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A STUDY OF THE ETIOPATHOGENESIS OF HOARSENESS OF VOICE: OUR EXPERIENCE

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KEYWORDS: Hoarse voice, Organic voice disorders, Nonorganic voice disorders, Vocal professionals

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ABSTRACT

Hoarseness of voice is one of the commonest symptoms in otolaryngological practice and it indicates diseases ranging from totally benign condition to the most malignant condition. This is a study to know the etiology, predisposing factor, and clinical profile of patients having hoarseness of voice. The study was carried out in the department of ENT, Muzaffarnagar medical college (UP). Patients coming to our OPD were selected. All the patients then underwent detailed history and routine investigations. Nasoendoscopy was done to reach to a diagnosis. A total of 100 patients having hoarseness of voice were analyzed. Upper respiratory tract infection (24 %) and smoking (33 %) were found to be the common predisposing factors. Functional disorders were found in 14 % of the cases.

Introduction

Hoarseness is a coarse; scratchy sound most often associated with abnormalities of the vibratory margins of the vocal folds, in condition like laryngitis, vocal fold hemorrhage, mucosal disruption, mass lesions and carcinoma [1]. Hoarseness lasting longer than 2 weeks must be evaluated completely [2]. Hoarseness of voice is one of the commonest symptoms in otolaryngological practice and it indicates diseases ranging from totally benign condition to the most malignant condition. Benign lesions are numerically more common causes of hoarseness than malignant diseases [3]. To listen the spoken voice is the only way to identify hoarseness.

It is often the first and only signal of serious local or systemic disease [4].

Aims and Objectives

The study was aimed to study the etiopathological profile and associated symptoms of hoarseness of voice. To find out association of common predisposing factors leading to hoarseness.

Materials and Methods

The study on Nasoendoscopy of voice disorders was carried out in department of ENT and Head & Neck surgery after routine examination, at our institute during the year 2016–2017. All patients with voice disorder coming to our OPD, Department of E.N.T in our institute were evaluated by Nasoendoscopy. All patients underwent complete preliminary work-up, including detailed otorhinolaryngologic examination. Routine investigations like complete blood counts, fasting and postprandial blood sugar, Urine albumin and sugar were carried out. X-ray chest- PA view and X-ray soft tissue neck- AP and lateral view, histopathological examination of suspected malignancies were done whenever required.

Observations and Results

Among 100 cases, 60 (60 %) were males and 40 (40 %) were females. Age ranged between 12 and 82 years. Male predominance was observed with male to female ratio of 1.50:1. Majority of patients presented in 4th (24 %) and 6thdecades (21 %) of life followed by 3rd decade (18 %).

Male patients showed higher percentage (28.33 %) in 51–60 years age group while female patients showed higher percentage (35.00 %) in 31–40 years age group. Largest group of patients were labourer/farmer (33 %), housewives (30 %), private job/businessman (15 %), student (10 %), teacher (9 %), singer (3 %). Vocal professionals were categorized according to classification by Koufman and Isaacson [5]. Level I or the elite vocal performers (singers)-3 (3 %), Level II or the professional voice users (businessmen)-15 (15 %), Level III or nonvocal professionals (teachers)-9 (9 %), Level IV or nonvocal nonprofessionals (labourer, housewives, students)-73 (73 %). Smoking and upper respiratory infections (URI) were the common predisposing factors in 33 and 24 % cases of hoarseness respectively. Other factors in descending order were alcohol (22 %), tobacco chewing (22 %), vocal abuse (17 %), endotracheal tube intubation (10 %), thyroidectomy (8 %) and trauma to neck (2 %). In more than one-fifth (21 %) no predisposing factor was found. We found 76 % patients had single risk factor, 20 % had two and 4 % patients had multiple predisposing factors. We found total of 178 complaints from 100 patients. Few patients had two or more than two complaints at the time of examination. Change in voice was the commonest presenting symptom in 92 cases (92 %). Other complaints included vocal fatigue (10 %) and two cases had aphonia. Other associated symptoms were dysphagia in 8 cases (8 %), foreign body sensation/irritation in throat in 25 cases (25 %), neck swelling/secondaries in 10 cases (10 %) and breathiness in 23 cases (23 %). 2 cases (2 %) were of laryngeal trauma. Duration of hoarseness ranged from 1 day to more than 4 years. Most of the presenting complaints were having duration of 3 months(57.86 %), 3–6 months (24.29 %) and 6–12 months (10.67 %) and 7.30 % complaints were having duration of more than 1 year.

Etiology and Predisposing Factors of Hoarseness of Voice

In this study 10 % cases of vocal cord polyps were responsible for hoarseness of voice with M: F ratio 4:1.Vocal abuse (40 %) was the most common predisposing factor. Other predisposing factors are alcohol/tobacco chewing (40 %) and smoking (30 %). Our study showed 4% cases of vocal nodules were responsible for hoarseness of voice with M: F ratio 1:1 and vocal abuse (100 %) was present in all 4 cases. 11 % cases of acute laryngitis and 6 % cases of chronic laryngitis were responsible for hoarseness of voice with male to female ratio (1:1.4) and URI (88.23 %) was the common predisposing factor for acute laryngitis. Malignancies of larynx/ laryngopharynx comprised of 15 % of cases of hoarseness of voice found most commonly in 6th and 7th decade of life (62.5 %) with patients having malignancy as glottic carcinoma (8 %), supraglottic carcinoma (5 %), subglottic carcinoma (1 %), postcricoid carcinoma (1 %). All patients having malignancy were male and smoking (43.75 %), alcohol/tobacco chewing (75 %) was the predisposing factor found. 33 % cases of vocal cord paralysis were responsible for hoarseness of voice

of which male predominance was seen with male to female ratio as 1.2:1. Among all vocal cord paralysis left sided (60.60 %) vocal cord palsy was more common than right sided (27.27 %) and ratio was (2.2:1). Bilateral vocal cord palsy was seen in 4 (12.12 %) patients. Malignancy constituted 12 patients (36.36 %), Idiopathic12 patients (36.36 %), traumatic 1 patient (3.03 %) and thyroidectomy included 8 (24.24 %) were responsible for vocal cord paralysis. Out of 29 unilateral vocal cord palsy patients only 6 (20.68 %) patients had their positive X-ray findings i.e. either mass in lung/ bronchus, chronic bronchitis and 1 patient was found to have upper 1/3rd esophageal malignancy. Among the 100 patients, only 2 (female) patients (2 %) were of cricoarytenoid joint ankylosis as the cause for hoarseness of voice of which one patient had history of trauma to neck & no cause was found in other case. In present study, functional voice disorders (14 %) i.e. patients having a normal vocal fold morphology and movement were found to have change in voice, which included spasmodic dysphonia (4 %), puberphonia (3 %), functional aphonia (2 %), and ventricular dysphonia (1 %).

Discussion

In our study, majority of patients were seen in age group of 31–40 years (24 %) and 51–60 years (21 %) followed by 3rd decade (18 %). Baitha et al. [6] also found majority of patients (28.18 %) in the age group of 31–40 years. Hansa et al. [7] stated majority (22.31 %) group fall between the ages of 31–40 years. All these findings were similar to our study. Herrington-Hall et al. [8] stated that taking the variable of age into account, it is clear that laryngeal pathologies occur most frequently in the older age group because carcinoma and vocal fold paralysis being the most commonly found cause of vocal dysfunction in the elderly. Females presented with laryngeal pathologies at a slightly younger age. Majority of males (28.33 %) presented in age group 51–60 years whereas majority of female (57.50 %) presented in 21–40 years age group. A M:F ratio of 1.50:1 with male predominance was observed in this study. Male to female ratio in Baitha et al. [6], Mehta [9], Parikh [3], Deshmukh [10] with 2:1, 1.8:1, 2:1 and 1.5:1 respectively. In our study, labourer/farmer comprised majority of cases (33 %) followed by 30 % of housewives. In females majority of cases were housewives (30 %). Ghosh et al. [11] found majority of patients (29 %) were housewives. Largest group of patients (36.36 %) were labourer followed by housewives (21.81 %) in another study [6]. The high incidence (33 %) of hoarseness among labourers in our study may be explained by the fact that our hospital being rural based caters mostly to the village population comprising mostly of farm labourers. In present study, according to this classification, we found 3 % elite vocal performers, 15 % professional voice users, 9 % nonvocal professionals and 73 % nonvocal/nonprofessionals. Batra et al. [12] found 52.9 % of patients in level IV of vocal usage, i.e. the distribution in the remaining three levels were equal to 15.7 % each. Hansa et al. [7] found 1.59 % elite vocal performers, 3.59 % professional voice users, 9.56 % nonvocal professionals and 85.26 % nonvocal/nonprofessionals. Koufman and Isaacson [5] evolved a classification of vocal professionals based on their voice use and risk. Level I (elite vocal performers): Included sophisticated voice users like the singers and actors, where even a slight vocal difficulty causes serious consequences to them and their careers. Level II (professional voice users): For whom moderate vocal difficulty would hamper adequate job performance. Clergymen, lecturers, teachers, politicians, public speakers, and telephone operators would classify in this level of voice users. Level III (nonvocal professionals): It includes teachers and lawyers. They can perform their jobs with slight or moderate voice problems; only severe dysphonia endangers adequate job performance. Level IV (nonvocal/nonprofessionals): which include labourers, homemakers and clerk. These are the persons who are not impeded from doing their work when they experience any kind of dysphonia. Present study included the most of the patients with change in voice (92 %) along with vocal fatigue (10 %) and aphonia (2 %). Hansa et al. [7] also mentioned the hoarseness as major complaint (95.61 %). According to other authors also hoarseness of voice is the major complaint. Mehta [9], Parikh [3] and Baitha et al. [6] have also done similar studies and noted that 100 % cases presented with hoarseness. Other associated symptoms were dyspnea (23 %), dysphagia (8 %), and foreign body sensation in throat (25 %). In our study, most of the presenting complaints were having duration of 3 months(57.86 %), 3–6 months (24.29 %) and 6–12 months (10.67 %) and 7.30 % complaints were having duration of more than1 year. Hansa et al. [7] found most of the presenting complaints (61.35 %) were seen with 3 months duration, 25.1 % with 3–6 months and 10.76 % with 6–12 months duration. 20.72 % complaints were of more than 1 year duration. Batra et al. [12] found 59 % patients within first 5 months of appearance of symptoms. Smoking in (33 %) cases was the commonest factor followed by URI (24 %), alcohol intake (22 %), chewing tobacco (22 %) and vocal abuse (17 %). In 21 % cases no predisposing factors were observed. In study by Hansa et al. [7] commonest habits noted was smoking in 108 cases (43 %) followed by vocal abuse (31 %), alcohol intake (29.48 %) and tobacco/ gutkha chewing (29.48 %). In another study smoking was noted in 25.45 % of cases, chewing tobacco preparation was noted in 17.27 % and alcohol in 12.72 % [6]. We have found lower incidence of vocal abuse (17 %) in our study. As per Hirschberg et al. [13] a rapid change in civilization, industrialization or due to profession, more and more individuals are stressed to use their voice to a greater extent. In the present study, out of 15 patients who had malignancy of larynx and laryngopharynx, 7 patients (43.75 %) had history of smoking (Bidi or cigarette) with or without chewing tobacco or tobacco preparation and alcohol (75 %). Baitha et al. [6] found it to be 87.5 %. In the present study we found 14 % cases of functional voice disorders with male to female ratio of 1:1 which included spasmodic dysphonia (4 %), puberphonia (3 %), functional aphonia (2 %) and ventricular dysphonia (1 %).In Hansa et al. [7] found functional voice disorders (16.33 %) comprised the largest group, associated with normal vocal fold morphology and movement which was similar to our findings. Here only 4 % cases of vocal nodules with M:F ratio of 1:1 and vocal demand (100 %) was the common predisposing factor. Nodule was most common lesion found in 11.95 % cases in study by Hansa et al. [7] with M:F ratio 1:1.7. In another study incidence was found only 12.72 % with male to female ratio 1:1.3 [6]. We found (10 %) cases of vocal cord polyps are responsible for hoarseness of voice with M:F ratio 4:1. Vocal abuse (40 %) was the most common predisposing factor. Mehta [9] found 11.66 % cases, Parikh [3] found in 15 % cases and Hansa et al. [7] found 3.59 % cases of vocal cord polyp in their study. In our study 40 % patients gave the history of vocal abuse and 30 % gave the history of smoking. In this study 11 % cases of acute laryngitis and 6 % cases of chronic laryngitis are responsible for hoarseness of voice with M:F ratio (1:1.4) and URI (88.23 %) was the common predisposing factor. In two studies, Mehta [9] and Parikh [3] found 10.83 and 9 % cases of acute laryngitis respectively. Hansa et al. [7], in his study found 9.56 % of chronic laryngitis and 4.38 % of acute laryngitis. Most of acute laryngitis are caused by colds so anything predisposing to cold, predisposes to acute laryngitis. Chronic laryngitis is more frequently found in patients suffering from chronic infections of upper or lower respiratory tract. Parikh [3] found 43 % patients having infection of upper respiratory tract. We have noted these causative factors in all 6 patients of chronic laryngitis in our series and consider them to be strong predispositions. In our study malignancy responsible for hoarseness of voice was found in 15 % of the cases. Ghosh [11] found 8 % cases of malignancy as causative factor for hoarseness of voice in his study whereas Mehta [9] and Parikh [3] found it to be 7.50 and 12 % respectively. In our study we found 29 (87.87 %) as unilateral and 4 (12.12 %) as bilateral vocal cord paralysis presenting as hoarseness of voice. According to Mehta [9] and Parikh [3] incidence of vocal cord paralysis was 9.16 and 3 % respectively. Hansa et al. [7] found 13.55 % cases of vocal cord paralysis with M: F ratio of 2.5:1. We observed left vocal cord paralysis (60.60 %) more often than right (27.27 %) in the ratio of 2.2:1. Malignancy (36.36 %) and idiopathic (36.36 %) were the commonest causes for vocal cord paralysis. Left vocal cord was commonly involved (63.6 %) and neoplasm was the commonest causes of vocal cord paralysis as per Mehta [9]. This is attributed to the longer course of the left recurrent laryngeal nerve.

Summary and Conclusion

The incidence of hoarseness of voice showed male to female ratio as

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1.50:1. Labourer was the largest group (33 %) of patients with hoarseness of voice. Around 73 % were nonvocal nonprofessionals according to Koufman and Isaacson classification. Vocal cord paralysis comprised the largest group (33 %) followed by functional voice disorder (14 %). Smoking (33 %) was the commonest predisposing factor for hoarseness of voice followed by URI (24 %) alcohol/tobacco chewing (22 %), vocal abuse (17 %) cases. Hoarseness of voice is just a symptom with a very diverse etiology. The etiological data varies in different geographical location and from one center to other, so every case should be carefully and thoroughly evaluated to know the diagnosis and underlying pathology for early and prompt management. Patients with persistent dysphonia despite normal or equivocal indirect laryngoscopic findings and patients with vocal fold paralysis and/or bowing seem to be better evaluated from Nasoendoscopy.

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