



Benign Lesions of the Vocal Cords in different ages: prospective Study of 60 Cases

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Abstract

To carry out a prospective analysis of benign lesions of vocal cords treated in our institute over a period of 4 years. 60 patients presenting with chief complaint of hoarseness of voice were taken up. Those found to have apparently benign laryngeal lesions were selected for the study. All non operative cases and any patient showing evidence of malignancy was not included. Each patient was subjected to indirect laryngoscopy and or fiberoptic examination. Patients then were subjected to direct microlaryngoscopy with aid of operating microscope in order to obtain a definite histopathological diagnosis. Data regarding sex and age of patients, anatomical site, occupation, post-operative follow-up and histopathological type of the lesions were analyzed. A male preponderance with M: F ratio of 2.5:1 was observed. Majority 50% was in the age group of 26-35 years. Vocal polyps were the commonest type of lesion. Hoarseness of voice was the main presentation in 54 (90%) and stridor in 6 cases (10%). Majority of the patients 73.3% presented within 1 yr of the symptoms of hoarseness and 15% between 1-2 yrs of onset of hoarseness. The highest incidence was seen in housewives 25% followed by school teachers 21.7% and students 18.3 %. The free margin of vocal cord was the commonest site of origin of these lesions in 70 %. Majority of patients 90% have totally symptom free after surgery and 10% have partial recovery of their symptoms. Hoarseness of voice is a common manifestation of laryngeal disease. Vocal cord polyp and nodule are the most common encountered benign vocal cord lesions. Speech therapy following Micro laryngeal surgery forms an essential part of treatment for benign vocal cord lesions as recurrence can be avoided due to care of the primary lesion by avoidance of forced or stressful phonation.

Key words: Vocal Cord, Benign lesions, Microlaryngoscopy

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Introduction

The benign lesions of the larynx are widely diverse and produce general symptomatology known as dysphonia (1). They include the functional

lesions of psychobiologic reaction, paralyses due to extralaryngeal disease, inflammatory masses due to vocal abuse, and true neoplasms of the intrinsic larynx. This list represents a profound challenge to the laryngologist, and the management of these abnormalities demands the use of many surgical and nonsurgical techniques.

Benign lesions of the larynx are of interest and importance to the laryngologist, not only because of the symptoms which they produce by interference with the normal functions of the vocal mechanism or by obstruction of the respiratory tract but because of the necessity of distinguishing them from malignant laryngeal lesions.

The significance of benign lesions of the larynx also lies in the importance of its function in speaking and the contribution of the voice to one's identity (3). The aim of present study was to carry

out a prospective analysis of benign lesions of vocal cords treated in our institute over a period of 4 years.

Patients and Methods

In the present study, 60 patients attending the department of Oto-Rhinology, Head and Neck Surgery of King Hussein medical center (Amman- Jordan), between January 2006 and January 2010, presenting with chief complaint of hoarseness of voice were taken up. Those found to have apparently benign laryngeal lesions were selected for the study. All non operative cases and any patient showing evidence of malignancy was not included. Patients were underwent a detailed history taking with respect to the presenting symptoms and their duration and thorough general physical examination. After that each patient was subjected to indirect laryngoscopy and or fiberoptic examination. The fiberoptic laryngoscopy was conducted in the clinic, being preceded by a brief explanation of the procedure to allay anxiety.

Patients then were subjected to direct microlaryngoscopy with aid of operating microscope in order to obtain a definite histopathological diagnosis. The material obtained from the vocal cords for therapeutic and diagnostic reasons. The laryngoscopies and removal of tissue was performed by senior specialist in our department at King Hussein medical center and all materials were examined by members of the department of pathology at our institute.

Postoperative management included complete voice rest for three weeks followed by gradual resumption of voice in order to resume the normal function of the vocal cords. After three weeks, when the healing appeared to be complete, a regime of gradual talking was started. The patient was instructed to remain silent except for a specified period of time everyday and then to gradually increase the frequency and duration of these periods. This module was continued for two weeks after the surgery and then the patient was advised to be back to his normal regimen.

Along with this regime, the patient was also advised to avoid extremely hot and cold foods, foods with strong seasonings, exposure to air pollutants, smoking, tobacco, alcohol and coughing and clearing the throat. Data regarding sex and age of patients, anatomical site, occupation, post-operative follow-up and histopathological type of the lesions were analyzed.

Results

Out of 60 cases, 43 were males and 17 females with a ratio of 2.5:1. Majority 50% was in the age group of 26-35 years, the youngest patient was 5 years of age and the oldest 45 years of age (Table I, II). The average age in males (32.51 ± 7.16 years) was significantly higher as compared to that of females (27.61 ± 6.41 years) ($p = 0.03$).

Table I: Distribution of patients with respect to sex (No. 60).

Sex of patients	Total No.	Percentage
Male	43	71.7
Female	17	28.3
Total	60	100%

Table II: Distribution of patients with respect to age (No. 60).

Age of presentation	Total No.	Percentage
05-10 years	6	10
15-20 years	5	8.3
21-25 years	7	11.7
26-30 years	12	20
31-35 years	18	30
36-40 years	8	13.3
41-45 years	4	6.7
Total	60	100%

Hoarseness of voice was the main presentation in 54 (90%) and stridor in 6 cases (10%). Majority of the patients 73.3% presented within 1 yr of the symptoms of hoarseness and 15% between 1-2 yrs of onset of hoarseness (Table III).

Table III: Duration of hoarseness (No. 60).

Duration of Hoarseness	Total No.	Percentage
0-1 year	44	73.3
1-2 years	9	15
2-3 years	4	6.7
> 3 yrs	3	5
Total	60	100%

The highest incidence was seen in housewives 25% followed by school teachers 21.7% and students 18.3 % (Table IV).

Type of lesion and site of origin

Table IV: Occupational Variation of the study group (No. 60).

Occupation	Total No.	Percentage
Housewife	15	25%
School teacher	13	21.7%
Student	11	18.3%
Imam	7	11.7%
Actor/Singer	6	10%
Factory worker	4	6.7%
Farmer	2	3.3%
Nurse	1	1.7%
Doctor	1	1.7%
Total	60	100%

Sites of involvement	Total No.	Percentage
Right vocal cord	20	33.3%
Left vocal cord	17	28.3%
Both vocal cords	23	38.3%
Total	60	100%

Among various types of benign lesions, most of the cases in our study group had vocal cord polyp found in 50% of cases, vocal nodule in 21.7%, Reinke's oedema in 13.3%, Vocal cyst in 6.7%, multiple papillomatoseses in 5% and Vocal cord papilloma in 3.3% of cases (Table V).

Regarding the site of involvement, the commonest site of origin was on both vocal cords in 38.3% followed by 33.3% on the right vocal cords, and in the remaining 28.3%, the site of origin was left vocal cord (Table VI).

The free margin of vocal cord was the commonest site of origin of these lesions in 70 % followed by anterior commissure 15%, posterior commissure 10% and 3 children (5%) multiple papillomatous lesions were found in both vocal cords and extended up to the epiglottis (Table VII).

Clinical Diagnosis	Total No.	Histopathological Diagnosis	Total No.
Vocal cord polyp	30 (50%)	- Angiomatous Polyp	23 (38.3%)
		- Inflammatory Polyp	7 (11.7%)
Vocal cord nodule	13 (21.7%)	- Hyperkeratosis, Parakeratosis and inflammatory reaction in sub-epithelial zone	13 (21.7%)
Vocal cord papilloma	2 (3.3%)	Solitary Squamous papilloma	2 (3.3%)
Multiple papillomatoseses	3 (5%)	Squamous papilloma	3 (5%)
Vocal cyst	4 (6.7%)	Vocal cyst	4 (6.7%)
Reinke's oedema	8 (13.3%)	Reinke's oedema	8 (13.3%)
Total	60 (100%)		60 (100%)

Table V: Clinical and Histopathological types of benign vocal cord lesions

Table VI: Sites of involvement of vocal cords (No. 60).

Post operative prognosis

In our study, majority of patients 90% have totally symptom free after surgery and 10% have partial recovery of their symptoms. The recurrence was in 4 cases of vocal cord papilloma, 3 children with multiple papillomatous lesions required several revisions using CO2 laser (Table VIII).

Location in the vocal cords	Total No.	Percentage
Anterior commissure	9	15%
Posterior commissure	6	10%
Free margin	42	70%
Arising from vocal cord & extending to epiglottis	3	5%
Total	60	100%

Table VII: Location of the lesion in the vocal cords (No. 60).

Table VIII: Post operative prognosis (No. 60).

Type of Lesion	Recurrence	Symptom Free	
		Total	Partial
Vocal cord polyp	0	30/30	
Vocal cord nodule	0	13/13	
Vocal cord papilloma	1	2/2	
Multiple papillomatoses	3	0/3	3/3
Vocal cyst	0	4/4	
Reinke's oedema	0	5/8	3/8
Total	4	54	6

Discussion

The care of the human voice has challenged the medical practitioner for centuries (5). Although rarely life threatening, voice problems should not be underestimated as a medical disorder. Besides affecting useful vocal communication, hoarseness may also signify the presence of more serious medical conditions such as a malignancy or airway compromise (6, 7). Hoarseness is the most common symptom of laryngeal dysfunction regardless of its etiology.

The precise cause of hoarseness will only be determined after examination of the larynx either indirectly via a mirror, or directly via an endoscope. Before this, a careful history, particularly identifying the duration of symptoms, can provide important information on likely etiology (8).

We carried out a prospective analysis of the benign lesions affecting the vocal cord. It's known that each of the benign lesions of larynx has potentially different causes but there are common factors that contribute to their development. Generally benign vocal lesions occur in response to injury but are also known to have multiple causes such as chronic vocal use/misuse.

In our study, Male predominance was observed, with Male: Female ratio of 2.5: 1, which is in accordance with the results of various other studies (9, 10). The majority of patients (50%) were found to fall into the age group of 26-35 years at the time of presentation with an age ranged from 5-45 years. It is known that individuals in younger age group are more ambitious, active and use their vocal skills maximally. Various studies have reported a higher incidence of benign lesions of the larynx in the age groups between 20 and 60 years (3, 9, 10).

A very interesting observation was that housewives formed 25% of the study group, the system of joint families and the large number of children in each family. It probably accounts for the common occurrence of glottic lesions like nodules and polyps in young women. Majority of the patients in this series i.e. about 70% belonged to occupations well known for excessive vocal use, such as teachers, imam, actor and medical personnel etc. These observations are similar to those of Baitha et al. (11).

Duration of hoarseness at presentation ranged from one week to three years with a mean duration of 2 months. Majority of the patients 73.3% presented within 1 yr of the symptoms of hoarseness and 15% between 1-2 yrs of onset of hoarseness, similar finding was seen in other studies (9, 10).

The majority of the patients were diagnosed to have vocal cord polyps (50%) followed by vocal nodules (21.7%), Reinke's oedema in 13.3%, Vocal cyst in 6.7%, multiple papillomatoses in 5% and Vocal cord papilloma in 3.3% of cases. These lesions were diagnosed clinically and confirmed by histopathological examination. There was strong correlation between the clinical and histopathological findings among these patients. Previous studies had shown different incidence rates of each of the benign vocal fold lesions.

In a series of 106 lesions assessed during surgery, Mossallam et al. (12), found that polyps are the most common lesion followed by cyst, Reinke's edema, nodules, granuloma; benign neoplasias and pre-cancer lesions. On the other hand, a study by Bouchayer et al. (13) found that nodules are the most encountered pathology

followed by cyst, vocal sulcus, polyp, pseudocyst, Reinke's edema.

With regards to the site of origin, the free margin of vocal cord was the commonest site of origin of these lesions in 70 %. These findings are in accordance with the findings reported by Hegde et al. and Baitha et al. (3, 11).

All patients underwent direct microlaryngoscopy and excision of the cordal lesion followed by post-operative voice correction therapy. Following this regime, the present study showed encouraging results as 93.3% of patients were normal without any recurrence after single operation.

Conclusion

Hoarseness of voice is a common manifestation of laryngeal disease. Vocal cord polyp and nodule are the most common encountered benign vocal cord lesions. Speech therapy following Micro laryngeal surgery forms an essential part of treatment for benign vocal cord lesions as recurrence can be avoided due to care of the primary lesion by avoidance of forced or stressful phonation.

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