

Clinicopathological Study of Non-Neoplastic and Neoplastic Lesions of Larynx

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ABSTRACT

Background: The laryngeal lesions are significant because of the human communication through voice and contribution of voice to the identity of the person. Lesions of the larynx are classified into the commonly occurring non-neoplastic lesions and relatively neoplastic lesions. The aim of this study was to describe the clinical features of patients with non-neoplastic and neoplastic lesions of the larynx, and pathological findings of patients with these lesions.

Material and Methods: This prospective study was conducted in 80 patients who were diagnosed with various lesions of larynx during a period of three years. After a detailed history, general physical and systemic examination, complete nasal and paranasal examination, examination of ears, patients were subjected for examination of larynx which included external examination of larynx, indirect laryngoscopy under general anesthesia.

Results: The incidence was found to be 30-40 (36.6%) years followed by the 51-60 (23.3%) years. Non-neoplastic benign lesions were more common (62.5%) as compared to neoplastic benign lesions (37.5%) with preponderance in males (80%) as compared to females (20%). Hoarseness of voice was the commonest presenting symptom being present in 15-30 patients. It was observed that 15 patients (50%) were smokers, 33.3% were addicted to alcohol, 6.8% patients had history of both smoking and alcohol consumption, 3.3% had betel nut chewing and 3.3% had history of tobacco chewing. Vocal polyp being the commonest type seen in 33.7% of cases followed by vocal nodule (22.5%), epiglottic cyst (2.5%), chronic laryngitis (1.3%) and tubercular laryngitis (2.5%), Papilloma (10%) & Squamous cell carcinoma (27.5%).

Conclusion: The symptoms of laryngeal lesions can vary from mild hoarseness of voice to life-threatening respiratory distress. All available methods of study should be utilized to make the diagnosis as early as possible. Early diagnosis of the lesion can lead to effective management.

KEYWORDS: Larynx, Laryngeal lesions, Clinicopathological.

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BACKGROUND

The larynx is a major component of the upper respiratory tract and lies just anterior to the upper end of the digestive tract. It is, therefore, vulnerable to inflammation and other phenomenon which lead to the formation of various lesions of the larynx [1]. The larynx serves to protect the lower airways, facilitates

respiration and plays a key role in phonation. The protective function is entirely reflexive and involuntary, whereas the respiratory and phonatory functions are initiated voluntarily but regulated involuntarily [2].

Tobacco use, alcohol consumption, and HPV16 infection are considered to be the major risk

factors for this disease. Occupational risk factors that include exposure to asbestos have also been described although dust exposures other than asbestos have been historically understudied [3].

The larynx is divided into the supraglottic, glottis and subglottis based on anatomical location. Tumors of the larynx can be divided into benign or malignant. Laryngeal granulomas, vocal cord nodules, and vocal cord polyps are tumor-like (non-neoplastic) lesions of the larynx. Benign laryngeal tumors include a large number of lesions such as papillomas, hemangiomas, fibromas, chondromas, myxomas, and neurofibromas. About 95% of laryngeal carcinomas are typical squamous cell tumors. Rarely adenocarcinomas are seen to arise from larynx, presumably arising from mucous glands [4].

Squamous cell carcinoma is the predominant histologic type; approximately 40% of patients will have stages III or IV disease when first evaluated [5]. Most cases of laryngeal cancer are associated with a history of tobacco and/or alcohol use, so the treatment of patients is complicated by medical comorbidity and the development of second primary cancers [6,7].

The aim of this study was to describe the clinical features of patients with non-neoplastic and neoplastic lesions of the larynx and pathological findings of patients with these lesions.

MATERIALS AND METHODS

This was a prospective study conducted in Department of Otorhinolaryngology, J J M Medical College Davangere, Karnataka, India, over a period of three years from December 2012 to November 2015. A total 80 patients who were clinically diagnosed with laryngeal lesions irrespective of their age, sex, occupation, and onset or duration of symptoms were included. The clinical diagnosis of laryngeal lesions was made on the basis of clinical presentation and included hoarseness, foreign body sensation in the throat, dysphagia, pain or discomfort on swallowing, dyspnea, cough, aspiration, or the presence of a neck mass. Socioeconomic status were derived according to modified kuppuswamy's classification. Patients with oral and oropharyngeal lesions and cases with nasal and nasopharyngeal lesions were excluded.

A thorough history, clinical examination and Routine investigations such as complete blood count and urine test for albumin and sugar were carried out in all the patients; sputum examination for acid-fast bacilli, X-ray chest—PA view, and X-ray soft tissue neck-AP and lateral views were done when required. Any patient with suspected lesions in the larynx was examined for direct laryngoscopy, and if needed, 70° or 90° endoscopic or flexible nasopharyngo-laryngoscopic evaluation was done under general anesthesia where a biopsy was taken from the lesion and sent for histopathological examination. Descriptive statistical measures like percentages and proportions were utilized to present the data. All the cases were managed by conservative or surgical management depending upon the pathology involved. Necessary investigations were performed routinely at each visit during follow-up.

RESULTS

In this study the patients' ages ranged from 14-70 years. The peak incidence of laryngeal lesions occurred in the 30-40 (36.6%) years followed by the 51-60 (23.3%) years. Non neoplastic lesions were most common in the third decade (30%) and minimum in the seventh decade (5%). Among neoplastic lesions, the benign tumors were reported between ages 30-40 years followed by malignant tumors between the ages of 41-70 years with maximum occurrence between the ages of 50-70 years. In both non neoplastic and neoplastic lesions, male patients constituted 80% of the study population. The male to female ratio was 8:2. Non neoplastic lesions were more in the middle class (66%) whereas malignant tumours were reported more in the lower (46.6%) and middle class (33.3%). Non neoplastic lesions were seen equally in rural and urban areas, while neoplastic lesions were more common (73%) in rural areas.

In our study hoarseness was the most common presenting symptom in 50- 60% of all patients of non neoplastic and neoplastic lesions presented followed by vocal fatigue, foreign body sensation, cough, dysphagia, dyspnea, swelling in the neck, neck pain, weight loss, blood stained and sputum. The duration of

Table 1: Distribution of cases according to clinical presentation and duration of symptoms.

Presenting symptoms	Non neoplastic		Neoplastic		Duration of symptoms		
	Number of cases	Percentage	Number of cases	Percentage	1 month	1-6 month	1 year
Hoarseness	30	60	15	50	26	40	6
Vocal fatigue	14	28	6	20	16	14	4
Foreign body sensation	0	0	1	3.3	11	8	1
Dysphagia	3	6	2	6.7	3	2	0
Cough	0	0	1	3.3	6	3	1
Swelling in neck	0	0	0	0	2	1	0
Dyspnea	3	6	1	3.3	3	2	0
Neck pain	1	2	1	3.3	2	1	0
Weight loss	0	0	1	3.3	2	1	0
Blood stained sputum	0	0	2	6.8	1	2	0
Total	50	100	30	100			

symptoms ranged from 1 month to 1 year; the mean duration of illness in months was 2.93 ± 1.32 .

The patients were mostly involved in occupations demanding an excessive use of voice. 26 teachers (32.5%) and 20 Farmer/agriculturists (25%), 10 housewives (12.5%) constituted a major group of patients. Three patients were laborers doing heavy work. Other occupations commonly observed were, business (8 cases), driver (6cases) Carpenter (3cases) clerks (2 cases) and singers (2 cases).

In the study, among neoplastic lesions, 50 % patients had history of tobacco smoking in the form of cigarette/beedi, followed by 33.3% were addicted to alcohol, 6.8% patients had history of both smoking and alcohol consumption, 3.3% had beetel nut chewing and 3.3% had history of

Table 2: Distribution cases according to risk factors.

Risk factors	Non neoplastic		Neoplastic	
	Number of cases	Percentage	Number of cases	Percentage
Smoking Cigarette	10	20	15	50
Alcohol	6	12	10	33.3
Alcohol +Smoking	5	10	2	6.8
Pan /beetel nut	3	6	1	3.3
Tobacco chewing	5	10	1	3.3
Vocal abuse	17	34	0	0
Poor orodental hygiene	3	6	1	3.3
Occupational risk factors	1	2	0	0
Total	50	100	30	100

tobacco chewing. Among non neoplastic lesions, majority of the patients i.e. 34% had history of vocal abuse followed by 20% smoking and 10% were alcoholics.

Table 3: Distribution of various non neoplastic and neoplastic lesions of larynx.

Non neoplastic			Neoplastic					
Type of lesion	No of cases	Percentage	Benign tumors			Malignant tumors		
			Type of lesion	Number	Percentage	Type of lesion	Number	Percentage
Vocal polyp	27	33.7	Papilloma	8	10	Squamous cell carcinoma	22	27.5
Vocal nodule	18	22.5						
Epiglottic Cyst	2	2.5						
Chronic laryngitis	1	1.3						
Tubercular laryngitis	2	2.5						
Total	50	62.5		8	10		22	27.5

In our study 50 cases had non neoplastic lesions followed by 30 cases of neoplastic lesions which further classified in Table 3.

Non neoplastic lesions constituted about 62.5% of cases with vocal polyp being the commonest type seen in 33.7% of cases followed by vocal nodule, epiglottic cyst, chronic laryngitis and tubercular laryngitis (Table 3).

Vocal polyp was the most common lesion seen in second to third decade of life. Vocal nodule being the second most common non neoplastic lesion seen in 22.5% of cases. Neoplastic lesions constituted 37.5% of cases with 10% being benign tumours and 27.5% malignant tumours. Among the benign neoplastic lesions, squamous papilloma was the predominant type seen. Squamous cell carcinoma was the commonest malignant neoplasm comprising of 8(36.5%) cases of mild differentiated, 12(54.5%) cases of moderately differentiated and poorly differentiated in 2(09%) patients. Squamous cell carcinoma was most commonly observed in 6th and 7th decades. In this study, laryngeal malignancy was most commonly seen in the glottis (40.9%), followed by the supraglottis (27.3%) and transglottis (31.8%).

DISCUSSION

It is important to recognize the range of non neoplastic lesions in a region and to differentiate them from neoplastic lesions because of different treatment modality and emotional burden on the patient. Functional outcome and prognosis of laryngeal lesions depend on early diagnosis. Glottic lesions produce hoarseness very early. Standard diagnosis of early laryngeal cancer is a representative biopsy or excision of the lesion.

In our study non neoplastic lesions were most common in the third decade (30%) and minimum in the seventh decade (5%). Among neoplastic lesions the benign tumors were reported between ages 30-40 years correlated with similar reports with Hegde MC et al¹ and Singhal P et al. [8]

Malignant tumors between the ages of 41-70 years with maximum occurrence between the ages of 50-70 years. Shirley D et al [9] stated that malignant laryngeal tumours tend to

increase with age, average age of diagnosis being 66 years.

In both non neoplastic and neoplastic lesions male patients constituted 90% of the study population. The male to female ratio was 9:1 correlated with Bakshi et al. [10] in a study of 690 cases of carcinoma larynx found that 647 patients were males and 43 were females.

Non neoplastic lesions were more in the middle class (66%) whereas malignant tumours were reported more in the lower (46.6%) and middle class (33.3%). Bakshi et al [10] in their study found that 60% were from the low socioeconomic status, 25% belonged to the middle class and the remaining 15% belonged to the high class.

Non neoplastic lesions were seen equally in rural and urban areas, while neoplastic lesions were more common 73% in rural areas and 27% in urban areas. Bakshi et al [10] found that 78% were rural and the remaining 22% were from urban regions, and Jaimanti [11] found 78% of cases from a rural area and 22% of cases from an urban area.

In our study hoarseness was the most common presenting symptom in 50-60% of all patients of non neoplastic and neoplastic lesions presented followed by vocal fatigue, foreign body sensation, cough, dysphagia, dyspnea, swelling in the neck, neck pain, weight loss, blood stained and sputum. Verma et al [12] reported hoarseness in 73.92%, difficulty in swallowing in 59.95% and cough with expectoration in 39.04%. and Bakshi et al [10] in their study found that hoarseness was the most common complaint, Other complaints were sore throat, neck nodes and haemoptysis.

In the study, among neoplastic lesions 50 % patients with the history of tobacco smoking in the form of cigarette, followed by 33.3% were addicted to alcohol, 6.8% had history of both smoking and alcohol consumption, 3.3% had beetel nut chewing, 3.3% had history of tobacco chewing. Maier et al. [13] in a study of 164 cases found that smoking and drinking alcohol increase the dose-dependent risk of laryngeal cancer. Among non neoplastic lesions, patients presented mainly with vocal abuse (34%) followed by 20% smoking. In the studies done

by Ghosh et al [14] and Parikh [15] vocal abuse was observed in 72% and 56% cases, respectively.

Non neoplastic lesions constituted about 62.5% of cases with vocal polyp being the commonest type seen in 33.7% of cases as correlated to 68.3% in kambic et al [16] and 16 % in chopra et al. [17]. The second most lesion noted is vocal cord nodule (22.22%), which is the most common caus-ative factor, noted Ghosh et al. [14] In our series we had 2 cases of laryngeal tuberculosis. This is in accordance with Chopra et al [17] who had 3 cases of tuberculosis of larynx.

Neoplastic lesions constituted 37.5% of cases with 10% benign tumours and 27.5% malignant tumours. Among the benign neoplastic lesions, squamous papilloma (10%) was the predominant type seen in the patients correlated with Shaw et al 14% [18].

Squamous cell carcinoma (22 cases) was the commonest malignant neoplasm comprising of 8 (36.5%) cases of mild differentiated, 12 (54.5) cases of moderately differentiated in 54.5%, and poorly differentiated in 2 (09%) patients. In a study Kumar et al. [19] stated that 95% of all laryngeal carcinomas are typical SCC. Jaiswal and Hoang [20] stated that out of all primary laryngeal carcinomas, 99% are SCC.

In this study laryngeal malignancy most commonly seen in the glottis (40.9%), followed by the supraglottis (27.3%) and transglottis (31.8%). These results are very close to the studies Aslam M J et al [21] where glottis 56%, supraglottis 36%, transglottic tumours 8% and no subglottis tumour involvement seen.

CONCLUSION

The laryngeal dysfunction produces symptoms which can vary from mild hoarseness to life threatening strider. Laryngeal lesions can create 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.

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