

A Study of Clinicopathological Profile and Management of Change in Voice

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Abstract

Background: One of the most frequent complaints in ENT practise is a change in voice quality, and hoarseness is the most noticeable indication of this change. The first sign of any conditions that affect the vocal apparatus directly or indirectly is always hoarseness. Even though vocal abuse is the most prevalent among the benign causes of hoarseness, we should always look for more serious pathology, such as malignancy.

Aims and objectives: To study the clinicopathological profile of change in voice and to study the management of change in voice.

Materials and Methods: This study was conducted on 100 patients of age 10 years to more than 70 years for duration of one and a half year. Indirect laryngoscopy and video laryngoscopy under local anesthesia was carried out for local examination. Direct laryngoscopic examination with or without biopsy was performed. The biopsy was sent for histopathological examination. The data collected was entered in excel sheet and analysed using Epi data /SPSS software.

Results: Most of the patients were in the age group of 31 to 40 years. Males were affected more than females (2.4:1). Labourers formed the predominant group. Majority of patients were from low socioeconomic class. Smoking, vocal abuse, smoking plus alcohol were the common predisposing factors. Maximum number of cases among etiology of change of voice was due to laryngeal malignancy (33%). The most common duration of hoarseness of voice was seen in less than 1 month.

Conclusion: The causes of hoarseness of voice are many and varied. Every case should be carefully and thoroughly investigated to determine the diagnosis and underlying pathology for early and prompt management because the etiological data differs depending on the geographic region and among treatment centres.

Keywords: Change of voice, hoarseness of voice, laryngeal carcinoma, vocal cord nodule, vocal abuse.

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Introduction

Change in voice is referred to any abnormal sound output, including hoarseness, raspiness, breathiness, harshness, and low-pitched voices. Typically, the term is used to describe a change in voice quality, ranging from harshness to weakness. Speech goes via three stages. The energy flow is produced during the pulmonary phase by the inflation and outflow of air. As a result of this activity, the larynx receives a column of air for the laryngeal phase, during which the vocal cords vibrate at particular frequencies to produce a sound that is particular to each person. The oral phase takes place in the oral cavity, where the throat, tongue, lips, and teeth work together to change sound and create words. Dysfunction in any of these can result in voice changes. [1]

Change of voice refers to an abnormal quality of voice that is harsh, rough, and has a lower pitch than the individual's usual voice. [2] Since hoarseness of voice is a symptom rather than a diagnosis, every instance calls for a comprehensive analysis of the underlying cause. [3] Acute and chronic hoarseness have different onsets. Acute hoarseness lasts up to two weeks; persistent hoarseness lasts more than two weeks. [4]

The GRBAS (Grade, Roughness, Breathiness, Asthenia and Strain) examination can be used to gauge voice quality. [5] An ENT evaluation should include fiberoptic and indirect laryngoscopy examinations of the larynx. The best course of treatment for the majority of benign laryngeal lesions is voice therapy and other non-surgical care, depending on the exact reason. [6]

Non-surgical management options include advising patients on proper voice hygiene, such as drinking enough water, avoiding vocal strain (shouting, throat cleaning, and excessive voice use), quitting smoking, consuming less alcohol, and treating gastro-oesophageal reflux. Techniques from voice

therapy can be used to improve vocal performance. [7] Laryngeal papillomas, on the other hand, must be operated on as soon as possible. Nodules and polyps that persist necessitate surgery as well. Today, a variety of surgical procedures are used to treat vocal cord paralysis. [8]

Voice treatment is frequently used in conjunction with surgery. Any growth in the pyriform fossa, supraglottic, or glottis necessitates immediate laryngoscopic excision or biopsy, followed by histological analysis. Sometimes a tracheostomy is required to treat dyspnea brought on by the mechanical effects of a growth or tumour in the larynx. [9] This study focused on the clinicopathological profile and management of change in voice.

Materials and Methods

A prospective clinical study was carried out in Department of ENT, SRVS Medical College Shivpuri on 100 patients for a total duration of one and a half year. All cases were analyzed for detailed history, regarding their complaints, the onset and duration of symptoms.

Patients of age group above 10 years, presenting with change in voice, who came to ENT OPD and ENT ward and both genders were included in the study. However, patients younger than 10 years, pregnant female, voice disorders other than hoarseness like rhinolalia clausa,

rhinolalia aperta, articulation disorders and central nervous system like bulbar palsy, multiple sclerosis, stroke and Parkinson's disease were excluded in the study.

Indirect laryngoscopy and video laryngoscopy under local anesthesia was carried out for local examination. Direct laryngoscopic examination with or without biopsy was performed. The biopsy was sent for histopathological examination.

Investigations done for each patient included routine blood investigations, urine for microscopy, albumin, sugar in selected patients, radiological Investigation (X-ray chest, X-ray neck- AP and lateral, X-ray, PNS, CT chest and neck), indirect laryngoscopy, endoscopy (70 degree) and direct laryngoscopy.

Statistical analysis plan: The data collected was entered in excel sheet and

analysed using Epi data /SPSS software. Data were expressed as numbers and percentages.

Results

In the present study the patients included to between age group of 10 and >70 years. Out of 100 patients studied, Majority of patients were seen in age group of 31-40 years (31%) and 41-50 years (28%) followed by 51-60 years (16%) age group (Table 1).

Table 1: Incidence of change in voice in different age groups

Age in years	Percentage
10-20	5
21-30	7
31-40	31
41-50	28
51-60	16
61-70	10
>70	3
Total	100

Data is expressed as percentage

Out of 100 patients, 71 patients were male and only 29 were female with male predominance and male female ratio of 2.4:1 (Figure1).

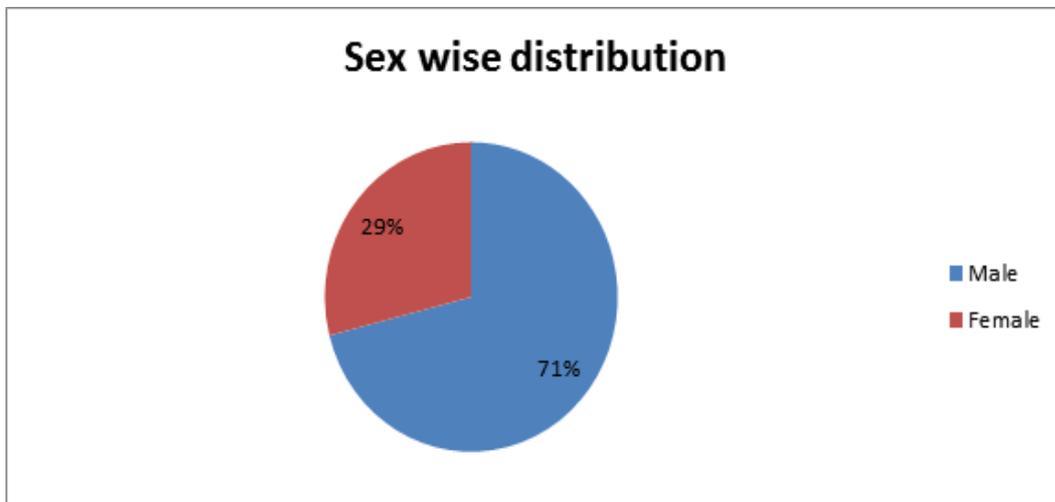


Figure 1: Sex wise distribution

Our study demonstrated that labourers (51%) constituted single largest group followed by farmers (30%), students (9%), housewives (7%) and others (3%).

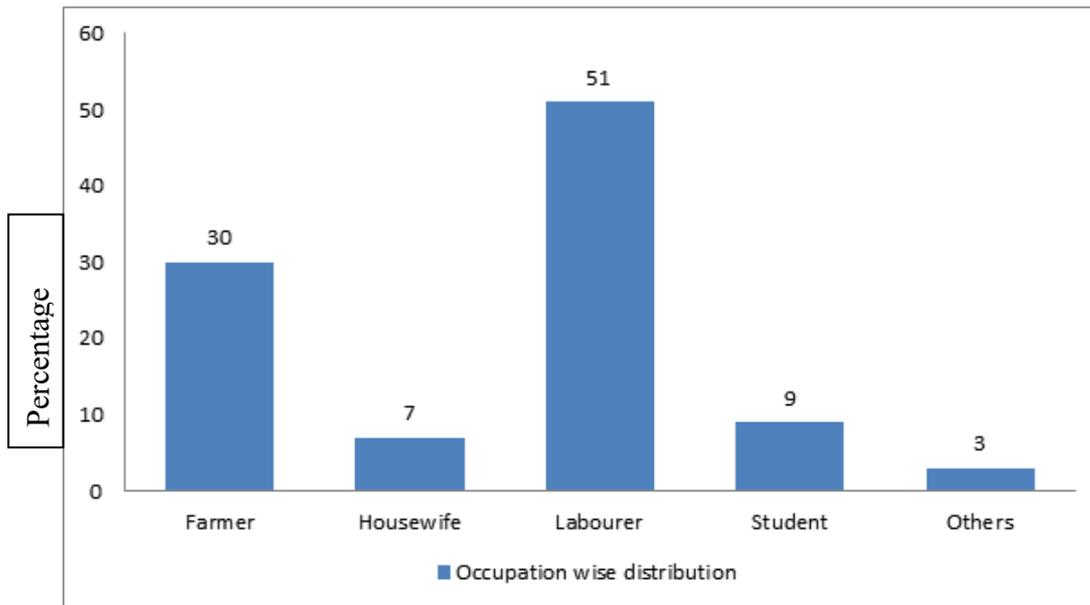


Figure 2: Occupation wise distribution

Smoking was the commonest predisposing factor seen in 37% of cases followed by tobacco chewing in 29% and voice abuse in 16% cases, respectively.

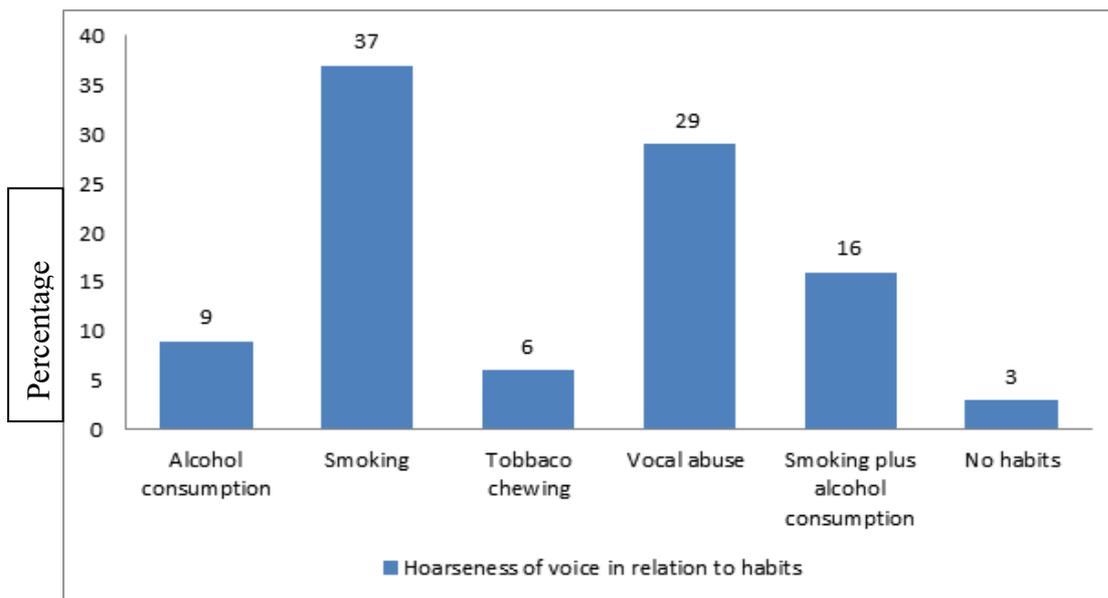


Figure 3: Hoarseness of voice in relation to habits

Most of the patients had hoarseness of voice complaint were having duration of less than or equal to 3 months (72%), 3-6 months (17%), 6-12 months (8%), and 3% were having complaints for duration of more than 1 year (Table 2).

Table 2: Duration of hoarseness of voice

Duration	Percentage
<= 1 month	42
>1 month-3 months	30
>3 month-6 months	17
>6 month-9 months	4
>9 month-12 months	4
>12 months	3

Data is expressed as percentage

Table 3 Histopathology

Histopathology	No. of cases (74 patients)	Percentage
Squamous cell carcinoma (Keratin pearls)	32	43.24
Caseating granuloma and acid fast bacilli	15	20.27
Hyperplastic stratified squamous epithelium with pigment laden macrophages	25	33.9
Dense fibrin deposition stellate cells with macrophages	2	2.7

Data is expressed in number and percentage

The most common etiology for hoarseness of voice found was laryngeal malignancy (32%), followed by vocal cord nodules and chronic laryngitis (16%) each, tuberculosis of larynx (15%), vocal cord polyp (9%), laryngeal trauma (2%) and vocal cyst (1%)

(Figure4). In 32% cases of patients with laryngeal malignancy we did direct laryngoscopy and biopsy and after confirmation patient is referred to cancer department (Figure4).

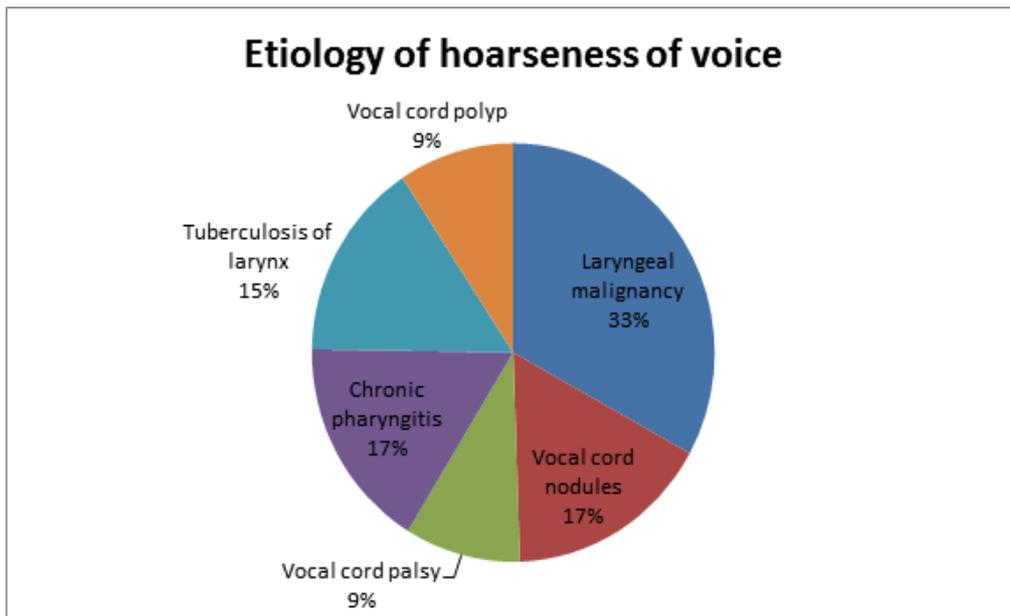


Figure 4: Etiology of hoarseness of voice

In total 49% cases of vocal cord polyp, vocal cord palsy, chronic laryngitis, tuberculosis of larynx, we did medical management with steroids, anti-inflammatory drugs, antibiotics, ATT for tuberculosis, and interleukin inhibitors as per case required.

In total 17% cases of vocal cord nodule and vocal cord cyst, we did micro laryngeal surgeries. In 2% cases of laryngeal trauma repair was done (Table4).

Table 4: Management

Etiology	Management	Percentage
Laryngeal malignancy	Direct laryngoscopy and biopsy	32
Vocal cord polyp, vocal cord palsy, chronic laryngitis, tuberculosis of larynx	Medical management steroid, anti-inflammatory, antibiotics, ATT for tuberculosis, interleukin inhibitors	49
Vocal cord nodule, vocal cord cyst	Micro laryngeal surgery	17
Laryngeal trauma	Repair	02

Data is expressed as percentage

Discussion

Our study demonstrated that majority of patients were seen in age group of 31-40 years (31%) followed by 41-50 years (28%). Similarly, Baitha S. et al. [10] found majority of patients (28.18%) in the age group of 31 to 40 years. Batra et al. [11] also found largest group comprising 25% in 31 to 40 years age group.

In this study, males were 71 and females were 29, with male predominance and male female ratio of 2.4:1. This coincides with study with Parikh N¹² and Baitha S et al. [10] which showed male:female ratio at 2:1.1 and 2:1.5 respectively.

Our study demonstrated that labourers (51%) constituted single largest group among occupation wise distribution and our study correlates with Baitha S et al. [10] and Kumar H et al [13] which also showed labourers to be the largest group with voice changes.

In present study among 100 patients, 37% were smokers. Similar to our study results, Pal et al. [14] also found smoking habit in 33% cases with hoarseness. Duration of change of voice ranged from less than or equal to 1 month to more than 12 months. Most of presenting complaints were seen within less than a month (42%), followed by >1month to 3 months (30%), >3months to 6 months (17%), > 6 months to 12 months (4%), >9 months to 12 months (4%) and more than 12 months (3%). Baitha et al [10] noted duration range from 1 day to 5 years and 50% patients had duration of voice change in months. However, Batra et

al [11] found 59% patients within first five months of appearance of symptoms and 86% of patients were found to present within first year of appearance of symptoms.

In our study, the most common etiology for hoarseness of voice found was laryngeal malignancy (32%). However, Banjarah et al [15], Baitha S et al [10], Kumar H et al [13], Parikh et al [12], demonstrated that the most common etiology is carcinoma larynx as a cause of voice change in 9.56%, 14.54%, 15% and 12% respectively. [16]

Conclusion

We conclude that voice alteration is a symptom with several potential causes. Every case should be carefully investigated in order to determine the diagnosis and underlying pathology for early and prompt management because the etiological data vary depending on the geographic region and between different treatment centres. The incidence of laryngitis and laryngeal cancer can be significantly reduced by quitting smoking, using other tobacco products, and drinking alcohol, which will lessen the burden of voice alteration. Reduced load from voice alteration might also result from avoiding vocal abuse.

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