



Clinical study of aetiopathogenesis of hoarseness of voice in a tertiary care hospital in South India

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ABSTRACT Hoarseness of voice is a symptom with a very diverse etiology. The etiological data varies in different geographical locations and from one centre to other, so every case should be carefully and thoroughly evaluated to know the diagnosis and underlying pathology for early and prompt management. In the present study incidence of hoarseness of voice was 0.3% out of the total cases attending the Department of ENT during the period of October 2014 - June 2016. Maximum number of cases (27.14%) were in the age group of 41-50 years, among males common age groups was 41-50 years (25%) and among females 31- 40 years of age group (36.35%). Hoarseness was commonly found in labourer class (48.57%). Both among males and females this was commonest group comprising 52.08% and 40.90% respectively. Lower socio economic group was commonly noted among many patients (48.57%) and also both in males (50.00%) and females (45.45%). Majority of the patients were from rural areas (64.29%). Smoking was the commonly encountered habit among males (79.17%) and vocal abuse (50%) among females. Along with hoarseness (100%) the other symptoms with which patient presented were dysphagia (27.14%), cough (42.86%), breathlessness (15.71%), foreign body sensation in throat (14.29%), neck mass (7.14%) and haemoptysis (4.29%). Maximum number of patients presented with hoarseness of voice with duration of 1-3 months and 3-6 months. On indirect laryngoscopic examination commonest finding was laryngeal growth (40%). Direct laryngoscopic examination was done in 32.86% and microlaryngoscopic examination in 17.14% and sputum for acid fast bacilli in 5.77%. Among 34 histopathological studies, commonest finding was squamous cell carcinoma (82.35%). Among the 61 treated cases, 47.54% showed improvement of voice, 45.90% showed worsening and 9.83% showed no change in voice after treatment. Our conclusions are, middle aged and elderly patients presenting with hoarseness of voice of more than two-week duration along with habits of smoking, alcohol consumption and chewing tobacco preparations, malignancy must be ruled out. Appropriate treatment after proper diagnosis is the key to treatment and if regularly followed up, the voice of the patient can be restored to almost normal.

KEYWORDS : Hoarseness of voice, indirect laryngoscopy, laryngeal malignancy

INTRODUCTION

“Speech is civilization itself, the word even the most contradictory word, preserves the contact, it is silence that isolates”.

- Thomas Mann

Voice is the natural medium well adapted to communicate emotional contact, whereas speech is a cultural medium that is suitable to convey intellectual contact. Although rarely life threatening, voice problems cause tremendous alteration in daily living and should not be underestimated as a medical disorder.

Voice disorder can have a significant influence on vocational, social and the emotional adjustment of patients. Physicians, particularly otorhinolaryngologists, usually are the first to be approached when the voice sounds abnormal. Hoarseness of voice is one of the commonest symptoms in otolaryngological practice and is invariably the earlier manifestation of a large variety of conditions directly or indirectly affecting the voice apparatus. The disease ranges from totally benign to the most malignant and therefore a varying degree of significance is attached to this.

The objectives of the present study were:

1. To find out common etiology of hoarseness of voice.
2. To study management of hoarseness of voice.
3. To know prevalence of hoarseness of voice.
4. To know most common risk factors associated with hoarseness of voice.

Evaluation of a patient with hoarseness of voice is a multidisciplinary approach, which involves- otolaryngologists, speech pathologists, speech therapists, neurologists etc., which provide proper diagnosis

and management, where as voice laboratory provide functional diagnosis. Past surgical history and occupational history are recorded. Vocal abuse laryngeal examination is done to note the quality of voice. Indirect laryngoscopy (IDL), trans-nasal flexible laryngoscopy, rigid televideoscopy, direct laryngoscopy, microlaryngoscopy (MLS) and video stroboscopy are to be performed. Objective tests include electroglottography, photoglottography, electromyography, recording voice sample and acoustic analysis.

METHODOLOGY

The present study was carried out in Department of Otorhinolaryngology & Head & Neck Surgery, ASRAM Medical College, Eluru during October 2014 to June 2016. Patients attending our Otorhinolaryngology Department of ASRAM Medical College, Eluru and also patients referred from other departments in the hospital were the study population. A total of 70 cases were studied during this period.

Inclusion criteria

Patients presenting with hoarseness of voice of ≥ 2 weeks duration were included in the present study.

Exclusion Criteria

1. Patients presenting with hoarseness of voice < 2 weeks of duration.
2. Voice disorders other than hoarseness like rhinolalia aperta, rhinolalia clausa etc were excluded from the study.

Methods of data collection

A proforma was designed based on objective of the study. It was pretested and used after modification. As per enclosed proforma,

detailed history was taken and followed by thorough ENT and systemic examination. A clinical diagnosis was arrived at with the help of relevant investigations

Management

Management of the cases was based on the aetiology of hoarseness of voice. Medical treatment, including medications like antibiotics, anti-inflammatory drugs, analgesics, mucolytic drugs, etc, steam inhalation, voice rest, speech therapy, prescribed for conditions like chronic laryngitis and early vocal nodules. Patients with lesion like polyp underwent suspension microlaryngoscopic surgery followed by voice rest and speech therapy. Patients with vocal cord palsy had good compensation hence no treatment was given. Patients with malignancy were referred for radiotherapy as most of the cases were in advanced stages. Patients were followed up regularly for three months.

RESULTS:

A total of 70 cases were studied.

Incidence

A total of 19,227 cases attended Otorhinolaryngology outpatient department during the study period. Out of these 19227 cases, 70 presented with hoarseness of voice. Thus the incidence is 0.36% of all cases. Table 1 shows the age and sex distribution of the cases. Table 2 and chart 1 show the socio-economic status of the cases with hoarseness of voice. Table 3 and chart 2 show the clinical presentation of the cases. Table 4 and chart 3 show the personal habits of the cases with hoarseness of voice. Table 5 and chart 4 show the duration of hoarseness of voice for the cases. Table 6 and chart 5 show the aetiology of the hoarseness of voice for the cases. Table 7 shows the management of the cases.

Table: 1 Age and Sex Distribution

Age in Years	Total		Male		Female	
	No	%	No	%	No	%
< 10 yrs	1	1.43	0	0	1	4.55
11-20	6	8.57	3	6.25	3	13.64
21-30	6	8.57	5	10.42	1	4.55
31-40	13	18.57	5	10.42	8	35.35
41-50	19	27.14	12	25	7	31.81
51-60	12	17.14	11	22.91	1	4.55
61-70	10	14.29	10	20.83	0	0
≥71	3	4.29	2	4.17	1	4.55
Total	70	100.00	48	100.00	22	100.00

Table 2: Socio economic status

Socio economic status	Male		Female		Total	
	No .	%	No.	%	No.	%
Upper	1	2.08	1	4.55	2	2.86
Upper middle	3	6.25	2	9.09	5	7.15
Lower middle	9	18.75	2	9.09	11	15.71
Upper lower	11	22.92	7	31.82	18	25.71
Lower	24	50	10	45.45	34	48.57
Total	48	100	22	100	70	100

Chart 1: Socio-Economic status

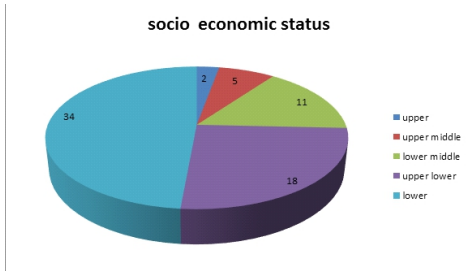


Table 3: Clinical Presentation of patients with hoarseness of voice

Symptoms	Numbers (n=70)	Percentage (%)
Hoarseness	70	100
Cough	30	42.86
Dysphagia	19	27.14
Breathlessness	11	15.71

Foreign body sensation	10	14.29
Neck swelling	5	7.14
Hemoptysis	3	4.29

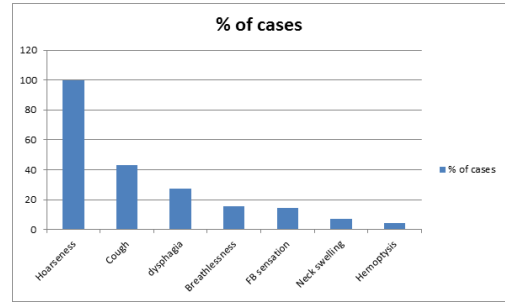


Table 4: Personal habits of the cases with hoarseness of voice

Habits	Male (n=48)		Female (n=22)		Total (n=70)	
	No.	%	No.	%	No.	%
Smoking	38	79.17	-	-	38	54.29
Tobacco Preparations (gutka/beetle nut with pan)	19	39.58	2	9.09	21	30
Alcohol	20	41.67	-	-	20	28.57
Vocal abuse	5	10.42	11	50	16	22.86
No habit	6	12.5	11	50	17	24.28

Chart 3: Personal habits of patients with hoarseness of voice

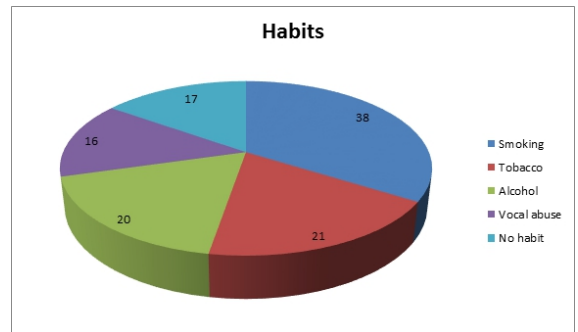


Table 5: Duration of hoarseness of voice

Duration	Cases	Percentage
< 1 month	1	1.43
1-3 months	20	28.57
3-6 months	20	28.57
6-9 months	12	17.14
9-12 months	1	1.43
≥12 months	16	22.86
Total	70	100.00

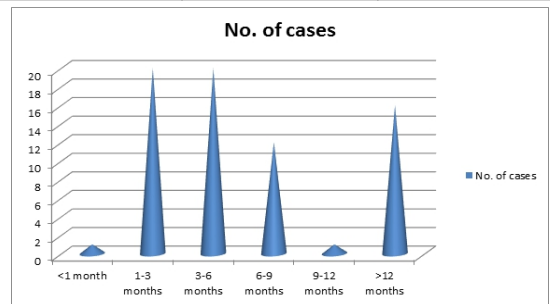


Table 6: Aetiology of hoarseness of voice

Aetiology	Male		Female		Total	
	No.	%	No.	%	No.	%
Laryngeal malignancy	26	54.18	2	9.09	28	40
Chronic non specific laryngitis	8	16.67	8	36.36	16	22.86

Vocal cord palsy	4	8.33	5	22.73	9	12.86
Tuberculosis of larynx	4	8.33	-	-	4	5.71
Vocal cord nodules	2	4.17	4	18.18	6	8.57
Vocal cord papilloma	1	2.08	2	9.09	3	4.29
Vocal cord polyp	1	2.08	1	4.55	2	2.85
Vocal cord cyst	1	2.08	-	-	1	1.43
Laryngeal trauma	1	2.08	-	-	1	1.43
Total	48	100	22	100	70	100

Chart 5: Aetiology of hoarseness of voice

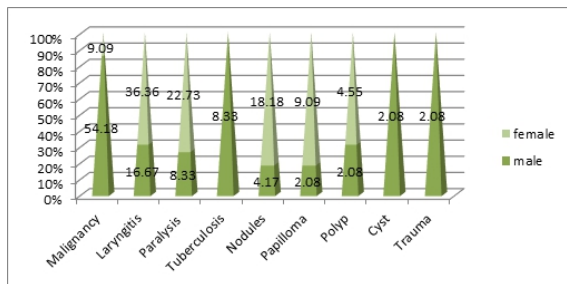


Table 7: Management of cases with hoarseness of voice

Causes	Medical		RT		MLS excision		No treatment		Total	
	No	%	No	%	No	%	No	%	No	%
Laryngeal malignancies	-		28	100					28	40
Chronic laryngitis	16	61.54							16	22.86
Vocal cord palsy							9	100	9	12.86
Vocal nodules	5	19.23			1	14.29			6	8.57
Laryngeal tuberculosis	4	15.38							4	5.71
Vocal cord papilloma					3	42.86			3	4.29
Vocal cord polyp					2	28.57			2	2.86
Vocal cord cyst					1	14.29			1	1.43
Trauma	1	3.85							1	1.43
Total	26	100	28	100	7	100	9	100	70	100

DISCUSSION

Hoarseness is a symptom, not a disease. It is one of the commonest symptoms and is invariably earliest manifestation of a large variety of conditions affecting voice apparatus. Its importance derives from the deplorable fact that though benign lesions are numerically more common cause than malignant diseases, opportunity for the cure has often been lost by delay under a benign diagnosis. Parik¹ mentions that it is strange that hoarseness as a subject has not attracted the attention of many workers. Hoarseness lasting longer than two weeks needs complete evaluation to rule out malignancy as a cause.

A total 70 cases of hoarseness of voice were studied during the period of October 2014 to June 2016. In our study period incidence of hoarseness voice was 0.36% while in a study by Sambu Baitha² incidence of hoarseness was 0.32%, which nearly coincides with our study.

Age and Sex

In our study age of patients with hoarseness of voice ranged from 8 yrs to 78 yrs with majority of the patients [19 cases (27.14%)] in the group of 41-50 years and minimum number of patients i.e. 1 case (1.43%) in the age of group of < 10 years. In a study by Sambu Baitha² majority of patients i.e. 31 cases (28.18%) were in the age group of 31-40 years. In a study by Swapan Ghosh³ maximum patients i.e. 28 cases (28%) were in the age group of 21-30 years.

In our study 48 cases (68.57%) were males and 22 cases (31.43%) were females, thus male to female ratio of approximately 2:1 was observed. This finding coincides with study by Sambu Baitha², where 74 male cases (67.27%) and 36 female cases (32.72%) were noted, in a study

by Kamana Sindhu Paul⁴ also there is a male predominance of 60 cases and females with 40 cases with ratio of 1.5:1 and also in study by Parik¹ where males presented 67% and females 33% with male to female ratio of 2:1. In some other studies, such as Deshmukh⁵ et al, Vrat⁶ et al and Mehta⁷ et al also showed male predominance. Herrington-Hall⁸ et al 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 are the most common cause of vocal dysfunction in the elderly. Females presented with laryngeal pathologies at a slightly younger age.

Almost in all the studies most common age group is the 4th decade (41-50 yrs) and next common group is the 3rd decade (31-40 yrs) whereas in the study by Swapan Ghosh³ is in variation with most common group between 21-30 years because most common group were house wives with small children. Regarding sex distribution, in all the studies males were commonly affected as males are associated with risk factors like smoking, alcohol intake, vocal abuse etc.

Occupation

As far as occupation is concerned in our study majority of patients i.e. 34 cases (48.57%) were of a labourer class and least i.e. 3 cases (4.29%) were in 'others' group. In a study by Sambu Baitha et al² the same observation was made i.e. majority of patients were of the labourer class (36.36%). In our study both among males and females of the labourer class predominated i.e. male 52.08% and female 40.90% and in females the next common group was that of housewives (27.28%) and least was of 'others' group. In study by Swapan Ghosh³ majority of the patients were house wives (29%).

According to Chopra and Kapoor⁹ only 5.97% patients presenting with benign glottic lesions (for microlaryngeal surgery) were farmers. The high incidence 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 of farm labourers.

OCCUPATION COMPARISION TABLE 1:

Study	Most common group	No. Of patients	% of patients
Our study	Labourers	34	48.57%
Sambu Baitha	Labourers	36	36.36%
Swapan Ghosh	House wives	29	29%
Kamana Sindhu Paul	Labourers	33	33%

Socio economic status

In our study, majority of patients i.e. 34 cases (48.57%) belonged to low socio economic status and also majority of patients among males, i.e. 24 cases (50%) and females i.e. 10 cases (45.45%) belong to lower socio-economic status.

Upper lower group was next common, 18 cases (25.71%), other groups with decreasing frequency were lower middle (15.71%), upper middle (7.15%) and upper (2.86%). In a study by Kamana sindhu Paul⁴ most of the cases are from lower class similar to our study.

Residence

In our study majority of patients i.e. 45 cases (64.29%) were from rural area and minimum cases, 25 cases (35.71%) were from urban area. Also in study by Sambu Baitha² patients were predominantly from rural areas comprising of 83 cases (75.5%), only 27 (24.5%) patients were from the urban area giving a rural : urban ratio of 3:1.

Mehta⁷ and Hirschberg et al¹⁰ have reported higher incidence of voice disorders among the urban population. However in our study hoarseness of voice was predominantly seen in rural inhabitants with rural : urban ratio of 1.8:1 as our hospital caters mostly to the rural population.

Koufman and Isaacson¹¹ 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.

Habits

Brock has mentioned inhaled irritants especially cigarette smoke as most important predisposing factors for hoarseness. In our study commonest habit noted was smoking i.e. 38 cases (54.3%) and vocal abuse (18.57%) was least common habit. In study by Swapan Ghosh³ vocal abuse was noted in 72% of cases, and in study by Sambu Baitha² smoking was noted in 25.45% of cases, chewing tobacco preparation was noted in 17.27% and Alcohol in 12.72%. Parik¹ has found it in 20% of cases only and vocal abuse was 56%. In our study among males 79.17% were smokers among females 50% had history of vocal abuse.

As a referral hospital, most of our cases were referred from local practitioners for further management and as said before being rural based most of the people are habituated to smoking, tobacco chewing and alcohol.

Clinical presentation

Hoarseness was noted in all the 70 cases (100%) and next common symptom was cough (42.86%), dysphagia in 19 cases (27.14%) other symptoms were breathlessness, (15.17%), foreign body sensation in 10 cases (14.29%).

In the study by Shah (1973) on patients with benign growths of larynx incidence of hoarseness was reported to be 93%. and the other symptoms were cough, painful swallowing, difficulty in swallowing, fever, lump in throat and respiratory distress.

Mehta⁷ and Parik¹ have also done similar studies and noted that 100% cases presented with hoarseness. As in our study the other associated symptoms like cough, dyspnoea, dysphagia, throat pain, weight loss etc. were noticed by Parik¹ also.

In study by Sambu Baitha² hoarseness was observed in all cases (100%) whereas the least common symptom was noisy respiration (0.99%).

In study by Kamana sindhu pal⁶ hoarseness of voice is the most common symptom seen in 92% of cases and the other symptoms were foreign body sensation (25%), breathiness (23%), vocal fatigue (10%), neck swelling (10%), dysphagia (8%), stridor (6%), aphonia is the least common seen in 2% cases.

Duration of hoarseness of voice

In our study, duration ranged from 3weeks to 5 years and maximum number of patients i.e. 20cases (28.57%) each presented during 1-3 months and 3- 6 months of duration of hoarseness, where as in study by Sambu Baitha 50% of patients had duration in months.

DURATION OF HOARSENESS : COMPARISION TABLE 2:

STUDY	DURATION	CASES	
		NO. OF CASES	% Of cases
Our study	1-3 months	20	28.57%
	3-6 months	20	28.57%
Kamana Sindhu pal	1-3 months	57	57%
Sambu Baitha	In months	55	50%
Hansa et al	With in 3 months		61.35%
Batra et al	With in 5 months		59%

Indirect laryngoscopic (IDL) examination

On indirect laryngoscopic examination (IDL) commonest finding was ulceroproliferative growth involving larynx and laryngopharynx, 28 cases (40%).

Vocal folds cyst and submucosal hemorrhage of vocal folds and false

cords were noted in 1.43%. In a study by Sambu Baitha², congestion of vocal cords noted in 34.54%, growth in only 9% of cases on IDL examination.

IDL FINDINGS COMPARISION TABLE 3:

STUDY	Most common finding	CASES	PERCENTAGE
OUR STUDY	Ulceroproliferative growth	28	40
Sambu Baitha	Congestion of cords	38	34.54
	Proliferative growth	9	8.18
Swapan Ghosh	Vocal cord nodule	30	30
	Vocal cord growth	8	8
Kamana Sindhu Paul	Vocal cord paralysis	33	33
	Vocal cord Carcinoma	15	15

In our study most common finding in IDL examination is ulceroproliferative growth as ours is a rural based hospital study with most common group of patients being labourers who are having habit of smoking which is the trigger factor for larynx growth and so is our finding. Swapan Ghosh³ et al did micro laryngoscopic study of benign lesions and so most common finding is the vocal nodule.

Investigations

While studying, 23 cases (32.86%) were subjected for direct laryngoscopic examination and 12 cases (17.14%) for microlaryngoscopic examination. In the study by Parik 60% of the patients underwent microlaryngoscopy, in study by Sambu Baitha² DLS/MLS was done in 40 cases (36.36%), Sputum for AFB was done in 4 cases (5.71%) in our study.

Chopra and Kapoor⁸ (1997) reported the incidence of benign glottic lesions undergoing microlaryngeal surgery in the age of 20 - 50 yrs. to be 73.14%.

INVESTIGATIONS: COMPARISION TABLE 4:

STUDY	INVESTIGATION	% OF CASES
OUR STUDY	DL Scopy Biopsy	32.86%(23)
	Micro laryngoscopy	17.14%(12)
Sambu Baitha	DLS/MLS	36.36%(40)
Kamana Sindhu Paul	Video Stroboscopy	100%
Parikh	MLS	60%

In our hospital we are not having the facility of stroboscopy.

Histopathology

In our study, biopsy was done in 34 cases (48.57%) and histopathological finding most commonly encountered was squamous cell carcinoma, in 28 cases (82.35%) and least common finding was subepithelial hyalinization, in 1 case (2.94%).

Parik¹ reported vocal cord nodule as the most common finding (50%) among patients with chronic laryngitis and the nodules were bilateral in 91% cases. In our series vocal cord nodules were seen in 12.72% patients and they were bilateral in all the cases (100%). Mehta (1985) also reported bilateral vocal cord nodule in 100% cases.⁷

HISTOPATHOLOGY COMPARISION TABLE 5:

STUDY	HPE done in cases	Most common finding	Cases
OUR STUDY	34	Squamous cell carcinoma	28 (82.35%)
Sambu Baitha	40	Squamous cell carcinoma	15 (37.15%)
Kamana Sindhu pal	36	Squamous cell carcinoma	15 (41.5%)
Swapan Ghosh	85	Vocal Nodule	30 (35.4%)

In our study there is a high incidence of carcinoma which might be because of high exposure to smoking.

Aetiology of hoarseness of voice

In our study commonest aetiology observed was, malignancy of larynx and laryngopharynx 28 cases (40%). Among males the commonest etiology was malignancy of larynx and laryngopharynx 26 cases (54.18%) and among females malignancy of larynx and

laryngopharynx was only 9.09% (2 cases). Among patients with malignancy males were common 26 cases (92.86%) and females 2 cases (7.14%) with male to female ratio as 13:1. In study by Sambu Baitha² incidence of malignancy was 14.54% with male to female ratio as 15:1.

In our study next common aetiology was chronic laryngitis in 16 cases (22.66%). Among females it was the common etiology in 8 cases, (36.36%). Male to female ratio was found to be 1:1 as 8 cases of males had chronic laryngitis. In both studies of Parikh and Sambu Baitha² chronic laryngitis was commonest aetiology comprising of 48% in each, whereas in study by Swapan Ghosh³, it was only 6%. The third common aetiology was vocal cord paralysis in 9 cases (12.86%). Among males the incidence was 8.33% (4 cases) and among female 22.73% (5 cases), with male to female ratio as 0.8:1. In study by Parik¹ and Sambu

Baitha², it was only 3% and 9% respectively, with male to female ratio in Sambu Baitha study was 9:1.

The fourth common aetiology was vocal cord nodules 6 cases (8.57%) with male to female ratio of 1:2. Among males 4.17% (2 cases) were affected and among females 18.18% (4 cases) patients had vocal nodules. In all cases vocal nodules were bilateral. Vocal nodules were the commonest aetiology in study by Parik¹ (50%) with males 43.3% and females 56.7% and also study by Swapan Ghosh³ it was commonest etiology with incidence of 30% with male to female ratio of 1:1.5. In study by Sambu Baitha² incidence was only 12.72% with male to female ratio 1:1.3. The fifth common etiology was tuberculosis of larynx in 4 cases (5.71%), All the patients were males with pulmonary tuberculosis. In study by Parik¹ and Sambu Baitha² incidence of tuberculosis was 23% and 5.45% respectively.

Vocal cord papilloma was found in 3 cases (4.29%) with male to female ratio as 1:2 as one male and 2 female patients presented. Vocal cord polyp was presented in 2.85% (2 cases) of patients with male to female ratio as 1:1 as each one male and female had vocal cord polyp. In study by Swapan Ghosh, Parikh and Sambu Baitha² incidence of vocal cord polyp was 23%, 15%, and 4.54% respectively.

Other cases, which presented with hoarseness, were vocal cord cyst in 1 case (1.43%) and laryngeal trauma (1.45%).

Association of Habits in malignancies

In our study, among malignancies 28 cases (40%), smoking was noted in 26 cases (92.86%) and consumption of alcohol 16 cases (57.14%) and chewing tobacco preparation in 10 cases (35.71%). Among males smoking was noted 100% and alcohol consumption 61.54% and chewing tobacco preparation in 10 cases (38.46%).

In study by Sambu Baitha et al¹⁶, smoking was noted in 75% of cases and epidemiological data has demonstrated a strong correlation between tobacco use and laryngeal cancer.

In study by Hansa et al¹³, 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%.

Treatment given

In our study out of 70 cases 61 cases were treated. Among 61 cases 26 cases (37.14%) were treated by medical management and 28 cases (40%) were subjected for radiotherapy and 7 cases (10%) were subjected for MLS-excision of lesion and for 9 cases (12.86%) no treatment was given. Commonest condition treated medically was chronic laryngitis, 16 cases (61.54%) and vocal cord papilloma was commonest condition treated by MLS excision. In study by Swapan Ghosh 83% were treatment by MLS excision⁶⁸.

Results of Treatment

In our study of out of 61 cases treated, 47.54% (29 cases) showed improvement of voice and in 45.90% (28 cases) voice was worsened and in 9.83% of cases (6 cases) no change of voice noted. Chronic laryngitis was the common condition treated medically. Improvement of voice was seen in 87.50% of cases and no improvement in 32.15% of cases. Patients with malignancies were subjected for radiotherapy and hoarseness worsened in all 28 cases (100%). 4 cases (5.71%) of

laryngeal tuberculosis improved with ATT (100%) 3 cases (4.89%) of vocal fold papilloma were treated with MLS excision and improvement of voice was 100%, whereas in a study by Swapan Ghosh³ improvement was seen in 70% cases. Among 6 cases of vocal nodules one patient underwent MLS excision and others for medical management and 100% improvement was noted, where as in study by Swapan Ghosh³ improvement of voice in case of vocal nodules was 93%. Among two cases of polyp improvement of voice was seen only 50% of cases i.e. in one case only, whereas study by Swapan Ghosh improvement was 100% of cases. 1 case (1.43%) of vocal fold cyst after MLS improved (100%) and one cases (1.43%) of laryngeal trauma treated medically no improvement was seen.

Conclusions

Hoarseness of voice is due to many reasons, found in both men and women of various ages. We conclude that, in middle aged and elderly patients presenting with hoarseness of voice of more than two-week duration along with habits of smoking alcohol consumption and chewing tobacco preparation, malignancy must be ruled out. Appropriate treatment after proper diagnosis is key to treatment and if patient follows up regularly voice can be restored from near normal to normal.

Acknowledgements

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