



CLINICAL STUDY OF CASES OF HOARSENESS OF VOICE AT TERTIARY CARE TEACHING HOSPITAL IN JAIPUR, RAJASTHAN.

ENT

Dr. Sharandeep Kaur	PG-3, Department of Otorhinolaryngology and Head and Neck Surgery, National Institute of Medical Sciences And Research Jaipur, Rajasthan
Dr. Beni Prasad	Professor and Head, Department of Otorhinolaryngology and Head and Neck Surgery, National Institute of Medical Sciences And Research Jaipur, Rajasthan
Dr. Rakesh Saboo*	Professor, Department of Otorhinolaryngology and Head and Neck Surgery, National Institute of Medical Sciences And Research Jaipur, Rajasthan *Corresponding Author

ABSTRACT

BACKGROUND: Hoarseness of voice is a disorder characterized by altered vocal quality, pitch, loudness, or vocal effort that impairs communication or reduces voice-related Quality of Life (QOL). There are many hundreds of measurements of voice that have been developed over the years and the relevance of many of these to the patients' complaints is often not clear. History and clinical examination are of paramount importance in early diagnosis of the cause of hoarseness of voice.

AIMS AND OBJECTIVES: 1. To develop clinical profile of patients with Hoarseness of voice. 2. To study the most common causes of Hoarseness of voice.

MATERIALS AND METHODS: This study was done in Department of Otorhinolaryngology and Head and Neck Surgery of tertiary care teaching hospital. The duration of the study is six months. Total number of 50 patients data were collected under this study who were visited the Department of Otorhinolaryngology and Head and Neck Surgery of tertiary care teaching hospital, Jaipur.

RESULT: Majority of the patients were Male that is 64%, ratio 1.7:1. Single largest group comprised of patients in 51 to 60 years of age that is 34%. Farmers/Labourers were 48% followed by housewives 28%. 88% cases presented with hoarseness of voice within first 6 months of disease. COPD was found in 32% cases and old tubercular lesion was found in 1 patient, 40% patients were found to be anaemic. Squamous cell carcinoma was found in 26% cases and benign lesions were found in 20% cases. 52% patients were managed while 48% underwent surgery in form of microlaryngeal surgery (22%) or DL biopsy (26%). 70% patients recovered and 26% patients were referred to oncology.

CONCLUSION: Hoarseness of voice is an alarming symptom associated with laryngeal pathologies. Fiberoptic laryngoscopy is the investigation of choice for clinical diagnosis of hoarseness of voice. This diagnosis is confirmed by Direct Laryngoscopy/ Microlaryngeal Surgery and histopathological examination is the gold standard for laryngeal pathology. Above 40 years of age patients with hoarseness of voice require complete evaluation especially smokers. There is an increase in cases of growth larynx in the general population in this area which is mainly related to habits like smoking.

KEYWORDS

INTRODUCTION

Hoarseness of voice is a disorder characterized by altered vocal quality, pitch, loudness, or vocal effort that impairs communication or reduces voice-related Quality of Life (QOL).¹ Voice disorders are often multifactorial in aetiology and to complicate matters patients may develop compensatory vocal behaviour in order to be able to communicate effectively. There are four main causes of voice disorders: Inflammatory; Structural or neoplastic; Neuromuscular; Muscle tension imbalance.² Hoarseness is often caused by simple disease like laryngitis but may also represent serious conditions like growth larynx.³ Change in the size, stiffness or surface character of one or both vocal cord, or there is compression of one vocal cord against other, this may lead to hoarseness of voice.⁴ Complaints of hoarseness may represent serious disease; therefore it should not be ignored. In India and other developing countries, the prevailing lower economic status, poorer nutrition, poorer general health of the population, different food habits, vocal habits, unhealthy environment and different social customs definitely influence the incidence of hoarseness.

PHONATION, VOICE AND VOICE QUALITY

The term 'voice' is often used to refer to speech as a whole. A more precise definition of 'voice' is sound output from the phonatory system that are dependent on vocal cord vibrations.⁵ 'Phonation' refers both to the act of voice production and also to the mechanisms of voice production. Pathological phonation is associated with an imbalance in the normal ratio of periodic sound and noise components of the acoustic signal resulting in poor voice quality. Voiced sounds can contain either high levels of aperiodic sound waves (often perceived as a rough voice) or additive noise (often perceived as a breathy voice), or both, making interpretation of speech by the listener more difficult. Adequate communication also depends on there being enough energy in the signal, i.e. it must be loud enough to overcome the threshold of hearing of the listener. The other main features of acoustic signals are the fundamental frequency determined by the sound source (usually the vocal folds) and harmonic components (determined by the nature

of vocal fold vibration and vocal tract resonance). The fundamental frequency of the acoustic signal is perceived as the pitch of the voice. Voice, therefore, provides the framework on which spoken language is constructed. By means of voice/phonation quality, pitch range and the systematic use of pitch patterning (intonation) a wide range of information about the speaker's gender, age, personality, emotional status and physical health is conveyed. Every human voice is unique because of anatomical, physiological, psychological, cultural, sociolinguistic and behavioural factors. Our voices change throughout our lifetime, but there are also minor, and sometimes major, fluctuations throughout a day. As a consequence, defining a normal voice and parameters for measurement for an individual or population is a difficult task. There is a large variability in what is perceived as normal and there is also a continuum between 'normal' and 'abnormal/pathological' voice.

A disordered voice can be defined as one that has one or more of the following characteristics:

- In-audible, unclear or unstable in a wide range of acoustics;
- Inappropriate for the gender and age of the speaker;
- It is not capable of fulfilling its linguistic and paralinguistic functions;
- It fatigues easily;
- It is associated with discomfort and pain on phonation.

The present study was conducted to do 'Clinical study of cases of Hoarseness of Voice' at Department of Otorhinolaryngology and Head and Neck surgery of tertiary care teaching hospital, Jaipur.

AIMS AND OBJECTIVES

1. To develop clinical profile of patients with Hoarseness of voice.
2. To study the most common causes of Hoarseness of voice.

MATERIALS AND METHODS

This study was done at Department of Otorhinolaryngology and Head and Neck surgery of tertiary care teaching hospital, Jaipur. The

duration of this study was twenty-four months. Approval to conduct this study was obtained from Institutional Ethics Committee before starting the study. We also informed patients about the study, as well as their caretakers. Only those who agreed to participate and returned the written consents were included in this study. Total number of fifty patients data were collected under this study, which fulfil the inclusion and exclusion criteria. A suitable data collection form was designed to collect and document the data. Data collection from includes patient's demographic details, drug therapy and laboratory investigations. Fiberoptic Laryngoscopy was done in every patient to confirm the findings of indirect laryngoscopy. Collected data were analysed by using Microsoft Excel 2018.

RESULTS

- A total of 50 patients of either sex or of any age group presenting with complaint of hoarseness of voice were selected.
- In the present study majority of patients were male (64%). Male Female ratio is 1.7:1.
- Most common age group is 51 to 60 years (34%). 80% of cases are above the age of 40 yrs.
- Patients in the present study came from varied background viz. Farmer/labourer 48%, housewife 28%, shopkeeper 6%, fruit seller 2%, teacher 6%, singer 2%, electrician 2%, student 4%, clerk 2%.

Table 1: Distribution Based On Complaints

Complaint	Number of patients	Percentage
Hoarseness of voice	50	100.0
Dysphagia	11	22.0
Irritation in throat	35	70.0
Pain in throat	30	60.0
Nasal Discharge	3	6.0
Cough	2	4.0

- Hoarseness of voice was found to be the main symptom in all cases, other associated complaints were irritation in throat (70%), pain in throat (60%) and dysphagia (22%).
- 88% patients presented with hoarseness within first 6 months.

Table 2: Distribution Of Patients Based On Habits

Habits	No. of patients	Percentage
Smokers	35	70.0
Non – smokers	15	30.0
Alcoholic	3	6.0
Non alcoholic	47	94.0
Tobacco chewer	2	4.0
Non tobacco chewer	48	96.0

- Most of the patients in the present study were smokers (70%), however majority of them (94%) were non alcoholic and non tobacco chewer (96%).
- Most common Indirect Laryngoscopy/ Fiberoptic laryngoscopy finding in the study is growth (26%) followed by congestion of larynx (24%).
- 9 patients (18%) had supraglottic extension and 16% had palpable neck nodes.
- Chest X- Ray was normal in most of the patients 66%, some patients had findings suggestive of COPD (32%) while 1 patient had old tubercular cavity. This patient had history of ATT 9 yrs back.
- 40% patients were found to be anemic

Table 3: Distribution Based On Diagnosis

Diagnosis	No. of patients	Percentage
Acute laryngitis	6	12.0
Chronic laryngitis	6	12.0
Reinke's edema	4	8.0
Idiopathic VC palsy (left)	4	8.0
CA esophagus (post op) {VC palsy (right)}	1	2.0
Laryngopharyngeal Reflux (LPR)	4	8.0
Psychogenic	1	2.0
VC nodule (Bilateral)	4	8.0
VC polyps (left)	2	2.0
VC cyst (right)	1	2.0
Leukoplakia	1	2.0
Squamous papilloma	2	4.0
Paraganglioma (Left VC Palsy)	1	2.0
Growth	13	26.0

- In the present study 26 % patients presented with growth larynx, 24 % patients presented with laryngitis (acute or chronic), 10 % presented with vocal cord palsy, 8 % presented with reinke's edema, 8% with laryngopharyngeal reflux, 8 % with Vocal cord Nodule, 4% presented with squamous papilloma, 2% each with psychogenic, vocal cord polyp, vocal cord cyst, leukoplakia and paraganglioma.
- In the present study 52 % patients received conservative treatment while 48% required surgical intervention in otorhinolaryngology department.
- Surgical Intervention was in the form of microlaryngoscopic surgery in 22% cases and biopsy by Direct Laryngoscopy in 26% cases.

Table 4: Based on Histopathological findings

Finding	Number of Patients	Percentage
Vocal Cord Nodule	4	8.0
Vocal Cord Polyp	2	4.0
Vocal Cord Cyst	1	2.0
Squamous Papilloma	2	4.0
Leukoplakia	1	2.0
Squamous Cell Carcinoma	13	26.0

- Squamous cell carcinoma was found in 26% cases.

DISCUSSION

In the present study 64 % patients were male. A study by Pal⁶ et al in 2013 also relates with this study, 60% were males and 40 % were females. A retrospective study was carried out by Banjara et al⁷ in 2011 of patients having a hoarseness of voice of up to three years duration. This study also showed male predominance. In the study there were 65.34% males and 34.66% female patients. It also correlates with another study by Vengala RR⁸ et al in 2015 in which 56.16% patients were male and 43.84% were females.

In this study it was observed that most patients belonged to the age group of 51-60 years (34%). 80% patients were above 40 yrs of age. This was also the finding in the study by Banjara et al⁷ in which male patients showed higher percentage (26.83%) in 51 to 60 years age group while female patients showed higher percentage (33.33%) in 31 to 40 years age group. Yet another study by KS Pal⁶ et al having hoarseness of voice also showed that most common age group was 51-60 years (35%). Patients in the present study came from varied background viz. Farmer/labourer 48%, housewife 28%, shopkeeper 6%, fruit seller 2%, teacher 6%, singer 2%, electrician 2%, student 4%, clerk 2%. In a retrospective study by Banjara⁷ et al on hoarseness of voice largest group of patients were housewives (19.52%) followed by labourer/farmer (17.53%), private job/businessman (15.94%), student (7.97%), teacher (7.57%), retired person (5.18%), and factory worker (3.98%). Other affected groups included politicians (2%), army personnel (1.59%) and sportsman. In another study by Vengala⁸ et al on clinical profile of hoarseness of voice, labourers constituted the single largest group of patients (28.76%). The following table shows ' comparison of occupation-wise distribution of patients:

Study/ Occupation	Labourers	Housewives	Farmers	Teachers	Singers
Present study	14.0%	28.0%	34.0%	6.0%	2.0%
Banjara et al	21.4%	19.5%	15.9	7.5%	—
Vengala et al	28.76%	26.02%	—	19.17%	2.73%

In the present study hoarseness of voice was present in all the patients. Other complaints like pain in throat (60%), irritation in throat (70%), nasal discharge (6%), cough (4%) were also reported. In a retrospective study by Banjara⁷ et al on hoarseness of voice, change in voice was the common presenting symptom in 95.61% cases. Other associated symptoms were dysphagia in 6.37% cases, foreign body sensation/ irritation in throat in 6.37% cases, neck swelling/ secondaries in 2.39% cases and dyspnoea in 1.59% cases. 1.2% patients presented with laryngeal trauma. In a study by Pal⁶ et al Hoarseness of voice was found in 92% cases, other symptoms were foreign body sensation (25%), breathiness (23%), stridor (6%), dysphagia (8%). So, the distribution of patients based on chief complaints in the present study is in consonance with similar studies.

In the present study 64% of the patients presented with hoarseness of voice within first three months and 88% cases presented within first 6 months. In a retrospective study by Banjara⁷ et al on hoarseness of

voice, duration of hoarseness ranged from 7 days to more than 5 years. Most of the patients (61.35%) presented within 3 months of onset of the symptoms while another 25.10% presented within 3 to 6 months and 10.76% within 6 to 12 months. In 20.72% patients the duration of symptoms at the time of presentation was of more than 1 year duration. In a study by Pal⁶ et al, 57 % patients presented within first 3 months. The short interval between onset of symptoms and presentation in the present study is possibly due to the fact that patients with hoarseness get alarmed by change in voice which fails to improve over time and thus they readily seek medical assistance. Most of the patients in the present study were smokers (70%). 6% patients consumed alcohol and 4 % were tobacco chewer. In the present study Indirect laryngoscopy/ Fiberoptic Laryngoscopy findings were as follows: Normal study was found in 1 patient, congestion of vocal cords alone or of vocal cords and arytenoids was found in 24% cases (20% bilateral, 4% on right side), edema of vocal cords was found in 8% cases, Vocal cord palsy was found in 12% cases (Left sided in 10%), Bilateral vocal nodules were found in 8% cases, left sided polyp in 4% cases, Right vocal cord cyst in 2% cases, phonatory gap was found in 8% cases, left vocal cord leukoplakia in 2 % cases, papilloma in 4 % cases and growth in 26 % cases. Among patients with growth Bilateral involvement was found in 1 case, left sided in 6 cases and right sided involvement in 6 cases.

In present study 18 % patients had supraglottic extension, 6% were limited to glottis and 2% had subglottic extension. In a study by Pal⁶ et al polyps were found in 10% cases, nodules 4%, AE fold edema in 2%, subglottic edema in 1%, vocal cord congestion in 11%, carcinoma glottis in 8%, carcinoma subglottis in 1%, carcinoma supraglottis in 5%, keratosis vocal cord in 1%, right vocal cord paralysis in 9%, left vocal cord paralysis in 20%, bilateral in 4 % and normal study in 14% cases. In a study on persistent hoarseness and the assessment of laryngeal mucosal lesions by microlaryngoscopy, vocal cord nodules were the commonest benign lesions followed by vocal cord polyps. In another study on management of benign lesions of larynx by Doloi⁹ et al, incidence of vocal polyp was 37.5% followed by vocal nodule (27.5%), multiple laryngeal papillomatosis (10%), hemangioma (10%), epiglottic cyst (5%), vocal cord cyst (7.5%) and intubation granuloma (2.5%). Most common site of involvement was true vocal cord (83.33%). This correlates with the present study.

In the present study Carcinoma larynx was diagnosed in 26% cases, while rest 74% cases had benign conditions like acute laryngitis (12%), chronic laryngitis (12%), Reinke's edema in 8 % cases, Vocal cord palsy in 10% cases, LPR in 8% cases, psychogenic in 2 % cases, vocal nodule in 8% cases, vocal polyp in 4% cases, vocal cord cyst in 2% cases, leukoplakia in 2 % cases, squamous papilloma in 4 % cases. 1 patient was diagnosed with paraganglioma. In a study by Pal⁶ et al 15 % patients had carcinoma and the rest had benign conditions.

The tissue obtained during direct laryngoscopy or microlaryngoscopic surgery either following complete excision, stripping of vocal cords or biopsy of the lesion was sent for Histopathology. On the basis of Histopathology report squamous cell carcinoma was found in 26% of patients. Vocal cord nodule was found in 8% cases, vocal cord polyp was found in 4% cases, squamous papilloma was found in 4 % cases and vocal cord cyst, leukoplakia as well as paraganglioma was found 2% cases.

In the present study 52% patients were given conservative treatment and 48% patients underwent surgical procedure either for biopsy or microlaryngoscopic surgery. Microlaryngoscopic surgery was done in 11 patients (22%) for complete removal of lesion and stripping of vocal cords. DL biopsy was taken in 13 patients. All 13 patients were referred to the department of oncology for further management. The patients in which complete excision of the lesion or vocal cord stripping was done with microlaryngeal surgery, they were treated conservatively in the form of voice therapy and medical treatment. 70% patients showed complete recovery after treatment. None of the patient showed any sign of relapse during the period of study.

CONCLUSION

Hoarseness of voice is an alarming symptom associated with laryngeal pathologies. Fiberoptic laryngoscopy is the investigation of choice for clinical diagnosis of hoarseness of voice. This diagnosis is confirmed by Direct Laryngoscopy/ Microlaryngeal Surgery and histopathological examination is the gold standard for laryngeal pathology. Above 40 years of age patients with hoarseness of voice require complete evaluation especially smokers. There is an increase

in cases of growth larynx in the general population in this area which is mainly related to habits like smoking.

REFERENCES

1. Seth R. Clinical practice guidelines: Hoarseness (Dysphonia); Otolaryngology. Head and Neck Surgery 2009;14:S1-S31.
2. Julian M. Disorders of the voice. Scott-Brown's Otorhinolaryngology, Head and Neck Surgery. 7th ed. U.K.: Hodder Arnold; 2008. p. 2193. (vol 2).
3. Scott-Brown's Otorhinolaryngology, Head and Neck Surgery. 7th ed. U.K (vol 2).
4. Roy N, Merrill RM, Thibeault S. Prevalence of voice disorders in teachers and the general population. J Speech Lang Hear Res 2004;47:281-93.
5. Titze IR. Principles of voice production. Prentice Hall: Englewood Cliffs, New Jersey, 1994.
6. Pal KS et al. Etiopathological Study of 100 Patients of Hoarseness of Voice: In a Rural Based Hospital. Indian J Otolaryngol Head Neck Surg 2013 May 14;33.
7. Banjara H, Mungutwar V, Singh D, Gupta A. A retrospective study of 251 cases. 'IJO PL Jan-Jun 2011;l(1):21-7.
8. Vengala RR, Kapilavaya N, Suraneni VR. Evaluation of clinical profile and etiopathology for Hoarseness of Voice - A study of 146 cases, 2015.
9. Doloi P K, Khanna S. A Study of management of benign lesion of the larynx. I J O P L 2011;l(2):61-4.