Benign tumors of the larynx: a clinical study of 50 cases

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Abstract

Objective The study was undertaken to identify the common type of lesions, and the age, sex distribution, symptomatology, sites of involvement and prognosis of the same.

Study design A two-year prospective study was conducted from January 2005 to December 2006.

Setting The study was conducted at SMS Medical College, Jaipur, Rajasthan, India—a tertiary referral hospital.

Patients A total of 50 patients with benign laryngeal lesions were included in the study based on symptoms such as hoarseness of voice, foreign body sensation, throat pain, neck mass and cough and with positive clinical findings on indirect laryngoscopy and neck examination. The patients were in the age group of 14–63 years. All nonoperative cases and malignant cases were excluded. Diagnostic hematological and radiological investigations and therapeutic microlaryngoscopic procedures were employed.

Results A male preponderance with a male:female ratio of 2.5:1 was observed. Majority of the patients were in the age group of 21–30 years. Vocal cord polyps were observed to be the commonest type of lesions. In our study, hoarseness of voice, cough, foreign body sensation and throat pain were found to be the commonest symptoms. Out of the 50 patients in the study group, only 6% patients got

complete relief with voice rest and vocal rehabilitation; 94% patients required surgery, which included microlaryngoscopy and endolaryngeal surgery. There was no recurrence in cases of vocal polyps and nodules during the period of observation.

Conclusion Microlaryngeal surgery and voice rest offer a cost-effective, useful and safe method for the management of benign laryngeal lesions. With the inclusion of lasers, they can be more precisely operated. As such, the standard treatment of choice in all types of benign tumors of the larynx should consist of a triad of approach by microlaryngeal surgery (either microscopic or endoscopic, with or without use of lasers), voice rest and vocal rehabilitation.

Keywords Laryngeal tumors · Benign tumors · Larynx · Vocal nodule · Microscopic laryngeal surgery

Introduction

Benign neoplasms of the larynx constitute an interesting array of lesions and have been defined as “An abnormal mass of tissue in the larynx, the growth of which exceeds and is uncoordinated with that of normal tissue and persists in the same excessive manner after cessation of stimuli which evoked the change” [1].

The significance of benign lesions of the larynx lies in the importance of its function in speaking and the contribution of the voice to one's identity [2].

Lowenthal (1958) studied 62 cases for a period of 10 years and reported 35 polypoid tumors out of which 26 were localized and 9 were diffuse; 6 papillary tumors and multiple papilloma; 3 angioma and 1 hemangioma, leucoplakia and vocal nodule each. He suggested that either direct laryngoscopy or external application with tracheostomy for larger growth can be used effectively, followed by voice correction therapy for the first 10–14 days followed by a

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region of sparing the voice for a period of several weeks [3]. Essadi et al. in their study of 15 cases of laryngeal tuberculosis observed dysphonia to be the main symptom and concluded that the diagnosis depends on biopsy and direct laryngoscopy and that medical treatment gives a good outcome [4]. Various authors have reported vocal cord polyps to be the commonest type of benign lesions of the larynx with a preponderance in males [2, 5–7]. Hoarseness of voice is a common complaint in today's high-stressed life and describes terms such as dysphonia, aphonia, voice break and odynophonia and most commonly vocal fatigue.

Batra et al. observed the largest number of cases of hoarseness (70%) in the age group of 21–50 years with a male:female (M:F) ratio of 2.6:1. He also suggested fiberoptic laryngoscopy to be an invaluable tool in the diagnosis of functional voice disorders primarily affecting young adults, frequently non-vocal, non-professional resulting from vocal abuse [8].

Failure of voice therapy to improve or alleviate vocal symptoms is the most common indication for the surgical removal of the lesions. Surgical removal with microsurgical instruments remains the mainstay of the therapy for laryngeal polyps, cysts and recalcitrant nodules (9).

Objective

The aim of the study was to determine the demographic characteristics (age, sex, occupation etc.), and the clinical strategy of site, symptomatology and prognosis of the most prevalent benign tumors of the larynx over a period of two years.

Materials and methods

This was a prospective study carried out at a tertiary health care center (Department of Otorhinolaryngology, SMS Medical College, Jaipur) over a period of two years from January 2005 to December 2006.

The patients were selected on the basis of the following inclusion and exclusion criteria.

Inclusion criteria: Hoarseness/change in voice; difficulty in breathing; foreign body sensation in the throat; pain on speaking and fatigue of voice; common cold and the findings were correlated with indirect laryngoscopy;

Exclusion criteria: Patients with clinical diagnosis of malignancy of larynx; all cases with inflammatory lesions; patients with speech defect due to central nervous system (CNS) lesions; patients with oral and pharyngeal pathology; and cases with nasal and nasopharyngeal pathology.

All the patients included in the study were questioned about age, sex, occupation and area of residence. History of all patients included in the study was taken with respect to the presenting symptoms and their duration. Investigations included routine blood investigations, urine micros-

copy, radiological investigations [X-ray paranasal sinuses, X-ray chest (postero anterior view), plain X-ray (neck-lateral view)], direct laryngeal endoscopy, followed by histopathological examination.

The treatment advised to the patients was either conservative medical therapy and/or surgical therapy (micro-laryngeal surgery). In case the patient was advised surgical treatment, preoperative assessment of the patient was done which included evaluation and correction of nasal and sinus infections and oral hygiene.

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.

Results

During the study period (January 2005–December 2006), a total of 76,000 patients attended the E.N.T. department, out of which 50 cases were diagnosed to have benign tumor of the larynx (0.06%).

Demographic profile

The majority of the patients belonged to the age group of 21–30 years ($n = 17$; male = 12; female = 5), the youngest patient was 14 years of age and the oldest 63 years of age. Our data reported a higher incidence of benign tumor of the larynx among males (72%) as compared to females (28%) with an M:F ratio of 2.5:1. The average age in males (37.91 ± 12.17 years) was significantly higher as compared to that of females (30.71 ± 8.51 years) ($p = 0.04$). With regard to the occupation of the patients, majority were housewives followed by teachers, respectively.

The distribution of patients under the different types of tumors is shown in Table 1.

The common complaints recorded were hoarseness or change in voice (100%) followed by vocal fatigue in nearly 52% of the patients, irritation in nearly 22%, cold/upper respiratory tract infection (URI) in 25% and 8% of them complained of foreign body sensation in throat. The duration of symptoms ranged from 1 month to 24 months (Table 2).

Table 1 Patient distribution under different types of benign tumor of the larynx according to age

Type of tumors	Males (age in years)					Females (age in years)					Total
	11–20	21–30	31–40	41–50	51–60	11–20	21–30	31–40	41–50	51–60	
Papilloma	0	0	1	1	0	0	0	0	0	0	2
Cyst	0	1	0	0	0	0	0	1	0	0	2
Keratoses	0	0	0	0	0	0	1	0	1	0	2
Vocal cord polyps	0	9	7	4	6	1	3	2	1	0	33
Vocal cord nodules	1	2	1	0	0	1	1	1	1	0	8
Leukoplakia	0	0	0	0	0	0	0	0	0	0	0
Molluscum contagiosum	0	0	0	0	1	0	0	0	0	0	1
No evidence of tumor	1	0	0	1	0	0	0	0	0	0	2
Total	2	12	9	6	7	2	5	4	3	0	50

Table 2 Frequency of patients with respect to duration of complaints (months)

Symptoms	Duration (months)					Total patients	Percentage (%)
	0–6	6–12	12–18	18–24	>24		
Hoarseness/change of voice	28	10	4	5	3	50	100%
Vocal fatigue	14	7	2	2	1	26	52%
Foreign body sensation in throat	3	0	1	0	0	4	8%
Difficulty in breathing	0	0	0	0	0	Nil	Nil
Common cold	0	1	1	4	5	11	22%
Irritation in throat	6	4	0	2	0	12	24%
Painful voice production	6	2	0	0	0	8	16%

Type of tumors and site of origin

Our series showed non-neoplastic tumors to be more common as compared to neoplastic tumors of the larynx. Most of the cases in the series were observed to have vocal cord polyp (66%), followed by vocal cord nodules (16%), papilloma, cyst and keratosis (4% each), respectively. Molluscum contagiosum was seen in 2% of the patients and 4% had no evidence of tumor.

The commonest site of origin of the tumor was vocal cords with 44% on the left vocal cords, 40% on the right vocal cords, and in the remaining 16%, the site of origin was bilateral.

One case of polypoidal mass underwent malignant change and turned out to be squamous cell carcinoma. 4% of the patients reported a past history of chronic laryngitis and tuberculosis, respectively and nearly 2% reported asthma. 22% of the patients had infection of the teeth and gums and 8% them had sinusitis.

Discussion

Majority of the results of our series were in concordance with the results of other similar studies. Out of the total number of patients attending the department, the incidence of benign tumor of the larynx was found to be only 0.067% and is supported by the findings of Capps, who reported only 2 cases of benign tumor of the larynx out of 3040 cases [10]. However, the incidence reported in our series is in disagreement with the incidence reported in an similar Indian study (1.4%; $p = 0.00$) [11]. Various studies have reported a higher incidence of benign tumors of the larynx in the age groups between 20 and 60 years [1, 2, 12–14]. Our results are in concordance with the above findings as we observed maximum number of cases in the third decade of life (31–40 years). The male preponderance observed in our study is in accordance with the results of various other studies [5, 13, 15] but Stewart has reported a still higher ratio (3: 2) [12].

Higher incidence (54%) of benign tumors was observed in professional voice users viz. teachers (16%), salesmen (16%), politicians (4%) and bus conductors (6%); in case of non-professional voice users, the highest incidence was observed in housewives (24%). These observations are similar to those of Strong and Vaughen [16] and Baitha et al. [7]. This may be likely because of the misuse or abuse of voice.

Regional sepsis in the form of infection of teeth and gums and sinus sepsis was observed in about 30% of the cases. This is similar to the findings of Epstein et al. (15%) [17]. However, these findings contradict the observations of Baitha et al. (48.1%), Mehta and Parikh (43%) and that of Kaluskar (59%) [7]. All these studies revealed that associated regional sepsis may be a predisposing factor in the causation of these tumors. The lower incidence observed in the present study in contrast to the other studies mentioned above indicate better personal hygiene of the patient and early management of septic foci.

In our study, we found maximum number of patients to have vocal cord polyps (66%) followed by vocal nodules (16%). Papilloma, cyst and keratosis were observed in 4% of the cases while 2% of the patients had molluscum contagiosum. These findings indicate preponderance of non-neoplastic tumors over neoplastic tumors, confirmed by histopathological examination and have been supported by the elaborate classification given by Myerson [18] and revised by Friedmann [5] and the results of other similar studies [2, 3, 5, 6, 12, 14, 19]. However, Stewart reported the incidence of neoplastic tumors to be 24.03%; Shaw reported 14%; Lowenthal reported 41.9% and Oliver reported 31.1% whereas in our series, we observed only 4% cases of neoplastic tumors (papilloma). This could possibly because of the greater number of cases (Stewart, $n = 104$; Shaw; $n = 1505$; Lowenthal; $n = 62$; Oliver, $n = 90$) studied by them as compared to our study ($n = 50$). With regards to the site of origin of the benign tumors, true vocal cords were found to be the commonest site for the origin of all neoplastic and non-neoplastic tumors. These findings are in accordance with the findings reported by Hegde et al. and Baitha et al. [2, 7].

Hoarseness of voice was found to be the most prominent and presenting feature of these tumors in the current series. All patients (100%) this symptom. The predominance of this symptom in this cohort of patients has been shown previously [1, 2, 5, 8].

Surgical treatment was the treatment of choice in majority of the cases studied (94%) and voice rest and rehabilitation sufficed in the remaining 6% cases. Of the different modes of management mentioned in the literature viz. medical, physical, immunological and surgical [20], the last one remains the standard treatment of choice in all types of tumors and in all age groups [2]. Voice rest and vocal rehabilitation remains the treatment of choice applicable to early stages of vocal nodule and in preventing

the recurrence of benign tumor (polyps, cysts etc.) post-operatively [9, 21]. However, it has been advised that surgical treatment of benign tumors of the larynx must invariably be followed by post-operative voice correction therapy, otherwise recurrences are liable to occur [3]. Following this regime in the present study showed encouraging results as 93.6% of patients were normal without any recurrence after single operation.

Conclusion

The benign laryngeal lesion produces symptoms which can vary from mild hoarseness to life-threatening stridor. These lesions can create a lot of mental and emotional tension in the patient and the family. Early diagnosis of the lesions can lead to effective management and good recovery. As such, the standard treatment of choice in all types of benign tumors of the larynx should consist of a triad of approach by microlaryngeal surgery (either microscopic or endoscopic, with or without use of lasers), voice rest and vocal rehabilitation.

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