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Clinical evaluation of disorders of voice

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ABSTRACT

Background: Disorders of the voice commonly affect the quality of life of the person. The objective of the study was to find out the incidence and features of disorders of vocal cords presented in the OPD with hoarseness of voice.
Methods: A study comprising of 45 cases of hoarseness of voice is carried out in the department of otorhinolaryngology in SNMC Bagalkot between January 2018 to June 2019 to evaluate the disorders of change in voice. A total of 45 patients came to OPD and indirect laryngoscopy was done to the patient and confirmed with flexible fibreoptic examination.
Results: Age of patients ranges between 8-75 years. There was a slight male predominance seen in the study. Housewives (29%) constitutes single largest group followed by farmers (22%), teachers and labourers. Duration ranges from 6 days to 15 years with 64% patients present with more than 3 months of duration. Voice abuse constitutes single largest precipitating factors followed by tobacco and smoking along with gastrolaryngeal reflex. 78% have single habits and 22% have multiple habits.
Conclusions: Maximum no of patients were of infectious group followed by benign lesions and laryngeal palsy.

Keywords: Voice abuse, Laryngeal palsy, Indirect laryngoscopy, Gastrolaryngeal reflex

INTRODUCTION

Voice is the primary means of communication for humans. An alteration in the voice is called hoarseness. More specifically, hoarseness is defined as an altered vocal quality, pitch, loudness, or vocal effort, that impairs communication or reduces voice-related quality of life.[1]

"Hoarseness is a symptom of utmost significance and calls for a separate consideration as a subject because of the frequency of its occurrence as a distant signal of malignancy and other conditions.[2]

Fiberoptic imaging was initially developed to visualize inaccessible regions of the body.[3] Current fiberoptic nasopharyngolaryngoscopes are lighted, are flexible with 2-way articulation, provide high resolution photo and video capabilities, and can have a distal diameter as small as 2 mm^2.[4]

There are variety of lesions of the vocal fold that result in hoarseness. Some of the more common lesions are vocal fold polyps, nodules, cysts, granulomas, polypoidal corditis (Reinke's edema), glottic sulcus, carcinoma, and papillomatosis. Indirect laryngoscopy (IDL) examination thus serves as a screening tool to plan further work up for a patient presenting with hoarseness. One notable limitation of simple indirect laryngoscopy is that the examination does not yield a recordable and reproducible image of the larynx and vocal tract. More importantly, the unaided human eye is unable to visualize the vibratory patterns of the true vocal folds during phonation.

Objectives

The objective of the study was to find out the incidence and features of disorders of vocal cords presented in the OPD with hoarseness of voice.

METHODS

The present case series study comprising of 45 cases of change of voice was carried out in the department of Otolaryngology, SNMC AND HSK Hospital Bagalkot, Karnataka between January 2018 and June 2019. Detailed history was taken and all patients were examined with stress given on IDL examination and findings confirmed by FFL.

Inclusion criteria

All patients with complaints of change in the voice, willing for clinical examination and fiberoptic laryngoscopy were included.

Exclusion criteria

Children below eight years were excluded from the study.

Procedure

Detailed history of change in voice was taken and all patients were examined with stress given on IDL examination and findings were confirmed by flexible fiberoptic laryngoscopy.

Statistical analysis

Data will be analyzed statistically by percentages, other statistical tests when applicable shall be applied.

RESULTS

Majority of the patients were seen in the age group of 20-60 years (78%) and most commonly in the 5th decade of life (22%) age of patient range from 8-75 years (Table 1).

Table 1: Age distribution.

Age in yrs	Frequency	Percentage
≤20	4	8.9
21-30	8	17.8
31-40	8	17.8
41-50	9	20.0
51-60	10	22.2
>60	6	13.3
Total	45	100.0

Male predominance was observed with male:female ratio 1.1:1 (Table 2).

Housewives constituted single largest group of patients (29%), followed by farmers (22%), labourer (13%), students (11%) and teachers (11%). 12% of patients include clerk, driver, engineer and service (Table 3).

Table 2: Sex distribution.

Gender	Frequency	Percentage
Male	24	53.3
Female	21	46.7
Total	45	100.0

Table 3: Occupation distribution.

Occupation	Frequency	Percentage
Housewife	13	28.9
Farmer	10	22.2
Student	5	11.1
Teacher	5	11.1
Labourer	6	13.3
Clerk	2	4.4
Driver	2	4.4
Engineer	1	2.2
Service	1	2.2
Total	45	100.0

Table 4: Duration of change in voice.

Duration (in years)	Frequency	Percentage
<1	39	86.7
≥1	6	13.3
Total	45	100.0

It was recorded in days and months. Duration ranges from 6 days to 15 years. 64% patients more than 3 months duration (Table 4).

Table 5: Precipitating factors.

Precipitating factors	Frequency	Percentage
Alcohol	5	11.1
Smoking	6	13.3
Tobacco and betel nut	10	22.2
Gastrolaryngoreflex	6	13.3
Voice abuse	12	26.7
No bad habits	19	42.2

35 patients (78%) have single habit. 10 patients (22%) have multiple habits. Voice abuse (27%) constitutes maximum followed by tobacco+betelnut (22%), smoking (13%), gastrolaryn-goreflux (13%) and alcohol (11%). 42% patients have no bad habits.

Maximum number patients (13) of voice change are seen in infectious group (29%) followed by 12, 8, 4, 3, 2 in benign lesions (27%), laryngeal paralysis (18%), functional diseases (9%), malignant lesions (7%),

phonesthesia phonatory gap (4%) respectively. 1 patient each of inflammatory, traumatic and neurological cause constitutes 2% each.

Table 6: Diagnosis of disease.

Diagnosis	Frequency	Percentage
Infectious	13	28.9
Inflammatory	1	2.2
Traumatic	1	2.2
Benign lesions	12	26.7
Malignant lesions	3	6.7
Neurological cause	1	2.2
Functional disease	4	8.9
Laryngeal paralysis	8	17.8
Phonesthesia phonatory gap	2	4.4
Total	45	100.0

DISCUSSION

The incidence of change of voice is most prevalent (78%) in our study (20-60 years) and most commonly in the 5th decade of life (22%). Raizada et al reported 61.8% of their patients in the age group between 21-50 years and patients in 4th decade (28.18%) constituted the single largest group.[3] Other studies by Deshmukh and Mehta also reported the incidence in the age group of 20-50 years to be 63.1% and 67.2% respectively.[5,6]

A male to female ratio of 1.1:1 was observed in our study. Ghosh et al also reported a male: female ratio of 1.2:1.[7] This was also in confirmation to other studies. Housewives and farmers constitutes single largest group of patients (51%) in our study and students and teachers (22%). Housewives constitutes largest group (22%) in the study by Raizada et al, 30% in Saha et al, 29% in Ghosh et al.[1,3,7]

Duration of change of voice range from 6 days to 15 years.64% patients seen in more than 3 months duration. In the study by Raizada et al, duration ranged from 1 day to 5 years and 50% had duration in months.[3] In the study of benign laryngeal lesions by Hegde et al duration ranged from 1 month to 2 years and mean duration was around 3 months.[8] Cigarette / bidi smoking (1997) has mentioned inhaled irritant especially cigarette smoke as most important predisposing factor for hoarseness. Smoking was noted in 13.3% was noted in our study, whereas Parikh has found it in 20% patients.[2]

Acute laryngitis

A total of 5 patients (11.11%) presented with acute laryngitis. The duration of symptoms varied from 10-30 days. Predisposing factors were present in most of the patients. In Mehta et al study (10.83%) and in Parikh et al (9%) patients presented with acute laryngitis.[2,6]

Chronic laryngitis

Comprised of a small group of 7 patients out of which 7 cases, 6 were males and 1 was female. The duration of hoarseness varied from 3 months to 2 years. Age ranged from 16-61 yrs while in Raizada et al it is 2nd & 4th decade.[3] In our study we found that chronic laryngitis is male predominance disease, 13.33% and 2.22% male female respectively. Kataria et al also found male to female predominance 15.15%, and 5.0% respectively.[9] Parikh and Raizada also seen the 7% and 24% cases of chronic laryngitis respectively.[2,3]

Vocal cord nodule

Comprised of a small group of 9 patients out of which 9 cases, 6 were females and 3 were teachers. The duration of hoarseness varied from 5 months to 2 years.7 patients had bilateral nodules.

Parikh reported nodules as the most common finding among patients with chronic laryngitis and they were bilateral in 91% of cases.[2] Vocal nodules were reported in 12.72% patients and ratio of M:F=1:1.3 by Raizada et al and were bilateral in 100%.[3] Mehta also reported bilateral vocal cord nodules in 100% cases.[6]

Vocal cord polyp

The duration of symptom varied from 3-4 months. History of voice abuse was seen in 1 case. Both cases were localized to either vocal cord (1 right and 1 left). Parikh et al and Mehta et al have reported vocal cord polyp to be more common on the right vocal cord (72.67% and 64% cases respectively).[2,6] The anterior half of the membranous part of vocal cord was the site of lesion in all cases. Both cases were males.

Kambic et al analysed the most frequent factors responsible for the formation of vocal polyp such as vocal abuse and unfavourable microclimate during work.[10] They concluded that gender doesn't play a role and the histologic structure is not related to time factor. In our study we found 4.44% cases of vocal polyp as compared with Kataria et al, Raizada and Gurumani found 5.0%, 4.54% and 3.5% respectively in their studied.[3,9,11]

Dysphonia plica ventricularis

We have seen 3 (6.66%) patients of DPV in 45 cases of change of voice in our study, 2 female and one male while in Raizada et al ratio is inverse, age ranges from 50-70 yrs while in Raizada et al it is 7th decade, Raizada et al they found 3 cases (2.72%).[3]

Tubercular laryngitis

We found one case of TB laryngitis (2.22%) in our study he was young male driver by occupation, duration of

symptoms 4 month and tobacco was predisposing factor noted. Raizada et al also reported cases of TB 5.45% and 2.22% respectively.[3]

Vocal cord palsy

We had 8 cases of VC palsy. The duration of hoarseness ranged from 6 days to 2 years. Total 8 cases of unilateral palsy were there.6 were on the left side and 2 on right side.4 male and 4 female patients.

In the present study vocal cord palsy is found in 17.7% patients. Raizada et al has 9.09%, Soni et al has 12.22%.[3,12] Kataria et al has 11.11%.[9]

Trauma

In this study only 1 patient presented with change in voice with duration of 2 years. History of intubation was present. 2.22% of patient it constitutes. In Kataria et al study, it constitutes 2.78% and 1.81% in Raizada et al.[3,9]

Others

Other lesions include essential tremor of larynx, adult puberphonia, phonesthesia phonatory gap, supraglottic growth, exophytic growths, intraarytenoid granuloma.

The patient with Essential tremor was a female aged 25 years and change in voice was since 8 months. She was housewife with no predisposing factors. The patient with adult puberphonia was a 25 year female and change in voice was since 15 years with no predisposing factors working as clerk, 2 patients presented with phonesthesia phonatory gap. 1 male patient of age 50 years presented with 6 months duration of change in voice with no predisposing factors, farmer as occupation and a 55 year female housewife presented with 5 months duration of change in voice with no predisposing factors.1 male worker patient presented with intraarytenoid granuloma with a 2 years duration with predisposing factors like alcohol, tobacco, smoking.

CONCLUSION

We conclude that the incidence of hoarseness is most prevalent in the housewives (20-60 years). Male predominance was observed with male:female ratio 1.2:1. Housewives and farmers constituted single largest group of patients (51%). Aetiologically, infectious cause (29%) as a group outnumbered the other causes followed by benign lesions (27%) and laryngeal palsy (18%), but as a single entity vocal nodule accounted for maximum cases (20%). Voice abuse (27%) constitutes maximum for predisposing factors followed by tobacco and smoking. An IDL mirror comes handy in evaluating hoarseness and the yield depends on the determination and expertise of the examiner. Most of the causes for “inability to perform IDL examination” were overcome by repeated attempts, counselling and reassuring the patient or the use of topical anaesthesia. The sophisticated advances are no substitute to skilfully performed IDL examination which is to be acquired by all postgraduates. All patients underwent FFL to confirm the IDL findings.

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