

Clinical study of benign lesions of larynx

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Abstract

Aim of Study: To analyze over a period of 2 years, the demographics such as age, sex, distribution, occupation, the site of involvement, symptomatology and prognosis of the most frequent benign lesions of larynx. **Materials and Methods:** 50 patients presenting with hoarseness of voice and diagnosed with benign lesion of larynx in ENT OPD of Dr. B. R. Ambedkar Medical College and Hospital were included in the study after taking their consent and the study was carried out for a period of 2 years between October 2013 to September 2015. **Results:** In this study, it was noted that males were predominantly involved, maximum incidence between 31-40 years. Business men among males and housewives among females were commonly involved. Bilateral vocal cord nodule was the most common benign lesion of larynx, others included vocal cord polyp (both unilateral and bilateral) and Reinke's edema. Most important predisposing factor was being vocal abuse in all the cases. Treatment given included speech therapy, medical management and MLS according to the diagnosis and patients were followed up for six months. 41.18% of patients with bilateral vocal cord nodule, 50% of patients with bilateral vocal cord polyp, 50% of patients with right vocal cord nodule, 75% of patients with left vocal cord polyp, 42.86% of patients with right vocal cord polyp and 100% of patient's with Reinke's edema were normal at follow up. **Conclusion:** It was observed that vocal abuse was the most common predisposing factor for benign lesions of larynx and a multi modality treatment is necessary including medical, surgical and speech therapy to prevent recurrence.

Keywords: Benign lesions of larynx, Microlaryngeal surgery, Speech therapy

Introduction

Benign lesions of the larynx constitute an interesting array of lesions. These lesions are defined as an abnormal mass of tissue in the larynx, the growth of which exceeds and is uncoordinated with that of the normal tissue and persist in the same excessive manner after cessation of stimuli which evoke the change [1].

Benign lesions of the larynx generally produce a common symptomatology known as dysphonia [2]. The symptoms which they produce by interference with the routine functioning of the vocal cord mechanism and respiratory tract, along with the necessity to distinguish them from malignant laryngeal lesions, makes these lesions important to a laryngologist. The significance of benign lesions of larynx lies in the importance of its function in speech and the contribution of voice to one's

own personality. These lesions may affect voice quality and excessive growth may cause respiratory distress. Vocal nodules, polyps or a cyst does not rule out malignancy, unless the lesion is resolved with treatment or it is pathologically benign [3].

Aim and Objectives

The aim of this study is to analyze over a period of 2 years, the demographics such as age, sex distribution, occupation, the site of involvement, symptomatology and prognosis of the most frequent benign lesions of larynx.

Materials and Methods

The present study Clinical study of Benign Lesions of Larynx has been carried out in the Department of ENT, Dr. B.R. Ambedkar Medical College, Bangalore over a

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period of 2 years from October 2013 to September 2015. During this period patients who presented with hoarseness of voice were evaluated and 50 patients with benign lesions of larynx were included in the present study after taking their consent.

Inclusion Criteria

1. All patients attending ENT OPD with hoarseness of voice, foreign body sensation in the throat, vocal fatigue, difficulty in breathing.
2. Age 5- 65 years.
3. Both males and females.

Exclusion Criteria

1. Age below 5 years and above 65 years.
2. Patients with clinical diagnosis of malignancy of larynx.
3. Patients with speech defect due to central nervous system lesion.

Results

Table 1: Age and Sex Distribution.

Age in Years	Male		Female		Total	
	No.	%	No.	%	No.	%
≤ 10 yrs	0	0	0	0	0	0
11 – 20	0	0	0	0	0	0
21 – 30	9	33.33	7	30.43	16	32
31 – 40	12	44.44	11	47.83	23	46
41 – 50	3	11.11	4	17.39	7	14
51 – 60	3	11.11	1	4.35	4	8
61 – 70	0	0	0	0	0	0
≥ 70 yrs	0	0	0	0	0	0

In our study the most common age group involved was between 31-40 years.

Table-2: Occupation.

Occupation	Male		Female		Total	
	No.	%	No.	%	No.	%
Business	15	55.56	1	4.35	16	32
Housewife	0	0	12	52.17	12	24
Teacher	2	7.41	6	26.09	8	16
Clerk	3	11.11	0	0	3	6
Student	1	3.7	1	4.35	2	4
Others	6	22.22	3	13.04	9	18

In our study we saw that housewives (52.17%) among females and business man (55.56%) among males were most commonly affected by these lesions. (Table 2)

4. Patients with oral and pharyngeal pathology leading to change in voice.

5. Patients with nasal and nasopharyngeal pathology leading to change in voice.

A detailed history was taken, a complete general physical examination and a thorough ENT examination was done to arrive at the final diagnosis.

Therapy was based on the diagnosis. Vocal cord nodule and vocal cord polyp patients were advised microlaryngeal surgery to excise the lesion followed by voice rest. Those who refused were put on medical line of management including antibiotics, antacids, steam inhalation and speech therapy. Reinke’s edema patients were given medical line of management and voice rest. Patients were followed up for 6 months to assess the persistence or regression of the lesion. Those patients with persistence of the lesion were advised surgical excision.

Table-3: Predisposing Factors.

Predisposing Factors	Numbers of cases (n = 50)	Percentage
Upper Respiratory Tract Infection	12	24
Vocal Abuse	50	100
Smoking	25	50
Alcohol Consumption	2	4

Vocal abuse was the main predisposing factor noticed in 100% of patients, others being smoking, upper respiratory tract infection and alcohol consumption. (Table 3)

Table-4: Duration of Hoarseness of voice.

Duration	Cases	Percentage
< 1 month	10	20
1 - 3 months	12	24
3 - 6 months	19	38
6 - 9 months	7	14
9 - 12 months	2	4
≥ 12 months	0	0
Total	50	100

Maximum number of patients i.e., 19 cases (38%) presented during 3 – 6 months. (Table 4)

Table-5: Clinical Presentation.

Symptoms	Number of Cases (n = 50)	Percentage
Hoarseness of Voice	50	100
FB Sensation in throat	21	42
Vocal Fatigue	50	100
Difficulty in breathing	3	6

In our study the commonest clinical presentation noticed was hoarseness of voice and vocal fatigue (100%), few patients also presented with foreign body sensation in throat and difficulty in breathing. (Table 5)

Table-6: Diagnosis.

Findings	Number of Cases (n = 50)	Percentage
B/L Vocal cord nodule	17	34
B/L Vocal cord polyp	2	4
Right Vocal cord nodule	2	4
Left Vocal cord polyp	8	16
Right Vocal cord polyp	7	14
Reinke's edema	14	28

In our study bilateral Vocal cord nodule was the most common condition (34%). Other lesions diagnosed include Reinke's edema and vocal cord polyp. (Table 6)

Table-7: Treatment Given.

Cases	Speech therapy No.	Speech therapy and Medical management No.	MLS No.	Medical Management No.
B/L Vocal cord nodule	16	0	1	0
B/L Vocal cord Polyp	0	2	0	0
Right Vocal cord nodule	2	0	0	0
Left Vocal cord polyp	0	6	2	0
Right vocal cord polyp	0	7	0	0
Reinke’s edema	0	0	0	14
Total	18	15	3	14

A combined modality of treatment was given to patients, including speech therapy, speech therapy along with medical line of management. Few patients underwent MLS surgery and post-op speech therapy. (Table 7)

Table-8: Follow up at six months.

Causes	Normal		Persistent	
	No.	%	No.	%
B/L Vocal cord nodule	7	41.18	10	58.82
B/L Vocal cord polyp	1	50	1	50
Right Vocal cord nodule	1	50	1	50
Left Vocal cord polyp	6	75	2	25
Right Vocal cord polyp	3	42.86	4	57.14
Reinke’s edema	14	100	0	0

7 patients with B/L Vocal cord nodule, 1 patient with B/L Vocal cord polyp, 1 patient with right vocal cord nodule, 6 patients with left vocal cord polyp, 3 patients with right vocal cord polyp, 14 patients diagnosed with Reinke’s edema were free from the lesion during the follow up at six months. (Table 8)

Discussion

Benign lesions of larynx constitute an interesting array of lesions, etiological factors for lesions such as vocal nodules, vocal polyps, mucosal hemorrhage, intracordal cyst seems to be vibratory trauma. Secondary influences such as smoking, infection, allergy, acid reflux may also increase the mucosa’s vulnerability to the kind of injuries that may occur during mucosal oscillation [4].

Vocal cord nodules appear as symmetric bilateral mass lesions, white to opaque, firm and present at the junction of anterior and middle third of vocal folds. They result in hourglass closure of glottal configuration and will affect vocal fold mucosal wave and vibration. Vocal cord polyps are more commonly unilateral, translucent, red pedunculated arise in the free edge of anterior third of vocal fold [5]. Reinke’s edema is also known as polypoidal degeneration, in which a chronic accumulation of gelatinous mucoid material develops in Reinke’s space [6]. Laryngeal granuloma are reactive lesions composed of granulation tissue usually located in the posterior third of vocal folds. Macroscopically

they can be polypoidal, nodular, fungating or ulcerated, measuring 2-15mm in diameter and ranging in color from pale gray to dark red mostly bilateral [7]. Vocal fold cysts are benign pathologic entities that tend to occur at a slightly deeper plane of lamina propria and usually unilateral [8].

A multimodality mode of treatment is necessary to avoid recurrence of these lesions. Primary supportive medical treatment with adequate hydration to promote lubrication of vocal cords is important. A number of mucolytic agents like ambroxyl, carbocystine and brotuxine are believed to break down thick secretions, thereby supplementing therapy. Associated nasal, sinus and oropharyngeal infections should also be managed with appropriate treatment. Systemic antihistamine and decongestant combinations may be required to treat. Short term corticosteroids have been indicated in a number of cases and they facilitate by reducing the oedema of vocal cords there by reducing hoarseness of voice. Appropriate measures for acid reflex should be

taken. Antibiotics are used to treat associated upper respiratory tract infections [9].

Vocal therapy is a major treatment modality for almost all types of dysphonia. It may be sole treatment of certain voice disorders or it may precede and follow pharmacological or surgical interventions [10]. It is geared towards establishing better vocal hygiene and educating the patient about voice conservation [9]. Patient must understand the relation between specific voice disorder and causative factors. Vocal education begins with general understanding of anatomy and physiology of vocal mechanism. Other key elements include vocal hygiene, medical problems that can affect voice, the importance of smoking cessation, the dangerous and harmful effects of alcohol and drugs, the importance of nutrition and hydration, the effect of voice stress and useful voice exercise program and dangers of singing stick [11]. Two general types of instruction relate specifically to direct voice therapy. The first is recovery and second is training.

Recovery procedures presume a need for healing, thereby structures return to normal. They are based on the premise that the vocal organs will restore themselves if abusive behavior is discontinued. Recommendation include complete vocal silence for a week or two, no whispering, limited vocal use in which speaking is allowed only when absolutely necessary, reduced vocal intensity, elimination of singing, limitation of physical exercise and activities that cause the breath to be impounded by the closure of glottis and avoiding coughing and clearing of throat whenever possible. If the recovery procedures have allowed the larynx to be normal then it is followed by training that modifies previous habit patterns and replaces them with more efficient phonatory behaviours [12]. Benign mucosal disorders are excised by using microlaryngeal surgery with help of microscopes, laryngoscopes and microinstruments [9]. These procedures are designed to improve aerodynamic efficiency and vocal quality by creating a smooth vocal fold edge that is not excavated with overlying flexible epithelium. Laser may be used with great precaution and precision [13].

In a study of 42 patients over a period of 5 years, with age group ranging from 7-80 years, 40.47% of the patients had vocal cord polyps, 28.57% had vocal nodules, 14.30% had tuberculosis of larynx, 4.76% had laryngocele, 4.76% had epiglottic cysts, 2.3% had subglottic hemangioma. However, neoplastic lesions

like papilloma, adenoma and other non neoplastic lesions like intubation granuloma, contact ulcer granuloma, Reinke's edema were not encountered. Males were predominantly involved over females, with a ratio of 2.82:1 [14]. In another study of 60 patients vocal cord polyp was found in 50% of the cases, vocal nodule in 21.7%. Male preponderance with M.F ratio of 2.5:1 was observed [2].

In a 2 year prospective study males were seen to predominate over females with a ratio of 4:1. Incidence of vocal polyp was 37.5% followed by vocal nodule 27.5%, multiple laryngeal papillomatosis 10%, hemangioma 10%, epiglottic cyst 5%, vocal cord cyst 7.5% and intubation granuloma 2.5% [15].

In study of 50 patients vocal cord polyp constituted 66% of the cases, vocal cord nodule 16%, papilloma, cyst and keratosis 4% each respectively, molluscum contagiosum was found in 2% and 4% had no evidence of tumor. This study had male preponderance with M.F ratio of 2.5:1 [1].

Conclusion

Human voice is an extraordinary attainment, which is capable of conveying not only complex thoughts but also subtle emotions. In our present study, it is seen that benign lesions of larynx were more common in males, maximum incidence between 31-40 years. Business men among males and housewives among females were most affected.

Bilateral vocal cord nodule was the most common lesion apart from vocal cord polyp (bilateral and unilateral), Reinke's edema. Vocal abuse was a strong predisposing factor in all the cases included in the study others being upper respiratory tract infection, smoking and alcohol consumption. Hoarseness of voice was the most common clinical presentation, foreign body sensation in the throat, vocal fatigue, difficulty in breathing were the other clinical presentations. Definitive treatment of micro laryngeal surgery and voice rest was advised to patients with vocal cord nodules and vocal cord polyp and the same was executed in those patients where consent for surgery was given. Conservative management including medical management and speech therapy was advised to those patients who refused surgery and patients with Reinke's edema. All cases at 6 months follow up showed complete resolution of the lesion in patients with

Reinke's edema, 41.18% of patients with bilateral vocal cord nodule, 50% of patients with bilateral vocal cord polyp, 50% of patients with right vocal cord nodule, 75% of patients with left vocal cord polyp and 42.8% of patients with right vocal cord polyp.

Compliance with Ethical Standards

Funding: Nil, Conflict of interest: None

Permission of IRB: Yes

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

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