Hoarseness of Voice - Etiological Factors

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Abstract- *Hoarseness of voice also known as dysphonia is a symptom and not a disease. It is a general term that describes abnormal voice changes. When hoarse, the voice may sound breathy, raspy, strained, or there may be changes in volume (loudness) or pitch (how high or low the voice is). In a prospective randomized study, conducted in Otorhinolaryngology department in JLNM HOSPITAL, Srinagar. The study period was from june 2018 to february 2019.100 patients of hoarseness of voice irrespective of their age, sex and duration of disease .Bilateral lesion (64%) was predominated overall,the most common age group affected by change in voice was age group of 31-40 years, Male:Female ratio in our study was 1.6:1. Chronic laryngitis (58%) was the most common pathology followed by carcinoma larynx (14%) and neurological (10%). Habitual dyshponia resulting from vocal abuse and misuse was responsible for the hoarseness in majority of our patients. . Education about vocal hygiene and voice therapy is effective in improving the quality of voice in patients with hoarseness of voice.*

Keywords- Hoarseness, Voice, Flexible fibreoptic laryngoscopy, Vocal nodule, Vocal cord palsy, Laryngopharyngeal reflux disease

I. INTRODUCTION

Hoarseness of voice also known as dysphonia is a symptom and not a disease. It is a general term that describes abnormal voice changes. When hoarse, the voice may sound breathy, raspy, strained, or there may be changes in volume (loudness) or pitch (how high or low the voice is). The changes in sound are usually due to disorders related to the vocal folds, which are the sound- producing parts of the voice box (larynx). Long-term hoarseness, or hoarseness that persists over three weeks, especially when not associated with a cold or flu should be assessed by a medical doctor.The spectrum of etiological factors for hoarseness encom-passes infections, minor functional voice disorders to a major pathological condition such as malignancy. Habitual dyshponia resulting from vocal abuse and misuse was responsible for the hoarseness in majority of our patients.

Voice disorders can be divided into 2 broad categories: organic and functional.[1] The distinction between these broad classes stems from their cause, whereby organic dysphonia results from some sort of physiological change in one of the subsystems of speech (for voice, usually respiration, laryngeal anatomy, and/or other parts of the vocal tract are affected). Conversely, functional dysphonia refers to hoarseness resulting from vocal use (i.e. overuse/abuse).[2] Furthermore, according to ASHA, organic dysphonia can be subdivided into structural and neurogenic; neurogenic dysphonia is defined as impaired functioning of the vocal structure due to a neurological problem (in the central nervous system or peripheral nervous system); in contrast, structural dysphonia is defined as impaired functioning of the vocal mechanism that is caused by some sort of physical change (e.g. a lesion on the vocal folds).[2] Notably, an additional subcategory of functional dysphonia recognized by professionals is psychogenic dysphonia, which can be defined as a type of voice disorder that has no known cause and can be presumed to be a product of some sort of psychological stressors in one's environment.[2]

Located in the anterior portion of the neck is the larynx (also known as the voice box), a structure made up of several supporting cartilages and ligaments, which houses the vocal folds.[3] In normal voice production, exhaled air moves out of the lungs and passes upward through the vocal tract.[3] At the level of the larynx, the exhaled air causes the vocal folds to move toward the midline of the tract (a process called adduction). The adducted vocal folds do not close completely but instead remain partially open. The narrow opening between the folds is referred to as the glottis.[3][4] As air moves through the glottis, it causes a distortion of the air particles which sets the vocal folds into vibratory motion. It is this vibratory motion that produces phonation or voice.[4] In dysphonia, there is an impairment in the ability to produce an appropriate level of phonation. More specifically, it results from an impairment in vocal fold vibration or the nerve supply of the larynx.[4]

II. MATERIAL AND METHODS

In a prospective randomized study, conducted in Otorhinolaryngology department in JLNM HOSPITAL, Srinagar. The study period was from june 2018 to february 2019.100 patients of hoarseness of voice irrespective of their age, sex and duration of disease . Thorough history, clinical and ENT examination was done. Routine investigationsand the nasopharyngolaryn-goscopy (NPL) were carried out in all

of the patients. Other investigations like chest x-ray, X-ray of soft tissue neck as well as special investigations such as direct laryngoscopy, com-puted tomography (CT) scan and if needed direct or microlaryngoscopy followed by biopsy and histopathological examination (HPE) were performed to find out the etiological diagnosis of hoarseness when necessary.

III. RESULTS

In the present study of 100 cases 62 were males and 38 females with M:F ratio of 1.6:1 and age ranged from 9-85 years with majority of cases (28%) in 4thdecade of their life. All patients had history of hoarseness of voice with maximum number of patients (54%) having duration of disease between one month to one year.TABLE:1

TABLE:1 DURATION OF HOARSNESS

DURATION	PERCENTAGE OF PATIENTS
1day to 1week	32%
1week to 1month	14%
1month above	54%

Bilateral lesion (64%) was predominated overall, with left sided (20%) of larynx affected more as compared to right side (14%), while in 2% of cases (functional) no lateralization was seen due to obvious reason of non-organic nature.TABLE:2.

TABLE : 2 LATERALISATION OF LESION

BILATERAL	64%
RIGHT SIDE	14%
LEFT SIDE	20%
NON ORGANIC	2%

The etiological factors of hoarsness of voice are shown in table 3.

TABLE: 3 ETIOLOGICAL FACTORS OF HOARSNESS OF VOICE

ETIOLOGICAL FACTORS	PERCENTAGE OF PATIENTS(%)
INLAMMATORY	
ACUTE LARYNGITIS	8
CHRONIC LARYNGITIS	
CHRONIC SIMPLE LARYNGITIS	9
CHRONIC HYPERPLASTIC LARYNGITIS	6
VOCAL NODULE	10
VOCAL POLYP	18
ACID PEPTIC LARYNGITIS	8
REINKE'S EDEMA	4
CHR. LARYNGITIS OF CHILDHOOD	2
CHRONIC SPECIFIC LARYNGITIS	1
(TUBERCULOSIS)	
NEOPLASTIC	
CARCINOMA LARYNX	11
BENIGN LESION	3
VOCAL CORD PALSY	10
TRAUMA	3
SENILE	3
FUNCTIONAL	4

IV. DISCUSSION

Hoarseness is a symptom and not a disease. It is a general term that describes abnormal voice changes. When hoarse, the voice may sound breathy, raspy, strained, or there may be changes in volume (loudness) or pitch (how high or low the voice is). The changes in sound are usually due to disorders related to the vocal folds, which are the sound-producing parts of the voice box (larynx).

Hoarseness can affect people of all ages which are reflect-ed in this study as the age range was 9-89 years. Present study showed a male preponderance with a male to female ratio of 1.23:1 that is similar to the results of Nwaorgu et al. [5] and Pal et al. [6] This can be attributed to the fact that males indulge more in smoking, alcoholism, pollutant exposure and misuse of voice. In contrast, Brodnitz (1963) has documented an almost equal number for both sexes with a slight preponderance of males but the individual conditions exhibited marked difference.

In this study, the most common age group affected by change in voice was age group of 31-40 years, similar to the results of Batra et al. [8]. Banjara et al (2011) also mentioned age range to be 11-78 years in their study and majority of patients presented in 4th and 6th decades of life (22.31% each).This is in accordance with our study in which age of presentation ranged from 4-86 years with maximum cases in fourth decade of life, which is the period of most active life when man indulges in vocal abuse. Male:Female ratio in our study was 1.6:1. Khavasi and Prabhu, Kumar and Seth reported male:female ratio of 2:1.4 The gender differences can be attributed to the effect of hormones.

In the present study, chronic laryngitis (57%) was the most common pathology followed by carcinoma larynx (15%) and neurological (10%). Out of chronic laryngitis, vocal nodule (18%) was the most common pathology seen. Khavasi and Prabhu S(2005) mentioned the most common pathology as carcinoma larynx (40%) followed by chronic laryngitis (36.36%) while Baitha S (2004)documented chronic non specific laryngitis (43.63%) as the most pathology of hoarseness followed by acute laryngitis (23.63%),carcinoma larynx (14.54%), vocal cord palsy (9.09%) and tubercular laryngitis (5.45%). Banjara et al (2011) mentioned functional lesions (16.33%) to be most common etiology followed by vocal nodule (11.95%), vocal palsy (11.16%), cancer and chronic laryngitis (9.56%each). In our study incidence of carcinoma larynx was 15% and all were squamous cell carcinoma. Ghosh et at (2001) reported a bit lower incidence of carcinoma larynx in 8% but all were squamous cell carcinoma. In our study, idiopathic recurrent laryngeal palsy (60%) was the most common cause of vocal cord palsy followed by malignancy lung (20%) and post thyroidectomy (20%) while Fitzpatric and Miller (1998) mentioned a dramatic reduction in the incidence of vocal cord palsy due to thyroid surgery from one third cases to less than 5%.

V. CONCLUSION

In present study chronic laryngitis (vocal nodule was most common),followed by carcinoma larynx and vocal cord palsy .Vocal abuse was the most common predisposing factor for vocal nodule and vocal polyp. Smoking and tobacco chewing was the predisposing factor for carcinoma larynx.Other etiological factors for hoarseness encom-passes infections, minor functional voice disorders to a major pathological condition such as malignancy. Habitual dyshponia resulting from vocal abuse and misuse was responsible for the hoarseness in majority of our patients. . Education about vocal hygiene and voice therapy is effective in improving the quality of voice in patients with hoarseness of voice

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