

Clinical Evaluation of Hoarseness

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Background: Hoarseness is a main clinical presentation of laryngeal diseases. Our objectives are to evaluate hoarseness among various ages, in different diseases and to identify various underlying causative factors.

Methods: It is an observational study of 92 cases of different diseases presented with hoarseness. These patients are of different age groups, who presented to Jinnah Hospital, Services Hospital, Lahore and Hameed Latif Hospital Lahore from July 2002 to July 2005.

Results: Hoarseness is the main presenting complaint (100%) followed by difficulty in swallowing among laryngeal diseases. The incidence of hoarseness is common in the younger age group (34%). Advanced laryngeal malignancy is presented in 37% cases.

Conclusion: A plan of documentation and mass media campaign should be charted out to detect underlying causes and early diagnosis of laryngeal diseases for prevention and proper management.

Key Words: Hoarseness, Larynx, Vocal Cords.

Introduction

Hoarseness of voice is one of the most common symptom and sign of laryngeal diseases. The basic factor which causes hoarseness of voice is the structural and functional abnormality of the vocal cords. It combines the acoustic characteristics of harshness and breathiness of voice. The patient is unable to communicate his thoughts, desires and orders. The voice is low pitched and often with pitch breaks. It signifies the changes in the structure and or the function of the vocal cords and suggests laryngeal inflammation, trauma, tumour and vocal cord immobility. A complaint of hoarseness may present serious disease and therefore should not be ignored especially if it persists for more than two weeks. It is essential to understand the normal voice production and the relative anatomy. Common causes of hoarseness of voice are inflammatory and infective conditions of the larynx, secondary changes of the vocal cords such as polyps, nodule, cysts, oedema, papillomas, benign and malignant tumours, trauma and vocal cord paralysis along with functional disorders of the voice. Voice abuse are frequently claimed to be the causes of voice problems. They result in laryngeal tissue changes such as vocal nodules and polyps. Voice misuse is incorrect use of pitch, quality, volume breath support or rate, singularly or in combination while voice abuse is defined as mistreatment usually by over use of the laryngeal and

pharyngeal musculature.¹ Voice abuse behaviors are more harsher and tend to cause more traumatic damage to the laryngeal mucosa than voice misuse behaviors.² Penetrating neck trauma can lead to damage of the laryngeal nerves which results in change in the quality of voice. The ratio of hoarseness presentation with penetrating neck trauma is 2%.^{3,4} Early diagnosis of malignant tumours is a prerequisite for voice preservation.

Patients and Methods

We conducted this study of hoarseness of voice from July 2002 to July 2005. Ninety-two patients suffering from hoarseness of voice for more than two weeks were evaluated. These patients were diagnosed by proper history, clinical examination of ear nose throat, indirect laryngoscopy, endoscopic evaluation under local and general anaesthesia and histopathological diagnosis where an obvious lesion was observed.

Results

Age Distribution:

In this study the age of the patients ranged between 4 to 80 years.

Twenty seven patients were below the age of 30 years (34%).

Sixteen patients were between 31 and 40 years (17.39%).

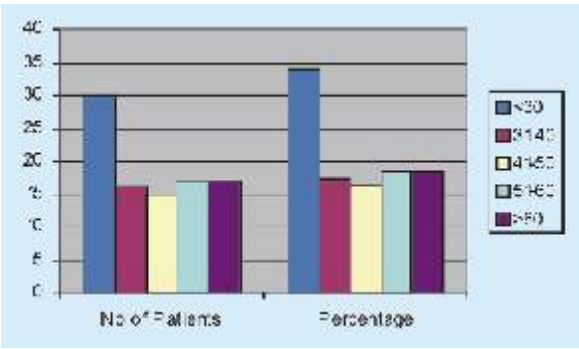


Fig. 1: Age distribution

Sex Incidence:

There are 74 males and 18 females with a male to female ratio of 4:1.

It is observed that hoarseness of voice is more common in males than females.

Table 1: Sex Incidence

Sex	No of Patients	Percentage
Male	74	80.43
Female	18	19.56

Socioeconomic Status:

This study shows that the majority of patients are cigarette smokers, those peoples in areas where atmospheric pollution is high and those people who abuse or misuse their voice.

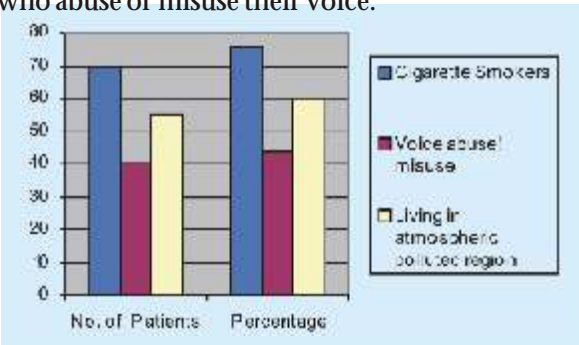


Fig. 2: Socioeconomic Status

Presenting Features:

The most common presenting symptoms are hoarseness of voice in all cases. This is accompanied with difficulty in swallowing liquids

and solids, pain in the throat, radiation of pain to the ear, aspiration of fluids, mass in the neck, haemoptysis, difficulty in respiration, (strider).

Table 2: Presenting Features

Presenting Features	No. of Patients	Percentage
Hoarseness of voice	92	100
Dysphagia	58	63
Dyspnoea/Stridor	34	36.95
Pain in throat	45	48.91
Fluid Aspiration	41	44.56
Mass in the Neck	36	39.13
Cough with haemoptysis	30	32.60
Retrosternal Burning	19	20.65

Primary Site of Pathology

In the majority of patients presenting with complaint of hoarseness of voice, the primary site of pathology is in the membranous vocal cord. In other patients who present with growth larynx, where the tumor is advanced, the primary site of the tumor is difficult to detect.

Table 3: Biopsy Report

Primary Site	No of Patients	Percentage
Vocal cord (Benignlesion)	28	30.43
Transglottic Growth	20	21.73
Subglottic growth	5	5.43
Hypopharyngeal growth with extension to larynx	9	9.78
Vocal cord Paralysis	7	7.60
Trauma	4	4.34
Non specific laryngitis	15	16.30

Biopsy Report:

According to the histopathology reports following diagnosis were made.

Two patients having laryngeal web, four patients have history of trauma to the larynx and neck, seven patients have paralysis of the larynx, and two patients were diagnosed dysphonia plica ventricularis and two patients with puberphonia.

Table 4: Biopsy Report

Histopathological Diagnosis	No. of Patients	Per-centage
Well differentiated squamous cell carcinoma	21	22.82
Poorly differentiated squamous cell carcinoma	7	7.60
Moderately differentiated squamous cell carcinoma	6	6.52
Vocal cord polyp	16	17.39
Vocal cord nodule	5	5.43
Haemangioma	2	2.17
Non specific laryngitis	15	16.30
Tuberculous granuloma	1	1.086
Sq. cell dysplasia collagenous	1	1.086
Fibrovascular mass	1	1.086

Functional abnormality of the vocal cords. It signifies changes in the structure and or function of the vocal cords and suggests laryngeal inflammation, trauma, tumour or vocal cord immobility. Hoarseness combines acoustic characteristic of harshness and breathiness of voice. The voice is low pitched, breathy and often with pitch breaks.

Regarding the age and number of patients, 16 are seen in 30-40 years of age, which is the age of active life. People indulge in voice abuse and misuse, work in polluted environments etc. Thirty-two patients were seen in age groups 40-50 and 50-60 years in which neoplastic growths were more common. One patient is seen in 0-10 year of age where chances of infectious disease or congenital lesion are more likely. 23 patients are seen in age groups of 21-30 years and 5 patients in 10-20 years.

This shows that the laryngeal diseases are more common in adults and middle age, when they are exposed to polluted environments, machinery works and indulge in smoking.

Majority of the patients seen were males 74% than females 18%. This may be due to the fact that males are more indulged in smoking, alcoholism, misuse of voice and exposure to pollutants. Moreover their importance in the society as

earning members of the family gets initial preference for treatment and male gender bias.

It is also observed that the majority of the patients are smokers, those who use voice improperly and loudly for earning like street hawkers, teachers, lawyers, factory workers and those who live in urban areas and heavily polluted localities. Chronic alcoholics may get laryngeal pathology. In the presence of smoking alcohol multiplies the deleterious effect on upper aerodigestive tract. Recurrent upper respiratory tract infections and reflux oesophagitis also leads to non specific laryngitis.

In acute infections and neoplastic growths with deep invasion, there is complaint of pain in the throat, increasing on talking, tongue protrusion and swallowing, localized or radiating to the ears. In advance malignant lesions, there is difficulty in respiration along with stridor, and metastatic lymph nodes in the neck. In paralytic lesions patients complain aspiration of fluids on swallowing. The haemoptysis, is also observed in some patients. The diagnosis of the patient starts with the start of the history. When the patient speaks, the quality disorder of the voice is observed. This is called perceptual sign. However an easy, non-expensive and non-invasive technique of diagnostic examination is indirect laryngoscopic view of the endolarynx.⁵

Almost all the patients are diagnosed by precise clinical history and indirect laryngoscopy. In most patients it is possible to arrive at a decision with the indirect laryngoscopy (86%). When some obvious abnormal pathology is seen for the hoarseness of voice, further endoscopic techniques can only supply superfluous information in most cases.

Flexible fiberoptic nasopharyngo laryngoscopic examination does provide rapid diagnosis of hoarseness.⁶

On stroboscopy, we can observe the symmetry, amplitude, speed and phase difference of waves of both vocal cords and compare it. It is possible for the differentiation of functional from anatomical defects.⁷ Also preservation of the mucosal wave is suggestive that a lesion is non invasive.⁸ Video-endoscopic (with 70 degree telescope) evaluation of the larynx provides dynamic and live information about the laryngeal

Biopsy for histopathological examination to establish diagnosis and plan further treatment. It is also carried out in those cases where indirect laryngoscopy is not possible due to anatomical reasons and in children. It is the only reliable way to assess mucosal lesions of the endolarynx and it also makes it possible to get adequate biopsy as compared to flexible technique.^{9,10} This study coincides with (Phelps 1992 and Rithie et al 1993).

This study correlates and coincides with the study of Dettelback-M, Eibling, DE and Johnson JT.¹¹ They state that hoarseness indicates an abnormality at the level of glottis from viral laryngitis to glottic cancer. The symptoms result from either structural or physiologic disorders. The disorders causing lesions are, benign and malignant, infectious and non infectious or

traumatic and non traumatic. Dysphonia is the most consistent symptom of laryngeal cancer and several benign conditions of the larynx. A clinic receiving patients with dysphonia longer than four weeks, on priority basis will indeed speed up the detection and treatment of laryngeal cancer.¹² Careful history taking and physical examination particularly laryngeal visualization provide key clues.

Conclusion

Hoarseness of voice is one of the most common symptom of laryngeal disorders.

A complaint of hoarseness may present serious disease and therefore should not be ignored, especially, if it persists for more than two weeks. It is essential to understand normal voice

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