

Original Research Article

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Aetiopathological study of hoarseness of voice: a clinical study

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ABSTRACT

Background: Hoarseness of voice is one of the widely found symptom in otolaryngological practice and is invariably the earlier manifestation of laryngeal involvement directly or deviously. The disease ranges from utterly benign to the most malignant and therefore a varying degree of connotation is attached to this. Present study is conducted to know the incidence, aetiopathological factors causing hoarseness of voice and its management.

Methods: Present study is a prospective clinical study conducted in SVRRG Hospital, Tirupati from October 2008 to 2010 in all patients of both sexes with hoarseness of voice for more than 3 weeks duration were included. Hoarseness of voice due to congenital diseases, nose and nasopharyngeal pathology, oral and oropharyngeal pathology, CNS lesions were excluded from the study. All patients were subjected to detailed history, complete ENT examination, laryngoscopic examination, micro laryngeal excision or biopsy was taken to arrive the diagnosis and management was done accordingly.

Results: Incidence of hoarseness of voice was 0.38% noted in our study. Most common age group affected are 4th to 6th decade with male to female ratio 2.5:1. Malignancy is the commonest cause, smoking and alcohol consumption were major etiological factors.

Conclusions: In middle aged and elderly persons with hoarseness of voice more than 3 weeks duration should not be ignored and to be investigated further to rule out malignancy.

Keywords: Hoarseness of voice, Aetiopathology

INTRODUCTION

Hoarseness of voice is one of the widely found symptom in otolaryngological practice and is invariably the earlier manifestation of laryngeal involvement directly or deviously. The disease ranges from utterly benign to the most malignant and therefore a varying degree of connotation is attached to this. Hoarseness has many causes, ranging from self-limited laryngitis to malignant tumors of the vocal cords.¹ In the words of Chevalier Jackson, "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 condition. Hoarseness is a common complaint in today's fast paced, high stressed life.² 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.³ Hoarseness lasting longer than 2 weeks ought to be evaluated completely.⁴

Aims and objectives

Aim of the present study is to categorize various causes, prevalence and management of hoarseness of voice.

METHODS

The present study is prospective study conducted in department of ENT in S.V.R.R Government General Hospital, Tirupati for a period of 2 years i.e. from Oct 2008 to Oct 2010. In this study the patients of all age groups of both sexes presenting to the OPD with a complaint of Hoarseness of voice for >3 weeks duration were included. Change in voice due to congenital disease, Nasal and nasopharyngeal pathology, oral & oropharyngeal pathology, speech defects produced due to CNS lesion were excluded from the study. Approval of Institutional Ethics Committee was obtained before starting the study. The Proforma was designed based on objective of the study along with consent of the patient. Detailed history was taken followed by thorough ENT and systemic examination and clinical diagnosis was arrived in support with the relevant investigations. The study group divided into various socio-economic classes based on income. When the findings were inadequate to arrive at a clinical diagnosis, directlaryngoscopic examination with or without biopsy, suspension microlaryngoscopy with or without biopsy was performed. The biopsy specimen was sent for histopathological examination. Therapy was based on the aetiology of hoarseness of voice. Medical treatment including medications like antibiotics, anti-inflammatory, analgesics 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 malignancy were referred for radiotherapy. Patients were followed up regularly for three to six months.

RESULTS

In our present study incidence of hoarseness voice was 0.3% of total ENT cases. Maximum number of cases (32.65%) were in the age group of 51-60 years, among males common age groups was 51-60 years (26.66%) and among females 51-60 years of age group (23.76%). (Figure 1). Hoarseness was commonly found in laborer class (42.66%). Both among males and females this was commonest group comprising 49.50% and 28.57% respectively. Lower socio economic group was commonly noted among patients (47.33%), also both in males (49.50%) and females (42.85%). Majority patients were from rural area (60%). Smoking was commonly encountered habit among males (79.20%) and vocal abuse (51%) among females (Table 1).

Among 74 histopathological studies, commonest finding was squamous cell carcinoma (81.08%). Laryngeal malignancy was the commonest cause of hoarseness of voice (40%) and males were commonly affected (44.55%). Chronic laryngitis was next common cause for hoarseness of voice (30%) and was found in 26.73% among males and 36.73% among females, with male to female ratio 3:2. Vocal cord palsy was found in 14.66%

of cases and was common in males (63.63%). Vocal cord nodules were found in 4% of patient and was common among male patients (66.66%) and with male to female ratio 1.5:1. Vocal cord papilloma presented in 2.66% of cases and male to female ratio 1:1. Vocal fold polyp was found in 6.66% of cases. Vocal cord cyst was presented in 1.33% of cases. One case (0.66%) presented with laryngeal trauma (Table 2).

Patients who had laryngeal malignancies were subjected for radiotherapy and hoarseness was worsened in 80% cases. 45 cases (30%) of chronic laryngitis were treated medically, improvement of voice was seen (88.88%), no improvement in 11.11% was observed. 4 cases (2.66%) of vocal fold papilloma were treated with MLS excision, improvement of voice present in (100%). 10 cases (6.66%) of vocal fold polyps were treated with MLS surgery improvement noted in 60% of cases. 2 cases (1.33%) of vocal fold cyst underwent MLS surgery and improvement of voice was 100%. 1 case (0.66%) of laryngeal trauma was treated medically. improvement in voice was noted. Among 150 cases treated 51.33% showed improvement of voice, 33.33% showed worsening and 15.33% showed no change in voice after treatment.

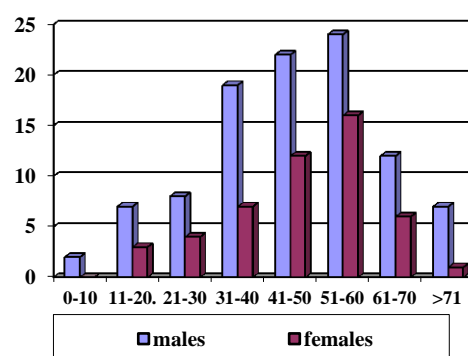


Figure 1: Graphical representation of hoarseness of voice among various age groups in both sexes.

Table 1: Showing frequency of different habits in males and females with hoarseness of voice.

Habits	Male		Female		Total	
	No.	%	No.	%	No.	%
Smoking	80	79.20	-	-	80	53.33
Alcohol	42	41.58	-	-	42	28.88
Tobacco components	25	24.75	15	30.61	40	26.66
Vocal abuse	05	4.95	25	51.02	30	20.00
No habits	20	19.80	20	40.81	40	26.66

In the present study laryngeal malignancy, which was the most common cause of hoarseness of voice, it was taken and the association of the factors likes smoking, vocal abuse, alcohol consumption and tobacco chewing was analyzed. Statistical analysis showed smoking (p value

0.00083) and tobacco chewing (p=0.004) are significantly associated with laryngeal cancer, whereas vocal abuse

(p=0.40) and alcohol consumption (p=0.82) shown no association with laryngeal malignancy.

Table 2: Showing clinical conditions associated with hoarseness of voice.

Clinical condition	Male		Female		Total	
	No	%	No	%	No	%
Malignancy	45	44.55	15	30.61	60	40.00
Chronic laryngitis	27	26.73	18	36.73	45	30.00
Vocal cord palsy	14	13.86	8	16.32	22	14.66
Vocal cord nodules	4	3.96	2	4.08	6	4.00
Vocal cord papilloma	2	1.98	2	4.08	4	2.66
Vocal cord polyp	6	5.94	4	8.16	10	6.66
Vocal cord cyst	2	1.98	0	-	2	1.33
Trauma	1	0.99	0	-	1	0.66
T0tal	101	100.00	49	100.00	150	100.00

Table 3: Clinical diagnosis versus predisposing factors in patients with hoarseness of voice.

Clinical diagnosis	Total	Vocal abuse	Smoking	Alcohol	Tobacco components
Malignancy	60	14	42	17	24
Chronic laryngitis	45	07	19	09	05
Vocal cord palsy	22	04	10	08	07
Vocal cord nodules	06	02	04	03	03
Vocal cord papilloma	04	02	0	0	0
Vocal cord polyp	10	01	04	03	01
Vocal cord cyst	02	0	01	01	01
Trauma	01	0	0	0	0

DISCUSSION

A total of 52296 cases attended ENT OPD during study period out of these 150 cases presented with hoarseness of Voice. Thus the incidence is 0.30% of all cases, while in a study by Baitha incidence of hoarseness was 0.32%, which nearly coincides with our study.⁵

Age and sex

In our study age of patients with hoarseness of voice ranged from 9 yrs to 85 yrs. Majority of patients i.e. 40 cases (26.66%) were in the group of 41-50 years and minimum number of patients i.e. 2 cases (1.33%) were in the age of group of <10 years. In a study by Baitha majority of patients i.e. 31 cases (28.18%) were in the age group of 31-40 years.⁵ In a study by Ghosh maximum patients i.e. 28 cases (28%) were in the age group of 21-30 years.⁶ Chopra and Kapoor reported the incidence of benign glottic lesions in his study to be in the age of 20-50 years as 73.14%.⁷ Contrary to this, a low incidence of 58% in the above age group was noted by Saxena and Gode and Chatterjee et al in their study on cases subjected to Microsurgery of the larynx.^{8,9} Both these studies involved a limited group of patients in whom focus of attention is benign glottic lesions or microsurgery of larynx, which is not the case in our study. In our study 101 cases (66%) were males and 49 cases (34%) were females, thus male to female ratio of

approximately 2:1 was observed. This finding coincides with study by Baitha where males 74 cases (67.27%) and female 36 cases (32.72%) were noted and also in study by Parikh where males presented 67% and females 63% with male to female ration of 2:1.^{5,10}

Residence

In our study majority of patients i.e. 90 cases (60.00%) were from rural area and minimum cases, 60 cases (40.00%) were from urban area. Also in study by Bhaita patients were predominantly from rural areas comprising of 83 cases (75.5%).⁵

Occupation

In our study majority of patients i.e. 64 cases (42.66%) were of laborer class. In a study by Baitha the same observation was made i.e. majority of patients were of laborer class (36.36%).⁵ In our study both among males and females labor class predominated i.e. male 49.50% and female 28.57%

Socio economic status

In our study, majority of patients i.e. 71 cases (47.33%) belong to low socio economic status and also majority of patients among males, i.e. 50 cases (49.5%) and females i.e. 21 cases (42.85%) belong to lower socio-economic

status. Upper lower group was next common, 41 cases (27.33%), other groups with decreasing frequency were lower middle (16.00%), upper middle (10.00%) and upper (2.66%).

Habits

In our study commonest habit noted was smoking i.e. 80 cases (53.33%) and vocal abuse (20%) was least common habit. In study by Ghosh vocal abuse was noted in 72% of cases, and in study by Baitha smoking was noted in 25.45% of cases, chewing tobacco preparation was noted in 17.27% and Alcohol in 12.72%.⁵ Parikh has found it in 20% of cases only and vocal abuse was 56%.¹⁰

Aetiology of hoarseness of voice

In our study commonest aetiology observed was, malignancy of larynx in 60 cases (40%). Among males commonest etiology was malignancy of larynx 45cases (44.55%) and among females malignancy of larynx was 30% (15 cases). In study by Kadambari incidence of malignancy was 18% and in study by Ghosh incidence of malignancy was only 8% and in Parikh incidence of malignancy was 12%.^{2,6,10}

In our study next common aetiology was chronic laryngitis 45 cases (30%). Among females it was common etiology 27 cases, (26.73%). In both studies of Parikh and Baitha chronic laryngitis was commonest aetiology comprising of 48% in each, whereas in study by Ghosh, it was only 6% and in study by Batra et al it was 8%.^{10,5,6,2}

Third common aetiology was vocal cord paralysis 22 cases (14.66%). Among male incidence was 13.86% (14 cases) and among female 16.32% (8 cases), with male to female ratio as 1.7:1. In study by Parikh, Kadambari and Baitha, It was only 3%, 9% and 9% respectively.^{10,2,5}

Vocal cord polyp was presented in 6.66% (10 cases) of patients with male to female ratio is 1.5:1 In study by Ghosh, Parikh and Baitha incidence of vocal cord polyp were 23%, 15%, and 4.54% with male to female ratio as 3.6:1 in Ghosh Study and 1:1.5 in Parikh study.^{6,10,5}

The next common aetiology was vocal cord nodules 6 cases (4%) with male to female ration 2:1. Among males 3.96% (4 cases) were affected and among females 4.08% (2 cases) patients had vocal nodules. In all cases vocal nodules were bilateral. Vocal nodules were the commonest aetiology in study by Parikh (50%) with males 43.3% and females 56.7% and also study by Ghosh it was commonest etiology with incidence of 30% with male to female ratio 1:1.5.^{10,6} In study by Baitha incidence was only 12.72% with male to female ratio 1:1.3.⁵

Vocal cord papilloma was found in 4 cases (4.29%) with male to female ratio as 1:1. Other cases, which presented

with hoarseness, were vocal cord cyst 2 cases (1.33%) and laryngeal trauma (0.66%).

Histopathology

In our study, biopsy was done in 74 cases (49.33%) and histopathological finding most commonly encountered was squamous cell carcinoma, in 60 cases (81.08%).

Treatment given

Among 150 cases 74 cases (49.33%) were treated by medical management and 60 cases (40%) were subjected for radiotherapy and 16 cases (10.66%) were subjected for MLS-excision of lesion.

Results of treatment

In our study of among 150 cases treated, 51.33% (77 cases) showed improvement of voice and in 33.33% (50 cases) voice was worsened and in 15.33% of cases (23 cases) no change of voice noted.

Chronic laryngitis was the common condition treated medically. Patients with malignances were subjected for radiotherapy and hoarseness worsened in 50 cases (83%). 4 cases (2.66%) of vocal fold papilloma were treated with MLS excision and improvement of voice was 100%, whereas in a study by Ghosh improvement of was 70%.³

Among 6 cases of vocal nodules all are gone for medical management and 100% improvement was noted, where as in study by Ghosh.⁶ Improvement of voice in case of vocal nodules was 93%.

Among ten cases of polyp improvement of voice was seen only 60% of cases i.e. 6 cases only, whereas study by Ghosh improvement was 100% of cases.⁶ 2 cases (1.33%) of vocal fold cyst after MLS improved (100%) and one cases (0.66%) of laryngeal trauma treated medically improvement was seen.

On analyzing the various predisposing factors for laryngeal malignancy it was found that smoking ($p=0.00083$) was a predisposing factor for laryngeal malignancy. The other factor tobacco chewing ($p=0.004$) was too found to be a predisposing factor for laryngeal malignancy in our study.

CONCLUSION

In conclusion middle aged and elderly patients presenting with hoarseness of voice of more than three-week duration along with habits of smoking and chewing tobacco preparations, malignancy must be ruled out.

The voice can be restored to near normal with appropriate treatment and follow-up in most of the benign conditions and tumors of larynx.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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