

Incidence of Laryngeal Lesions among School Teachers in Jeddah, Saudi Arabia

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Abstract: To determine the incidence of laryngeal lesions among school teachers in Jeddah, Saudi Arabia. A cross-sectional study was conducted in year 2014, on 500 male teachers, both from private and public sectors. All were above 18 years of age, 162 (62.8%) from private sector while 96 (37.2%) were from public sector. Questionnaires were developed in Arabic as well as in English languages and were distributed among public and private schools at different levels at Jeddah District. All participants completed a questionnaire about their dietary habits, height and weight, presence of stress, smoking and allergies. Patients having positive voice symptoms were invited to visit OPD at Otolaryngology Department of King Abdul Aziz University Hospital, Jeddah and clinical examination along with direct laryngo-pharyngeal checkups were done. The 1 case found having very small bilateral vocal cord nodules. The 10 cases found having Reinke's edema. Diagnostic efficiency of telescopy (by Hopkins's 70° and 90° scopes) was found to be better than that of indirect laryngoscopy. Voice disorders are prevalent in all age groups, usually occur in people have to use voice more like teachers, singers, politicians and leaders. Incidence of laryngeal lesions found more in private sector as compared to public sector, due to job nature and stress content.

Key words: Vocal cord nodules, telescopy, microlaryngeal surgery, OPD, stress, voice disorder

INTRODUCTION

Benign vocal cord lesions refer to a spectrum of abnormal growths within or along the covering of the vocal cords. These lesions can present in the form of cyst, nodules and polypstrauma to the vocal cords like voice abuse can be the initiating factor for future vocal lesions like polyps or hematoma. Laryngeal lesions are significant because of the importance of spoken or sung communication and the voice's contribution to identity.

Chopra *et al.* studied 67 patients with various benign laryngeal lesions. The lesions were categorized and a correlation of clinical, microlaryngoscopic and histologic features was done as well as evaluation of the age, incidence, occupational factors. They also described the effectiveness of micro laryngeal surgery and speech therapy in the management of these lesions.

Gleeson (2008) studied 74 patients (92 vocal folds). They found that benign lesion of vocal foldshave various appearances and histopathological examination would provide the diagnosis. Single histological features did not differentiate between clinical entities, instead a combination was more likely to be seen. However, an abnormal increase in layers of the basement membrane is seen in vocal polyps, nodules and in Reinke's edema.

Kleinsasser (1968) evaluated the morphology of the pathologic substrate, the pathogenesis and analyzed the most frequent factors responsible for the formation of vocal polyp such as vocal abuse and unfavorable microclimate during work. They concluded that gender doesn't play a role and the histologic structure is not related to time factor.

MATERIALS AND METHODS

After obtaining ethics approval from the bioethical and research committee, a study was planned, in which questionnaires were made and distributed in schools in Jeddah District male sections, after obtaining approval from Ministry of Education. Data was collected and patients having positive voice symptomsinvited in King Abdul Aziz University Hospital, ENT OPD, for their free checkups including rigid laryngoscopy.

This was a prospective analysis of 258 male teachers, all above 18 years of age, from both private as well as from public sectors, had participated in this study. Out of which 162 (62%) were from private schools while 96 (37.2%) were from public schools.

The teachers of these two sectors were also compared with each other with regard to their age, dietary habits, presence of stress, smoking, allergies, body-mass index and other factors affecting voice quality.

The 50 cases were identified by questionnaires; the main symptoms were change of voice discomfort and voice fatigue. All the cases were subjected to detailed history, general examination and ENT examination, ENT Department of King Abdul Aziz University Hospital, Jeddah. All the patients in this study group underwent the detailed laryngeal assessment by 70° and 90° telescope and nasopharyngolaryngo scope. Review of the systems and general health was made to rule out precipitating factors. Local examination of the nose, ear oral cavity oropharynx and endolarynx was done.

RESULTS AND DISCUSSION

This study was conducted on 50 cases presenting with hoarseness of voice, Throat discomfort or ON/OFF voice fatigue. Majority of the patients were between 20-50 years age group which accounts for 19.3 (n = 50) of total number of symptomatic patients. One case found was found having vocal nodule (2%, n = 50). Vocal nodule was single at right vocal cord, small in size, soft in consistency and without any sign of hemorrhage. The 10 cases (7 from private sector, 3 from public sector) (20%, n = 50) cases had Reinke's edema, in which 8 were smokers (6 from private sector and 2 from public sector).

All patients having vocal nodules and Reinke's edema were subjected to conservative treatment, in which they were improved with conservative treatment only, no surgical intervention required. Conservative treatment given in form of proper hydration, acid reflux management, voice rest, steroids gave excellent results. Speech therapy also worked in some cases.

The above treated cases were evaluated at follow-ups with complete recovery. Diagnostic efficiency of telescopy (by Hopkins's 70° and 90° scopes) was found to be better than that of indirect laryngoscopy.

Vocal cord lesion, e.g., vocal cord nodules are structural lesions very common amongst professional voice users such as teachers/singers/anchor persons. We have studied the risk factors that predispose the development of vocal nodules in teachers. Professional and personal factors as well as classroom environment (dimensions like enough ventilation, presence of noise, number of students in class) were studied. The most relevant personal factors in the pathological group were previous vocal pathology, laryngeal surgery, nasal surgery and gastroesophageal reflux.

More association of school teachers with voice disorders can be related to their vocal abuse in highly demanded work administration (only in private schools).

As seen in the present study maximum number of patients (20%, n=50) of Reinke's edema is found in the age group of 30-50 years which is similar to the Kleinssaser (1991) series (37.6%). Smoking was seen as a consistent etiological factor with Reinke's edema in our study (16%) which is similar to White and Sim series (84%) (White *et al.*, 1991).

Smoking can be suggested as a predominant causative factor in development of polyp followed by vocal abuse in our study. Teachers are more likely to develop voice disorders compared to non-teachers in other occupations they often cited as a high-risk group for vocal dysfunction.

The prevalence of vocal problems and the self-perception of these voice problems by the teachers varies across literature. Such variability in figure has precluded adequate planning for occupation safety services and preventive programs. Even though there are many studies (Ward and Hanson, 1988; Morrison, 1988; Olson, 1983), on the prevalence of voice disorders in teachers, they only indicate that voice difficulties are a significant problem for teachers which is exactly what the teachers themselves say in their self-evaluations done by mail (Wiener *et al.*, 1986; Weiner, 1987) or over the phone (Wiener *et al.*, 1989; Ossakow *et al.*, 1987). But just like Mattiske *et al.* and Sala *et al.*, we believe it is impossible to know the exact prevalence of voice disorders in teachers if a random sample is not selected from the chosen teaching population and if besides answering a questionnaire, we do not corroborate the existence of a vocal pathology by means of objective methods, particularly the laryngoscope.

We believe that vocal pathology is more common in teachers than in non-teachers because non teachers have to use voice less as compared to teachers, singers, anchor persons, etc.

Our study included teachers both from private as well as from public sector and there was more prevalence of vocal cord lesions in private sector group that was higher. This is because of more working hours of private sector teachers presenting stress content of the job.

CONCLUSION

Voice disorders are more prevalent in all age groups in teachers/singers/excessive voice users. This study showed a potential of voice pathologies among school teachers. We recommend conducting similar study on larger scale, among both male and females teachers, private and public sectors and in different regions to get a close estimation of the voice pathology.

Conservative treatment should be the front line in all the new cases. Voice rest and hydration are essential preventing measures especially in voice abuses like teachers, lawyers, etc. As patient compliance is a matter of prime importance for the success of conservative line of treatment, proper counseling and education to predisposed individuals is a must. Through ENT evaluation is essential in patients with voice and ENT complaints.

Speech therapy is an important part of conservative treatment modality. A new era in the field of laryngology due to improved technology in high speed digital imaging and stroboscopy and other tools have made diagnosis of subtle changes in the dynamics of vocal cords more easy. Conservative surgical intervention with function preservation have made great progress nowadays.

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