

# Hoarseness of voice and accompanying symptoms among patients at a tertiary hospital, Tanzania

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## ABSTRACT

**Introduction:** Hoarseness of voice is a common complaint in otolaryngological practice and is an early manifestation of a large variety of conditions directly or indirectly affecting the larynx, ranging from inflammatory to malignant. Hoarseness has a prevalence of 6% in the general population, rising to 11% for professional voice users (30% of the patients whose work requires excessive voice use). Despite the high prevalence many people are unaware that persistent hoarseness may be a red flag indicating cancer. Any patient with hoarseness lasting longer than two weeks, in the absence of an apparent benign cause, requires a thorough evaluation of the larynx by direct or indirect laryngoscopy. The purpose of this study was to determine the prevalence of hoarseness among patients attending otorhinolaryngology services at a tertiary hospital in Tanzania.

**Method:** A descriptive cross-sectional study was conducted. A total of 427 patients were recruited. Standard questionnaires were used to collect clinical and socio-demographic information. If hoarseness was identified, further evaluation was carried out including indirect and direct laryngoscopy. Biopsies were taken from the patients with laryngeal mass after direct laryngoscopy under general anaesthesia. Data were analysed using SPSS version 20.0. Confidentiality was maintained.

**Results:** The prevalence of hoarseness was 65 (15.2%), which was more common in males 40 (17%) and the age group above 60 years. Common laryngoscopic findings among patients with hoarseness were laryngeal mass 47 (63%) and the leading accompanying symptom was difficulty in breathing 25(32%).

**Conclusion:** Hoarseness of voice is a common complaint and accompanies various symptoms. It can also be a red flag for upper aero-digestive malignancies. Therefore, these patients should be evaluated with a high degree of suspicion.

**Keywords:** Hoarseness of voice, accompanying symptoms, laryngoscopy, tertiary hospital, Tanzania

## INTRODUCTION

Hoarseness of voice is the disturbance of normal voice pitch by an abnormal vibration of the vocal cords, it is a term used to describe an unnaturally harsh, rough or deep voice.<sup>[1]</sup> It is a common symptom in otolaryngological practice and it is an early manifestation of a large variety of conditions directly or indirectly affecting the larynx, ranging from inflammatory to malignant.<sup>[2]</sup> Hoarseness has a prevalence of 6% in the general population, rising to 11% for professional voice users (30% of the patients whose work requires excessive voice use).<sup>[3]</sup> It affects approximately 20 million people in the United States of America (USA) at any given time, and about one in three individuals will become hoarse at some point in their life. In addition to the impact on health and quality of life, hoarseness leads to frequent healthcare visits and several billion dollars in lost productivity

annually from work absenteeism.<sup>[4]</sup> Good vocal function is estimated to be required for around one third of the labour force to fulfil job requirements.<sup>[5]</sup> Despite the high prevalence, many people in the USA lack knowledge of the possible causes and appropriate treatment of hoarseness. According to a recent survey by the American Academy of Otolaryngology Head and Neck Surgery Foundation (AAO-HNSF), nearly half of adults are unaware that persistent hoarseness may indicate cancer.<sup>[6]</sup>

Hoarseness may develop in newborns, infants, children, and adults of all ages. Prevalence in women is 50% higher than men. Groups at increased risk include children, especially at ages eight through 14 years, the elderly population, and professional voice users such as teachers, performers, telemarketers, and aerobics instructors.<sup>[4]</sup>

The aetiology of hoarseness can be divided into acute and chronic onset. The acute onset is more common and mainly caused by inflammation such as viral laryngitis. Other causes include bacterial infection, smoking, excessive voice use, laryngeal trauma, or thyroid surgery.<sup>[6]</sup>

Chronic causes include vocal polyps, vocal cord nodules, laryngeal papillomatosis, laryngeal neoplasms, tumours of vocal cords, functional dysphonia, smoking, voice abuse, gastro-oesophageal-laryngopharyngeal reflux, post nasal drip, malignant neoplasms of thyroid, oesophagus, lungs and neurological involvement by systemic diseases like diabetes mellitus, and chronic granulomatous diseases such as tuberculosis.<sup>[7,8]</sup>

Possible causes of the hoarseness of voice are estimated by asking patients about main complaints, medical history, degree and quality of hoarseness, past history, occupation, daily lifestyle habits and social background related to phonation. Just listening to the voice often will give a clue to the underlying cause. Indirect or direct laryngoscopy enables diagnosis of many laryngeal disorders.<sup>[9]</sup>

True hoarseness from a laryngeal origin usually results in a rough raspy voice.<sup>[7]</sup> The aetiological classification of hoarseness has been grouped into two broad categories which are organic and functional voice disorders.<sup>[12]</sup> Patients may present with organic voice disorders (OVD) which refers to an aphonia/dysphonia due to mass lesions, structural changes to the vocal folds or cartilaginous structures, or interruption to neurological innervations of the laryngeal mechanism. However, many patients present with non-organic or functional voice disorders (FVD) which may be defined as an aphonia/ dysphonia that exists in the absence of structural or neurological pathology.<sup>[13]</sup> Many of the pathologic changes are associated with more than one of these underlying causes.<sup>[8, 11, 14, 15]</sup>

Vocal cord paralysis, which may be unilateral or bilateral, causes hoarseness. Unilateral vocal cord paralysis is mostly caused by injury to the recurrent laryngeal nerve

during thyroid, neck, or cardiothoracic surgery, and with mediastinal or apical involvement from lung cancer (Pancoast tumour). Bilateral vocal cord paralysis is commonly caused by bilateral thyroid surgery. In addition to causing hoarseness as a result of direct trauma to and inflammation of the vocal cords, endotracheal intubation can also cause vocal cord paralysis.<sup>[15]</sup>

Psychogenic voice disorders generally occur as a reaction to stress and other psychiatric disorders, including malingering.<sup>[13,14]</sup>

Hoarseness may occur with several endocrine disorders, most notably hypothyroidism and acromegaly. Inflammatory arthritis may affect the larynx and result in hoarseness. Laryngeal papillomatosis can also occur in adults, as well as in children.<sup>[14]</sup> Hoarseness is often the first manifestation of squamous cell carcinoma of the larynx, and may have associated cough, haemoptysis, laryngeal pain, or dysphagia.<sup>[8]</sup> The patient's perception of hoarseness as a change in voice quality may be entirely different from the physician's understanding of the symptom.<sup>[14]</sup>

Definitive diagnosis depends on thorough history taking and careful general physical examination with particular attention to the head and neck.<sup>[14]</sup> If it does not resolve with appropriate intervention, prompt evaluation with laryngoscopy should be undertaken.<sup>[14]</sup> The management of hoarseness requires identification and treatment of any underlying conditions, vocal hygiene, voice therapy, and specific treatment of vocal cord lesions including surgical intervention.<sup>[15]</sup>

## METHOD

This was a prospective descriptive cross-sectional study carried out in the ORL Department in a tertiary hospital, in Tanzania. A total of 427 patients were recruited over a period of eight months.

Data were collected using a structured questionnaire. Thorough history taking followed by ENT examination including laryngoscopic examination were done. Patients who failed to tolerate indirect fiberoptic laryscopy underwent direct laryngoscopy under general anaesthesia. Biopsies were taken from patients found with a laryngeal mass. The results were traced and these patients managed accordingly. Data analysis was done using SPSS (Statistical Package for the Social Sciences) version 20.

Ethical clearance was obtained from University Institutional Review Board (IRB). Confidentiality of the information was observed.

## RESULTS

Of the 427 participants, 235 (55%) were males and 192 (45%) were females. M:F=1.2:1 The largest group was

aged below 10 years (44.3%) and 11.2% were aged above 60 years (table 1).

Among the 427 participants 65 (15.2%) had hoarseness of voice, the most affected age group was above 60 years old (45.8%), p-value =0.00 (table 2).

Hoarseness of voice was more common in males 40 (17%) compared to females 25 (13%), but this difference was not statistically significant with p value =0.156 (table 3).

Among patients with hoarseness, breathing difficulty was the leading accompanying symptom (32%) followed by foreign body sensation (16%). On laryngoscopic examination a laryngeal mass was revealed to be the common feature in 47(63%) patients, followed by redness and oedema of the vocal cords in 16 (21%) patients (figure 1).

DISCUSSION

Hoarseness of voice was found to be a common complaint in patients attending ENT services at a tertiary hospital and tended to be more common in males than females. In this study the overall prevalence of patients with hoarseness of voice was 15.2%. The most affected age group was above 60 years (45.8%) and there were more males, 40 (17.0%), compared to females, 25 (13.0%). The majority of patients presented in the 4th (24.0%) and 6th decades (21.0%) of life followed by the 3rd decade (18.0%).

Difficulty in breathing was a leading accompanying symptom accounting for 32% followed by the sensation of a foreign body in the throat (16.0%). Laryngoscopic examination revealed a laryngeal mass 47(63.0%) to be the most common finding followed by redness/oedema of vocal cords 16 (21%) and vocal cord immobility 12 (16%). Patients with laryngeal masses confirmed to be malignancies were the most common histopathology result 33 (70% ) and benign lesions were 14 (30.0%) the commonest malignant lesion were laryngeal carcinoma, whereas benign lesions were laryngeal papilloma.<sup>[8]</sup>

CONCLUSION

Prevalence of hoarseness is high, and a large proportion of patients had neoplastic causes. Since hoarseness could be a symptom of a malignancy it is concerning that most patients seek medical attention late. Many patients presented with breathing difficulties which often signified advanced disease. The aetiology of hoarseness ranges from trivial infections to life threatening malignancies A detailed history taking and full physical examination of patients presenting with hoarseness can lead to earlier diagnosis to minimize mortality due to malignant conditions, and facilitate early management of underlying disorders for better outcomes.

Conflicts of interest: None

Table 1. Distribution of participants by age and sex

Age group – years	Sex		Total n (%)
	Male n (%)	Female n (%)	
0-10	104 (24.4%)	85(19.9%)	189 (44.3%)
11-20	17 (4.0%)	18 (4.2%)	35 (8.2%)
21-30	18 (4.2%)	17 (4.0%)	35 (8.2%)
31-40	21 (4.9%)	29 (6.8%)	50 (11.7%)
41-50	18 (4.2%)	16 (3.7%)	34 (8.0%)
51-60	19 (4.4%)	17 (4.0%)	36 (8.4%)
>60	38 (8.9%)	10 (2.3%)	48 (11.2%)
Total	235 (55.0%)	192 (45.0%)	427(100%)

Table 2. Prevalence of hoarseness by age

Age group – years	Hoarseness		Total n (%)
	Yes n (%)	No n (%)	
0-10	3 (2.0%)	186 (98.0%)	189 (44.3%)
11-20	0 (0.0%)	35 (100%)	35 (8.2%)
21-30	5 (14.3%)	30 (85.7%)	35 (8.2%)
31-40	9 (18.0%)	41 (82.0%)	50 (11.7%)
41-50	10 (29.0%)	24 (71.0%)	34 (7.9%)
51-60	16 (44.0%)	20 (56.0%)	36 (8.4%)
>60	22(45.8%)	26 (54.2%)	48 (11.2%)
Total	65(15.2%)	362 (84.8%)	427(100%)

Table 3. Prevalence of hoarseness of voice by sex

Age group – years	Hoarseness		Total n (%)
	Yes n (%)	No n (%)	
Male	40 (17.0%)	195 (82.0%)	235 (55.1%)
Female	25 (13.0%)	167 (87.0%)	192 (44.9%)
Total	65 (15.2%)	362 (84.8%)	427 (100%)

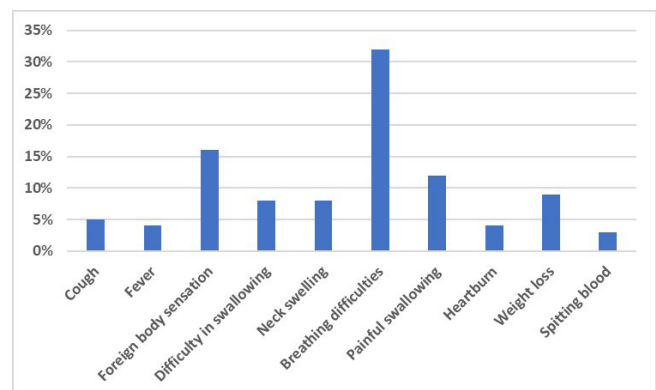


Figure 1. Distribution of other symptoms accompanied with hoarseness of voice

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