution revealed a higher prevalence among males (63.3%) compared to females (36.7%), with the majority of cases occurring in the 41-50 year age group, accounting for 28.3% of the total cohort. The least affected age group was those aged below 10 and over 71 years, each constituting only 3.3% of the cases.

Occupationally, the most common demographic affected were laborers, representing 48.3% of the participants, followed by farmers (23.3%) and homemakers (10.0%). Students and others accounted for smaller fractions, 13.3% and 5.0% respectively. This distribution may suggest occupational exposure as a potential risk factor for hoarseness. Regarding residency, a significant portion of the patients (58.3%) resided in rural areas, while 41.7% were from urban settings, indicating a possible influence of environmental factors associated with rural living on vocal health.

Clinically, the most frequent findings from indirect laryngoscopic (IDL) examinations were ulceroproliferative growths involving the larynx and laryngopharynx, found in 33.3% of cases, followed by congestion of vocal folds and associated structures (30.0%). Other notable conditions included vocal cord paralysis (15.0%), nodules (11.7%), and less commonly, papilloma (5.0%) and polyps (3.3%). A single case (1.7%) presented with submucosal hemorrhage of vocal folds and false cords. These findings underscore the diverse etiology behind hoarseness and highlight the importance of detailed laryngoscopic evaluations in diagnosing underlying pathologies potentially responsible for vocal changes.

Table 1: Age and Sex Distribution of Patients with Hoarseness of Voice

Age Group (Years)	Male		Female		Total	
	No.	%	No.	%	No.	%
<10	0	0.0	1	4.5	1	1.7
11-20	3	7.9	0	0.0	3	5.0
21-30	5	13.2	1	4.5	6	10.0
31-40	5	13.2	8	36.4	13	21.7
41-50	10	26.3	7	31.9	17	28.3
51-60	11	28.9	3	13.7	14	23.3
61-70	4	10.6	0	0.0	4	6.7
>71	0	0.0	2	9.1	2	3.3
Total	38	63.3	22	36.7	60	100

Table 2: Occupation of Patients with Hoarseness of Voice

Occupation	Male		Female		Total	
	No.	%	No.	%	No.	%
Farmer	11	28.9	3	13.6	14	23.3
Laborer	20	52.6	9	40.9	29	48.3
Home maker	0	0.0	6	27.3	6	10.0
Student	5	13.2	3	13.6	8	13.3
Others	2	5.3	1	4.5	3	5.0
Total	38	100	22	100	60	100

Table 3: Residence of Patients with Hoarseness of Voice

Residence	Male		Female		Total	
	No.	%	No.	%	No.	%
Urban	17	44.7	8	36.4	25	41.7
Rural	21	55.3	14	63.6	35	58.3
Total	38	100	22	100	60	100

Table 4: Indirect Laryngoscopic (IDL) Examination Findings

Finding	Number of Cases	Percentage
Ulceroproliferative growth involving larynx and laryngopharynx	20	33.3
Congestion of vocal folds, arytenoids, epiglottic folds, epiglottis, interarytenoid	18	30.0
Vocal cord paralysis	9	15.0
Vocal cord nodules	7	11.7
Vocal cord papilloma	3	5.0
Vocal cord polyp	2	3.3
Submucosal hemorrhage of vocal folds and false cords	1	1.7

Discussion

The results of this study underscore the complex interplay between demographic factors, occupational exposure, and clinical presentations in patients with hoarseness. A significant finding was the high incidence of hoarseness in labour-intensive occupations, suggesting that occupational hazards could be a critical factor in vocal health. This is particularly relevant for public health policies focusing on occupational health and safety regulations. [10] Environmental factors also played a substantial role, as indicated by the higher prevalence of hoarseness among rural residents compared to their urban counterparts. This disparity could be attributed to differences in environmental pollution, access to healthcare, and occupational practices prevalent in rural settings. [11] Clinically, the diverse etiology of hoarseness

was evident from the variety of laryngoscopic findings. The prominence of ulceroproliferative growths and vocal fold congestion as common findings highlights the potential severity of underlying conditions leading to hoarseness. This reinforces the necessity for thorough diagnostic evaluations and potentially points to the need for enhancing awareness about the early signs of malignancies or other severe disorders in primary care settings. [12,13]

Furthermore, the age distribution of hoarseness peaking in the 41-50 age groups aligns with global epidemiological trends where vocal cord wear and exposure to life-long risk factors accumulate. The study also highlights the importance of considering age-specific factors in the clinical assessment of hoarseness to tailor more effective treatment and management plans. [14] Overall, this case series

not only enhances our understanding of the demographic and clinical profiles associated with hoarseness but also emphasizes the critical need for early and accurate diagnosis. Future studies should explore longitudinal outcomes to better understand the long-term implications of these findings and refine strategies for prevention, especially in high-risk populations. The interaction between environmental factors and occupational exposure remains a key area for further research to develop targeted interventions that can mitigate the risk of chronic voice disorders.

Conclusion

This study highlights the multifaceted nature of hoarseness of voice, underlining its association with demographic, occupational, and environmental factors. The prevalence of serious underlying conditions among those presenting with hoarseness necessitates robust clinical vigilance and early diagnostic intervention. By delineating the predominant features and risks linked to hoarseness, this research supports the need for targeted educational and preventive measures, especially in high-risk groups and rural populations. Further research should focus on longitudinal outcomes and the development of preventative strategies tailored to specific risk profiles identified through this study.

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