

DIFFERENTIAL DIAGNOSIS OF HOARSENESS OF VOICE IN THE PRESENT SCENARIO: A CLINICOPATHOLOGICAL STUDY

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ABSTRACT

Hoarseness of voice is a common symptom encountered in ENT practice. Present study is based on five hundred and thirty four patients presenting with primary complaint of hoarseness, of all age groups, in the out-patient department of Otolaryngology at the tertiary care centre in five years. A detailed history was taken on a preset proforma and thorough clinical examination including direct laryngoscopy (if indicated) was undertaken which resulted into eight categories of different clinical diagnosis. Carcinoma of larynx with 30.7% comprised the largest group followed by vocal cord paralysis by 26.9%. The outcome of this study is that although the most common cause of hoarseness is carcinoma of larynx which showed a significant correlation with smoking, tubercular laryngitis is still common in India in spite of the modern medicines.

KEYWORDS : Hoarseness, Carcinoma of Larynx, Voice Disorder, Vocal Cord Paralysis

Hoarseness of voice is one of the commonest symptoms in otolaryngological practice and is invariably the earliest manifestation of a large variety of conditions directly or indirectly affecting the voice apparatus. Hoarseness of voice is a defect of voice quality. Any condition that alters the regular, repetitive synchronous vibrations of vocal cord in conjunction with the breath stream that activates them may create the sounds that are called hoarseness (Moore, 1976).

Hoarseness is a symptom and not a disease per se. According to Jackson & Jackson cancer must always be the first diagnostic possibility to be excluded before a diagnosis of chronic laryngitis is made.

Hoarseness persisting for more than three weeks must be investigated and a firm diagnosis should be made. It is however strange that hoarseness as a subject has not attracted the attention of the scientific fraternity.

The best known etiological classification of hoarseness introduced by Perello divided voice disorders in two broad categories of organic and functional voice disorders. (Majdevac et al., 2001) The present study is based on this classification, though a new classification, in which all benign lesions (polyp, granulomas etc.) resulting from voice abuse misuse were included in functional voice disorders. (Koufman and Issacson, 1991)

The present study is an attempt to determine the

incidence of various etiologies and clinicopathological aspect of hoarseness.

MATERIALS AND METHODS

This study was conducted in the department of Otolaryngology & Head and Neck Surgery at tertiary care center over a period of five years (2011-15). Five hundred & thirty four patients presenting with the primary complaint of hoarseness were selected for the study.

After a detailed history- taking and thorough general physical and local examination with detailed indirect laryngoscopy, patient were subjected to direct laryngoscopy examination as and when required. Special attention was given to the history of personal habits such as smoking, alcohol intake and tobacco chewing besides recording each individual's profession, history of allergy and medication of any sort. The patients were divided in four groups based on the levels of vocal usage described by Koufman and Isaacson (1991).

Level I: Elite vocal performer e.g. singers, actors.

Level II: Professional voice user e.g. lecturers, clergyman etc.

Level III: Non- vocal professional e.g. teachers, doctor, lawyers, etc.

Level IV: Non- vocal, non- professional e.g. labourers, clerks, farmers, etc.

Table 1 : Causes of Hoarseness

	Causes	No. of cases (%age)
Successful IDL	-	447 (83.7)
Unsuccessful IDL	Elevated tongue	10(1.9)
	Epiglottic tubercle	26 (4.8)
	Excessive gag	38 (7.2)
	Uncooperative patient	13 (2.4)
	Total	87 (16.3)

After informed consent, direct laryngoscopy was done under local anaesthesia in most of the patients. Once a preliminary diagnosis was reached, each patient was further investigated as and where deemed necessary and managed accordingly.

RESULTS

The mean age of presentation for males was 49.20 (± 18.08) years and for females 35.96(±17.14) years. The male: female ratio was 3.3:1, a distinct male preponderance. Two third of the male cases of hoarseness of voice were above the age of 45 years, while this trend was reversed in female cases where 62.5% of the cases were below 45 years of age. The mean age of presentation for females was considerably lower than males. Patients from urban locality reported more than that of rural locality though more than half of the cases belonged to low socioeconomic group. The level IV of vocal users i.e. the non- vocal, non- professional as described by Koufman and Isaacson were observed highest by 96.2%.

Duration of hoarseness at the time of presentation was within 3-24 weeks in maximum cases. Association of

various symptoms like respiratory, dysphagia and cough were also studied in relation to hoarseness. Though indirect laryngoscopy was undertaken in all cases but was performed successful only in 83.7% cases, as shown in table-1, still direct laryngoscopy was required in 40.4% cases to confirm the diagnosis. The study constituted 95.2% cases belonging to organic voice disorder category and only 4.8% of functional voice disorder category.

The patients were divided into eight groups on the basis of diagnosis. As depicted in table-2 the carcinoma of larynx with 30.7% comprised the largest group. Vocal cord paralysis of various etiologies was 26.9%, the second largest category. Non-specific laryngeal inflammation, chronic laryngitis and trauma to larynx were all a close third with 10.3%, 10.3% and 9.6% respectively.

Chronic laryngitis was reported in 10.6% of studied cases. The most common cause was vocal nodule followed by vocal polyp and chronic simple laryngitis (Table-3). Vocal cord paralysis was reported in 26.9% of cases. The most common cause of paralysis was carcinoma esophagus leading to recurrent laryngeal nerve paralysis followed by viral and traumatic causes (Table-3). In three fourth of the cases the paralysis was on left side due to its long course, thus prone to injury. Mechanical blunt injuries were most common out of 9.6% cases of traumatic etiology.

Carcinoma of larynx showed a significant male preponderance by 15:1 with mean age of presentation 61.25(±9.7) years. There was a significant correlation with smoking (p<0.01) as seen in table-4. Histopathology of most of the cases was squamous cell carcinoma of either grade I, or grade II category.

Table 2 : Incidence of Various Etiologies of Hoarseness with Mean Age and Sex Ratio

Diagnosis	Percentage (%)	Mean age (Years)	Sex ratio
Carcinoma larynx (n = 164)	30.7	61.25 ± 9.76	15.4:1*
Vocal cord paralysis (n = 144)	26.9	46.89 ± 16.93	4.8:1 *
Nonspecific laryngitis (n = 55)	10.3	41.45 ± 15.23	1:1.1
Chronic laryngitis (n = 55)	10.3	35.64 ± 13.09	1.2:1
Trauma (n = 51)	9.6	27.00 ± 19.31	1.5:1
Granulomatous diseases (n = 32)	5.9	36.00 ± 11.23	2:1
Functional Dysphonia (n = 26)	4.9	25.04 ± 19.67	1:3.6
Benign Neoplasm (n = 7)	1.3	65.00 ± 19.67	1.5:1

* P < 0.01

Table 3 : Distribution of Various Causes of Hoarseness in Chronic Laryngitis and Vocal Cord Paralysis

Cause of Hoarseness	Type	No. of Cases
Chronic laryngitis (n=55)	Chronic simple laryngitis	13
	Laryngitis sicca	5
	Vocal nodule	21
	Vocal polyp	16
	Total	55
Vocal cord paralysis (n=144)	Carcinoma esophagus	18
	Pulmonary carcinoma	7
	Thyroid tumors	16
	Cardiovascular	12
	Diabetes mellitus	15
	Idiopathic	23
	Mediastinal mass	8
	Myasthenia gravis	6
	Tuberculosis	14
	Trauma	17
	Viral	8
	Total	144

Table 4 : Distribution of Various Addictions in Cases of Carcinoma Larynx

	Type of Addiction	No. of Cases	Percent
Carcinoma Larynx (n=164)	Smoking tobacco	85/ 164*	51.9
	Smokeless tobacco chewing	51/164	31.1
	Both smoking and smokeless	54/164	32.9
	Alcohol	14/164	8.5

*P<0.0001

Table 5 : Distribution of Exposure to Noisy Environment and Voice Abuse in Cases of Chronic Laryngitis

	Exposure	No. of cases	Percent
Chronic Laryngitis (n=55)	Present	43/55*	78.2
	Absent	12/55	21.8

*P<0.0001

Exposure to noisy environment and voice abuse showed a significant correlation with chronic laryngitis (p<0.01) as evident in table-5. Mechanical blunt injuries were most common out of 9.6% cases of traumatic etiology.

Out of 5.8% cases of granulomatous diseases of larynx two third cases of tubercular laryngitis were reported. All of them had active pulmonary lesions. One case each of scleroma of larynx and leprosy was reported. Out of 10.6% cases of non specific laryngeal inflammation, 4.8% cases of laryngopharyngeal reflux disease were diagnosed and treated by proton pump inhibitor therapy. Functional dysphonia constituted 4.8% of studied cases. Most of them were young males diagnosed as puberphonic. A single case of benign fibro myxoma was reported.

DISCUSSION

With increasing stress in day to day life, rising levels of pollution and changing habits and life style, hoarseness and voice disorders per se are becoming more and more prevalent.

Our study is based on the traditional classification thus 95.2% of patients included in organic voice disorder and rest small group in the functional voice disorder. This probably accounted for such high incidence of organic disorders in this study, as compared to previous study by Kadambari Batra (2004) (Batra et al., 2004), where they constituted 49% only. But the results are in accordance with the study done by Dr. N.P Parikh (1991) who also used the old classification. (Parikh, 1991)

The distinct male preponderance in all age groups could be explained by the fact that in our country, by and large, the attendance of males in the out patient department of hospital for vocal complaints is greater than their female counterparts in proportion to the population. Females, due to restrictions, less frequently present at hospitals with a similar complaint which is obviously not perceived as life threatening.

The higher incidence in urban population is probably due to awareness and alertness which is not seen in rural ones since hoarseness does not involve any kind of wage loss except in professional voice users (level I & II).

In our study the most common cause of hoarseness was carcinoma of larynx. Higher incidence of lower income group seems to be due to larger population of this group in the region, malnutrition leading to lowered resistance, lack of health education and ignorance regarding hoarseness which is not considered seriously. Lack of awareness among General Practitioners for timely referral and poor diagnostic facilities in rural areas also play vital role in higher incidence. Heavy smoking and tobacco chewing apart from its carcinogenic effect causes mucosal irritation and plays a definite role in the etiology of carcinoma in susceptible individuals. This also explains the significantly higher incidence in males.

It was also observed in the study that in cases of laryngopharyngeal reflux (LPR) disease, the reflux related otolaryngologic symptoms (hoarseness, sore throat, globus, cough) were the most reliable symptoms. The increased frequency of LPR could be explained by the fact that sedentary habits, intake of junk food, stress etc. are making our life style prone for LPR. Proton pump inhibitors were of diagnostic as well as of therapeutic value in cases on LPR. (Bilgun et al., 2003)

In the course of time there are changes in the presentation and clinical features of laryngeal tuberculosis. Males are more affected because of addiction habits and exposure to different environmental conditions. A definite increase in age of presentation is observed. Overall it is concluded that tuberculosis is still a common disease in our country in spite of modern medicines and various National control programs.

Functional voice disorders, mostly puberphonia primarily affect, adult, males, frequently non- vocal, non-professionals resulting from vocal abuse/ misuse. A quick diagnosis with prompt institution of the correct treatment to ensure quick recovery and to avoid the patient becomes fixated to the symptoms.

CONCLUSION

Voice disorders are being encountered more and more frequently in the present days. Patients with hoarseness of more than three-week duration should be evaluated to rule out malignancy. Tuberculosis is still major problem in society. The cases of chronic laryngitis should be followed to detect development of cancer in future. The causes of hoarseness are varied and late presentation may worsen the prognosis. Considering adverse influence of hoarseness on quality of life, efforts should be directed to elucidation of the cause and performing appropriate treatment.

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