

AETIOPATHOLOGY AND CLINICAL PROFILE OF PATIENTS WITH HOARSENESSSusan James¹, Sunil S. Menon², K. Sasi Kumar³, Dilip Das⁴¹Assistant Professor, Department of ENT, Government Medical College, Thiruvananthapuram.²Associate Professor, Department of Paediatric Surgery, Government Medical College, Thiruvananthapuram.³Professor, Department of ENT, Government Medical College, Thiruvananthapuram.⁴Postgraduate Student, Department of ENT, TD Medical, Alaphuzza, Kerala.**ABSTRACT****BACKGROUND**

In India and other developing countries the prevailing lower economic status, poor nutrition, poor general health of the population, different food habits, vocal habits, smoking and drinking habits, unhealthy environment and different social customs definitely influence the incidence of hoarseness. As the aetiology of hoarseness is diverse and aetiological causes varies from country to country and centre to centre, the need for a study was felt to determine the aetiological distribution of the cause of hoarseness and the clinical profile of patients attending outpatient department of ENT, T. D. Medical College, Alappuzha.

The aim of this study is to study the various causes of hoarseness of voice; to study the associated clinical features; to study various treatment modalities and outcome.

MATERIALS AND METHODS

100 patients attending the Department of ENT Outpatient Department with hoarseness of voice were registered and their demographic details and symptoms and signs were recorded and analysed. The different aetiological and pathological features were analysed.

RESULTS

Malignant lesions were more common in patients who had a history of smoking. Of the total thirty eight cases (38) that had a history of smoking, 26 (68.42%) developed malignancy; nineteen cases were diagnosed to have malignancy of larynx (19 - 50%) and seven cases developed malignancy of Hypopharynx (07 - 18.42%) and the remaining patients showed benign lesions (12 - 31.57%). Of the total sixty two cases belonging to the non-smoking group, benign lesions were more common contributing 41 patients (35 - 56.45%); 16 cases of the non-smoking group did not need a biopsy during the study period. Malignant lesions of the larynx and Hypopharynx were seen in eleven cases (17.74%).

CONCLUSION

Hoarseness usually affects older age groups. Males are more commonly affected than females. Manual labourers constitute the main occupational group of hoarse patients. Malignant lesions are more common in hoarse patients who have a history of smoking or alcoholism. Benign lesions are more common in patients with history of voice abuse.

KEYWORDS

Larynx, Hoarseness of Voice, Vocal Cords, Benign, Malignant and Laryngoscopy.

HOW TO CITE THIS ARTICLE: James S, Menon SS, Kumar KS, et al. Aetiopathology and clinical profile of patients with hoarseness. J. Evolution Med. Dent. Sci. 2017;6(19):1529-1533, DOI: 10.14260/Jemds/2017/336

BACKGROUND

The voice is a natural medium well adapted to communicate emotional contact, whereas speech is a cultural medium that is suitable to convey intellectual contact. Speech is the main skill, which separates human beings from other animals.¹ Hoarseness is a term used to describe change in voice quality and defined as a perceived rough, harsh or breathy quality to voice. The diseases causing hoarseness range from simple benign to the most malignant conditions.² Advent of microlaryngoscopy and endolaryngeal microsurgery as well as

the recently introduced fiberoptic telescope have reduced our dependence on mirror examination and have greatly improved the diagnostic ability, especially in the cases of hoarseness. In India and other developing countries, the prevailing lower economic status, poor nutrition, poor general health of the population, different food habits, vocal habits, smoking and drinking habits, unhealthy environment and different social customs definitely influence the incidence of hoarseness.³ Though the common cause of hoarseness is benign lesion than malignant disease, opportunity for the cure has often been lost by delay under a benign diagnosis.⁴ Kleinsasser (1961) revolutionised the diagnosis and treatment of a laryngeal lesion using microlaryngoscopy.² Killian in 1932 described the surgical and optical properties of stroboscopic light. In 1961, Van Laden described use of electronic stroboscope.⁵ In 1968, flexible fiberoptic laryngoscopy was introduced by Sawashima and Hirose.⁶ In the early 1970s, Jako Strong and Vaughan described coupling of CO₂ laser to surgical microscope and this provided greater precision and facility for endolaryngeal surgery.^{7,8} As the aetiology of hoarseness is diverse and aetiological causes

Financial or Other, Competing Interest: None.

Submission 28-01-2017, Peer Review 21-02-2017,

Acceptance 27-02-2017, Published 06-03-2017.

Corresponding Author:

Dr. Susan James,

Assistant Professor,

Department of ENT,

Government Medical College,

Thiruvananthapuram.

E-mail: drsusanjames@gmail.com

DOI: 10.14260/jemds/2017/336



varies from country to country and centre to centre, the need for a study was felt to determine the aetiological distribution of the causes of hoarseness and the clinical profile of patients attending ENT outpatient department in T. D. Medical College, Alappuzha.

Objectives

To study the various causes of hoarseness of voice; to study the associated clinical features; to study various treatment modalities and outcome.

MATERIALS AND METHODS

Study Setting

This study was conducted in the Department of ENT, T. D. Medical College, Alappuzha.

Study Duration

The study was conducted during a period of one and a half years, starting from April 2010 to September 2012. Study design: The study was a prospective descriptive study.

Study Population

Patients attending ENT OPD with complaints of hoarseness were studied. A total of hundred patients were studied.

Inclusion Criteria

Patients more than twelve years of age complaining of hoarseness for more than three weeks' duration.

Exclusion Criteria

Patients not willing to be part of study; Patients with Congenital disorders like cleft lip and cleft palate; patients presenting with nasal, nasopharyngeal, oropharyngeal diseases; patients who are already under treatment of a speech therapist.

Methods of Data Collection

This is a descriptive study of 100 patients who came to ENT outpatient department with complaints of hoarseness, meeting the aforementioned criteria. A detailed and careful history was taken with reference to the onset, progression, duration, age, occupation, habits and associated symptoms. A detailed proforma for clinical examination was made. A detailed ENT examination including indirect laryngoscopy was done according to the proforma. Flexible laryngoscopy was done when there was difficulty in visualising larynx with a mirror. Routine blood investigations and TSH were done whenever necessary. Chest x-ray PA view and x-ray soft tissue neck lateral view were taken when required. CT scan of neck was taken when indicated. Direct laryngoscopy followed by biopsy or microlaryngoscopy biopsy was taken whenever suspicious looking areas were seen. Biopsy specimens were sent for histopathological examination and results were reviewed. CT scan of neck was taken when indicated. Further treatment was given according to biopsy results. Patients were sent for speech therapy when indicated.

Analysis of Data

The data collected from the study was analysed using SPSS software version 16.

RESULTS

This is a descriptive study of 100 patients who came to the ENT outpatient department with complaints of hoarseness for more than three weeks' duration. Patients belonging to the seventh decade were the most common group affected with a total of 24 cases (24%). Fifth and sixth decades were next most prevalent groups constituting 18 cases each (18%). Younger age groups were less frequently affected with the least subjects coming from the second decade 6 cases (6%), (Table 1). Patients with hoarseness were males with a 72% incidence and the male-to-female ratio was found to be 2.5: 1.

Age Group	Frequency	Percent %
12 - 20 Yrs.	6	6.0
21- 30 Yrs.	11	11.0
31 - 40 Yrs.	12	12.0
41 - 50 Yrs.	18	18.0
51 - 60 Yrs.	18	18.0
61 - 70 Yrs.	24	24.0
71 - 80 Yrs.	9	9.0
81 - 90 Yrs.	2	2.0
Total	100	100.0

Table 1. Showing the Age Distribution of Patients (n = 100)

Most of the patients in the study group were manual labourers (26). The next prominent group was constituted by the unemployed (17 cases). There was one singer in our study group. Housewives constituted (15) fifteen cases. Other jobs which normally do not use much voice including drivers, businessmen, etc. contributed fifteen cases (Table 2).

	Frequency	Percent
1. Singer	1	1.0
2. Teacher	7	7.0
3. Hawker	13	13.0
4. Housewife	15	15.0
5. Manual Labourer	26	26.0
6. No Occupation	17	17.0
7. Others	15	15.0
8. Student	6	6.0
Total	100	100.0

Table 2. Showing the Occupations of the Patients (n = 100)

History of smoking was present in 38 cases. All 38 cases were males.

	Frequency	Percent
History of Smoking Present	38	38.0
History of Smoking Absent	62	62.0
Total	100	100.0

Table 3. Showing Incidence of Smoking (n = 100)

Malignant lesions were more common in patients who had a history of smoking. Of the total thirty-eight cases (38) that had a history of smoking, 26 (68.42%) developed malignancy; nineteen cases were diagnosed to have malignancy of larynx (19 - 50%) and seven cases developed malignancy of Hypopharynx (07 - 18.42%) and the remaining patients showed benign lesions (12 - 31.57%). Of the total sixty-two cases belonging to the non-smoking group, benign lesions were more common contributing 41 patients (35 - 56.45%); 16 cases of the non-smoking group did not need a biopsy

during the study period. Malignant lesions of the larynx and Hypopharynx were seen in eleven cases (17.74%), (Table 4).

Observations	Non-Smokers 62	Smokers 38
Carcinoma of Larynx	06 - 9.67%	19 - 50%
Carcinoma of Hypopharynx	05 - 8.06%	07 - 18.42%
Benign Lesions of Larynx	35 - 56.45%	08 - 21.05%
Non-Specific Laryngitis	16 - 26.22%	04 - 10.52%

Table 4. Showing the Distribution of Laryngeal Lesions in Smokers and Non-Smokers (n = 100)

History of alcohol use was present in 38 cases (Table 5).

	Frequency	Percent
Valid History of Alcohol use Present	38	38.0
History of Alcohol use Absent	62	62.0
Total	100	100.0

Table 5. Showing the Incidence of Alcohol Intake (n = 100)

There was a history of alcoholism in 38 of the 100 patients. Malignant lesions were more commonly seen in patients who had a history of alcoholism. There were 26 (68.42%) patients among the 38 with history of alcoholism developed malignancy. Patients with benign lesions constituted 12 (31.87%). Among the alcoholic patients, 19 developed malignant lesions of the Larynx (50%) and 7 (18.42%) developed hypopharyngeal carcinoma. Among the 62 non-alcoholic patients, 38 (62.29%) showed benign lesions of the Larynx. Biopsy was not required in 16 cases of the non-alcoholic group and in 12 cases of alcoholic group; 16 (26.22%) patients among the non-alcoholic group were presenting with non-specific laryngitis (Table 5).

Observation	Alcoholics - 38	Non-Alcoholics - 62
Malignancy of Larynx	19 - 50%	06 - 9.67%
Malignancy of Hypopharynx	07 - 18.42%	05 - 8.06%
Benign Lesions of Larynx	08 - 21.05%	35 - 56.45%
Non-Specific Laryngitis	04 - 10.52%	16 - 26.22%

Table 6. Showing the Incidence of Laryngeal Lesions among Alcoholic and Non-Alcoholic Groups (n = 100)

History of tobacco use (e.g. pan chewing, use of gutkha, etc.) was present in 16 cases (Table 6). Malignant lesions were seen in eleven cases out of the sixteen (68.75%). Among the non-tobacco users, twenty-six cases developed malignancy (30.9%). Majority of this group were having benign lesions (Thirty-nine cases) contributing 46.4%.

	Frequency	Percent
History of Tobacco use Present	16	16.0
History of Tobacco use Absent	84	84.0
Total	100	100.0

Table 7. Showing the Incidence of Laryngeal Disease in Patients using Tobacco (n = 100)

A positive history of voice abuse was present in 22 cases. Benign lesions were more common in voice abusers contributing to 16/22 (72%). Of the twenty-two cases, 10

cases had vocal cord polyp and 5 patients had vocal cord nodule and 1 patient with vocal cord cyst (Table 7).

Voice Abuse	Frequency	Percent
Voice Abuse Present	22	22.0
Voice Abuse Absent	78	78.0
Total	100	100.0

Table 8. Showing the Incidence of Voice Abuse (n = 100)

A positive history of GERD was assessed based on the symptoms of the patients; history was present in 20 percent cases like heartburn, retching, frequent hawking and sudden spasm, etc. (Table 8).

	Frequency	Percent
History of GERD Present	20	20.0
History of GERD Absent	80	80.0
Total	100	100.0

Table 9. Showing the Incidence of History of GERD (n = 100)

A positive history of pulmonary tuberculosis was present in one case. He had already taken 6 months ATT and was declared cured (Table 9).

	Frequency	Percent
History of Tuberculosis Present	1	1.0
History of Tuberculosis Absent	99	99.0
Total	100	100.0

Table 10. Showing the Incidence of History of Tuberculosis (n = 100)

Cough was the most common associated clinical feature and was present in 29 cases (Table 10).

	Frequency	Percent
Cough Present	29	29.0
Cough Absent	71	71.0
Total	100	100.0

Table 11. Showing the Incidence of Cough among the Patients (n = 100)

Sore throat was the next most frequently associated symptom and was present in 16 cases (Table 11).

	Frequency	Percent
Sore Throat Present	16	16.0
Sore Throat Absent	84	84.0
Total	100	100.0

Table 12. Showing the Incidence of Sore Throat among the Patients (n = 100)

Nine patients presented with fever in the study (Table 12).

Valid		Frequency	Percent
	Fever Present	9	9.0
	Fever Absent	91	91.0
	Total	100	100.0

Table 13. Showing the Incidence of Fever among the Patients (n = 100)

A positive history of dysphagia was present in ten percent cases. Of the 10 cases, 8 patients were diagnosed to have malignancy of Hypopharynx and two patients had malignancy of Larynx (Table 13).

	Frequency	Percent
Dysphagia Present	10	10.0
Dysphagia Absent	90	90.0
Total	100	100.0

Table 14. Showing the Incidence of Dysphagia (n = 100)

Eight patients presented with neck node enlargement at the time of reporting to the OPD; 4 patients were diagnosed to have malignancy Larynx and the rest four had malignancy Hypopharynx (Table 14).

	Frequency	Percent
Neck Swelling Present	8	8.0
Neck Swelling Absent	92	92.0
Total	100	100.0

Table 15. Showing the Incidence of Neck Swelling (n = 100)

History of haemoptysis was present in three cases. All patients were diagnosed to have malignancy of larynx. Haemoptysis was present in ten percent cases of laryngeal malignancies (Table 15).

	Frequency	Percent
Haemoptysis Present	3	3.0
Haemoptysis Absent	97	97.0
Total	100	100.0

Table 16. Showing the Incidence of Haemoptysis (n = 100)

Associated noisy breathing was present in seven cases. All patients were having laryngeal malignancy. All patients who had stridor underwent tracheostomy during the study period (Table 16).

	Frequency	Percent
Stridor Present	7	7.0
Stridor Absent	93	93.0
Total	100	100.0

Table 17. Showing the Incidence of Stridor (n = 100)

Benign lesions of larynx (63) were more common than malignant lesions (37). Indirect Laryngoscopy finding of a proliferative lesion in the larynx was the most common finding. Vocal cord polyp was seen in 26 cases, which was the next most common single finding; 12 patients showed a congested vocal cord and fourteen cases showed a vocal cord nodule. Benign lesions altogether constituted 63 cases. Hypopharyngeal malignancy was seen in 12 cases. Histopathological finding of a malignant lesion of larynx was the most common single finding in the study (25 cases). Vocal cord polyp was the next constituting 26 cases (Table 17).

	Frequency	Percent
1. Normal	1	1.0
2. Congested Vocal Cord	12	12.0
3. Vocal Cord Polyp	26	26.0
4. Vocal Cord Nodule	14	14.0
5. Proliferative Lesion Larynx	25	25.0
6. Proliferative Lesion Hypopharynx	12	12.0
7. Impaired Vocal Cord Mobility	5	5.0
8. Vocal Cord Keratosis	2	2.0
9. Vocal Cord Cyst	3	3.0
Total	100	100.0

Table 18. Showing the Incidence of Benign and Malignant Lesions of the Study (n = 100)

The most common single modality of treatment used was microlaryngeal surgery, which was done in 35 cases. Outcome of treatment was measured subjectively at the end of treatment and more than half of the patients had a good result at the end of treatment; 52 cases reported that they got their original voice after treatment. In 21 cases, the quality of voice improved but they never attained the same quality as before. One patient reported a worsening of voice after treatment; 7 cases lost their normal voice, because of tracheostomy. In nineteen percent cases, there was no relief with treatment.

	Frequency	Percent
Relieved	52	52.0
Improved	21	21.0
No Change	19	19.0
Worsened	1	1.0
Tracheostomy	7	7.0
Total	100	100.0

Table 19. Showing the Treatment Outcome among the Patients (n = 100)

DISCUSSION

Hoarseness is obviously not a disease, but only the manifestation of a disease. The causes vary from self-limiting conditions like acute laryngitis to severe life-threatening malignancies. Benign conditions are more common than malignant lesions. Hoarseness lasting more than three weeks' duration obviously needs detailed evaluation and visualisation of larynx to rule out malignancy. Adults are more commonly affected with seventh decade being most commonly affected. In our study, the age of patients with hoarseness ranged from 13 - 82 yrs. (Mean 50.18 yrs.) and most patients (59%) were in the group of 21 - 60 yrs., which is considered as the most active period of life. Further patients in the 7th decade (24%) constituted the single largest group. Our observation is supported by Clark AR,⁹ Robert TS,¹⁰ Malzahn K¹¹ and Shambu Baitha.¹² Praveen B¹³ also reported the incidence in the age group of 20 - 50 yrs. to be 63.1%, 67.2% and 61.8% respectively. A male: female ratio of 2.57:1 was observed in this study. Other studies by Harmit M,¹⁴ Sumith M¹⁵ and Harold P¹⁶ also showed male predominance. As far as occupation is concerned, manual labourers constituted the single largest group of patients (26%) in our study followed by jobless old age patients (17%) and housewives comprising of 15 cases. 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. Brock¹⁷ has mentioned that inhaled irritants, especially cigarette smoke as the most important predisposing factors for hoarseness. In the present study, a positive history of smoking was seen in 38 cases and alcoholism in 38 cases. Voice abuse was seen in 22 cases and a history of tobacco chewing in 16 cases; 20 cases had a positive history of GERD. In the study by Kameswaran S¹⁸ and Chakravarthy A,¹⁹ vocal abuses was noted in 72% of cases and in Kasim B²⁰ study smoking was noted in 25.45% of cases, chewing tobacco preparation was noted in 17.27% and alcohol drinking in 12.72%. James et al²¹ have found vocal abuse in 56%. In this study, among males 64% were smokers and among females 38.24% had history of vocal abuse. The most common associated feature was cough followed by sore throat (16) and fever (9). Other associated features included

difficulty in swallowing (10 cases) haemoptysis (3 cases) and neck swelling (8 cases). On indirect laryngoscopy examination (IDL) commonest finding was growth of vocal cords, consisting of 30 cases followed by vocal cord polyp which was seen in 27 cases. In the study by More PL,²² congestion of vocal cords was noted in 34.54% and growth in only 9% of cases on IDL examination. In our study, biopsy was done in 80 cases and histopathological finding most commonly encountered was squamous cell carcinoma in 28 cases. Next most common histopathological finding was a vocal cord polyp seen in 26 cases. Fifty-two cases reported that they got their original voice after treatment. In 21 cases the quality of voice improved, but they never attained the same quality as before. Seven cases lost their normal voice because of tracheostomy. In nineteen cases, there was no relief with treatment.

CONCLUSION

Hoarseness usually affects older age groups. Males are more commonly affected than females. Manual labourers constitute the main occupational group of hoarse patients. Malignant lesions are more common in hoarse patients who have a history of smoking or alcoholism. Benign lesions are more common in patients with history of voice abuse. Cough was the most common associated clinical feature. Associated neck swelling or a history of dysphagia or haemoptysis is seen more commonly in malignant cases. Indirect laryngoscopy findings usually correlate well with histopathological findings. Majority of patients with malignant lesions have a poor outcome.

Elderly patients with hoarseness should be examined carefully to rule out malignancy, especially when there is a history of smoking or alcoholism. Biopsy need to be taken in a hoarse patient, if suspicious lesions are seen on indirect laryngoscopy. Public should be made aware that voice abuse is a common cause of hoarseness.

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