

**BENIGN LESIONS OF LARYNX - A CLINICAL STUDY OF 50 CASES**

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**ABSTRACT****INTRODUCTION**

Benign Lesions of Larynx (BLL) have been defined as "An abnormal mass of tissue in larynx, the growth of which exceeds and is coordinated with that of normal tissue and persists in the same excessive manner after cessation of stimuli which evoked the change." These lesions have significant influence on vocal, social and emotional adjustments of patients. These patients present with hoarseness of voice.

**AIM**

A clinical study was undertaken at Govt. ENT Hospital, Hyderabad, for 1 year from January 2014 to December 2014. Aim of this study was to analyze age and sex distribution, symptomatology, sites of involvement, management and recurrence of benign lesions of larynx.

**MATERIAL AND METHODS**

A total of 50 patients were studied who were admitted in the hospital. Inclusion criteria: Patients with Hoarseness of Voice (HOV) /change of voice, difficulty in breathing and swallowing, vocal fatigue, Foreign Body (FB) sensation in the throat. Exclusion criteria: Malignancy of larynx and acute inflammatory conditions of larynx.

**RESULTS**

Benign lesions of larynx show male preponderance with M:F ratio of 2.12:1, with common age group between 31 to 40 years. Chronic vocal misuse was the predominant cause and more in professional voice users. The common lesion was Vocal Cord (VC) polyp, followed by VC nodules and papillomas. Common side involved was right side. Majority of the patients had to undergo surgery. Majority of recurrence was seen in laryngeal papillomas (33.33%).

**CONCLUSION**

Benign lesions of larynx produce symptoms which vary from mild HOV to life threatening stridor. Early diagnosis leads to effective management. Males were more affected and maximum cases seen between 31 to 40 years. Chronic voice abuse, smoking, alcohol, frequent throat clearing and Laryngopharyngeal Reflux (LPR)/Gastroesophageal Reflux Disease (GERD) are precipitating factors. Microlaryngeal Surgery (MLS), voice rest and speech therapy offer a cost effective, useful and safe method for management of these lesions. Vocal nodules respond to voice therapy. The standard treatment includes a triad of MLS, voice rest and vocal rehabilitation.

**KEYWORDS**

BLL Benign Lesions of Larynx, VC Vocal Cord, FB Foreign Body, MLS Micro Laryngeal Surgery, HOV Hoarseness of Voice, TB Tuberculosis, CNS Central Nervous System, HPE Histopathological examination, LPR Laryngopharyngeal Reflux, GERD Gastroesophageal Reflux Disease.

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**INTRODUCTION:** Benign Lesions of Larynx (BLL) 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 persist in the same excessive manner after cessation of stimulus which evoked the change."<sup>[1]</sup> A benign lesion of larynx was defined by Hollinger as any mass of

tissue in larynx which does not present characteristics of malignancy.<sup>[2]</sup>

The significance of Benign Lesions of the Larynx (BLL) lies in the importance of its function in speaking and the contribution of the voice to one's identity.<sup>[3]</sup>

Inadequate voice is a social and professional disadvantage, although rarely life threatening, these lesions cause tremendous alteration in daily living and should not be underestimated. These lesions can have a significant influence on social and emotional adjustment of patients. Physicians particularly otolaryngologists, usually are first persons to be approached when voice sounds abnormal. Hoarseness of Voice (HOV) is one of the commonest symptoms in otolaryngological practice and is invariably the earliest manifestation of a large variety of conditions directly or indirectly affecting the voice apparatus. Hoarseness is a symptom of utmost significance. Its importance derives from the deplorable fact that though benign lesions are numerically more common cause of hoarseness of voice than malignant diseases, opportunity for the cure has often been lost by delay under a benign diagnosis.

During last decade there has been a tremendous advancement in the field of laryngology. Advent of microlaryngology and endolaryngeal microsurgery as well as recently introduced fibre-optic telescope has reduced our dependence on mirror examination and has greatly improved the diagnostic ability. These changes have already induced considerable rethinking on the earlier concepts of certain laryngeal conditions, such as those associated with epithelial hyperplasia. Surgical treatment is the main stay of treatment in cases of laryngeal polyps, cysts and recalcitrant VC nodules.<sup>[4]</sup> Essadi.<sup>[5]</sup> et al. studied 15 cases of Laryngeal Tuberculosis (TB) and concluded that the main symptom was dysphonia and diagnosis depends on direct laryngoscopy and biopsy. Medical treatment gives a good outcome.

**AIMS:** A clinical study was undertaken to analyse the most common Benign Lesions of Larynx (BLL) in relation to the following criteria.

1. Sex incidence.
2. Age incidence.
3. Aetiology.
4. Occupation.
5. Symptomatology.
6. Type of lesions.
7. Site of involvement.
8. Management.
9. Recurrence Rate (RR).

**MATERIAL AND METHODS:** This study was conducted at Govt. ENT Hospital/ Osmania Medical College, Hyderabad for 1 year during January 2014 to December 2014. A total number of 50 cases were studied among which 34 were males and 16 were females. The patients were selected on the basis of the following inclusion and exclusion criteria.

**Inclusion Criteria:** Patients who presented with Hoarseness of Voice (HOV) or change of voice, difficulty in breathing, Foreign Body (FB) sensation in the throat, pain on speaking, fatigue of voice, common cold and dyspepsia are included in this study. The findings were correlated with indirect laryngoscopy and video laryngoscopy.

**Exclusion Criteria:** Patients with clinical diagnosis of malignancy of larynx, cases of acute inflammatory conditions of larynx, patients with speech defect due to Central Nervous System (CNS) pathology, patients with oral and pharyngeal pathology, and patients with nasal and nasopharyngeal pathology were not included in the study.

A detailed history was taken and the patient was subjected to radiological, hematological and specific investigations as and when required. The treatment advised to the patient was either conservative medical therapy or Microlaryngeal Surgery (MLS). Postoperatively, the patients were kept on a follow-up of six months.

**RESULTS:**

**1. Incidence of benign lesions of larynx (BLL) in relation to sex:** In our study out of 50 cases, 34 (68%) were males and females were 16 (32%). The Male: Female ratio is 2.12:1, showing male preponderance. (Table I).

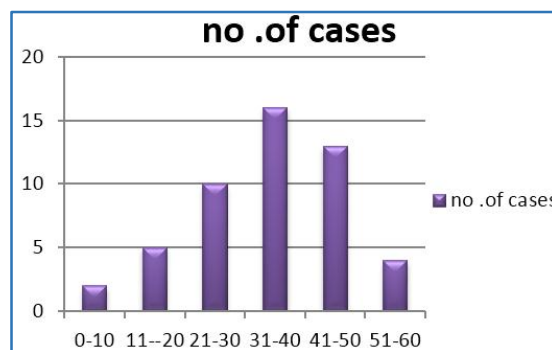
Sex	No. of Patients	Percentage
Male	34	68%
Female	16	32%
N=50		

**Table I: Sex Incidence**

**2. Incidence of Benign Lesions of Larynx (BLL) in relation to age:** In our study the youngest patient was one and half years old and the oldest being 60 years. The maximum number of cases was seen in the age group between 31 to 40 years (32%). (Table II and Chart I).

Age Group	No. of Cases	Percentage
0-10	2	4%
11-20	5	10%
21-30	10	20%
31-40	16	32%
41-50	13	26%
51-60	4	8%

**Table II**



**Chart I**

N=50.

**3. Aetiology:** There were varied reasons for the development of benign lesions of the larynx. In our study chronic vocal misuse was the predominant cause in benign vocal cord lesions which is 76% of the cases, followed by Human Papilloma Virus (HPV) infections with 16% and chronic infectious diseases being 8%. (Table III).

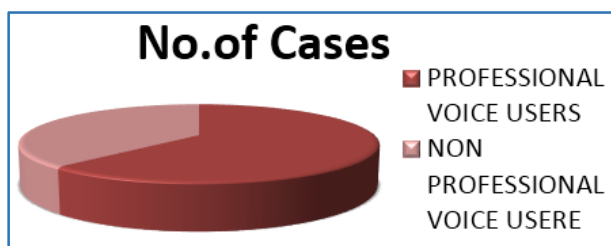
Aetiology	No. of Cases	%
Chronic Voice Abuse	38	76%
HPV	8	16%
Chronic Infectious Disease	4	8%

**Table III**

N=50.

**4. Occupation:** Out of 50 patients 31 were professional voice users (PVU) while 19 were non-professional voice users.

Out of the 31 Professional Voice Users (PVU) 10 patients were teachers, 8 patients were vendors/hawkers, 4 patients were local leaders, 5 patients were bus conductors, 4 patients were auto drivers. Among the non-professional voice users the highest numbers were housewives followed by students and farmers. (Chart II).



**Chart II**

N=50.

**5. Symptomatology:** The patients in our study presented with hoarseness of voice (100%), throat pain (28%), cough (21.80%), foreign body sensation (FB) (12.50%), difficulty in breathing (10.90%), and difficulty in swallowing (6.25%). The duration of symptoms ranged from 1 month to 2 years. (Table IV).

Symptoms	Percentage
HOV	100%
Throat Pain	28%
Cough	21.80%
Foreign Body Sensation	12.50%
Difficulty In Breathing	10.90%
Difficulty In Swallowing	6.25%

**Table IV**

N=50.

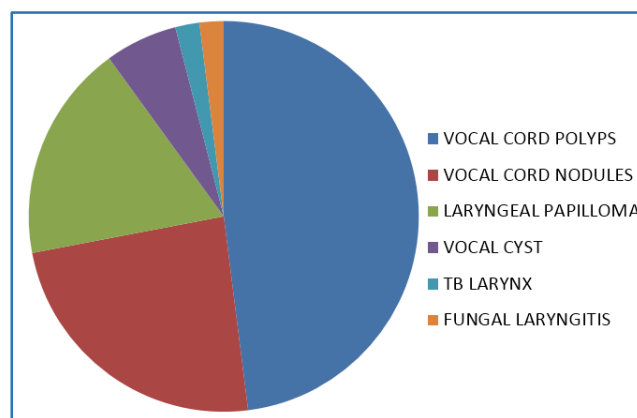
**6. Percentage of Benign Lesions of Larynx (BLL):** Most of the cases in our study had vocal cord (VC) polyps 24 cases (48%), vocal cord (VC) nodules 12cases (24%), laryngeal papillomas 9 cases (18%), vocal cyst 3 cases

(6%), Tuberculosis (TB) of larynx 1 case (2%) and fungal laryngitis 1(2%). However, neoplastic lesions like adenoma, chondroma and other non-neoplastic lesions like intubation granuloma, contact ulcer granuloma and Reinke’s oedema were not encountered. (Table V and Chart III).

Pathology	No. of Cases	Percentage
Vocal Cord Polyps	24	48%
Vocal Cord Nodules	12	24%
Laryngeal Papilloma	9	18%
Vocal Cyst	3	6%
TB Larynx	1	2%
Fungal Laryngitis	1	2%

**Table V**

N=50.



**Chart III**

**7. Site of Involvement:** The most common site of origin of the lesion was from true vocal cords. In case of VC polyp, the commonest site of the lesion was at the junction of anterior one-third and posterior two-thirds. In cases of VC nodules the lesions were bilateral and arising from junction of anterior one-third and posterior two-thirds. Papillomas aroused from true VC, false VC, anterior commissure, subglottis and laryngeal surface of epiglottis. In case of TB laryngitis posterior part of the VC, arytenoids and inter-arytenoid regions were involved.

Out of 50 cases 21 lesions (42%) were on the right vocal cord, 17 (34%) left vocal cord and 12 cases (24%) presented with lesion on both the vocal cords. (Table VI).

Side of Involvement	No. of Cases	Percentage
Right Vocal Cord	21	42%
Left Vocal Cord	17	34%
Both Vocal Cord	12	24%

**Table VI**

N=50.

**8. Management:** Out of 50 cases 41 patients (82%) had to undergo surgery and 9 patients (18%) were managed conservatively with speech therapy. Out of 12 cases of VC nodules 9 patients responded to conservative management and 3 cases did not respond to conservative management and had to undergo surgery. (Table VII).

Type Of Management	No. of Cases	%
Surgery	41	82%
Conservative (Speech Therapy)	9	18%

**Table VII**

N=50.

**9. Recurrence (RR) of Lesion:** All the patients were kept on a follow up of 6 months. Out of 9 cases of laryngeal papillomas, 3 cases recurred (33.33%) the highest rate of recurrence in our study, followed by 1 case of vocal

nodule (8.3%) and one case of vocal polyp (4.16%). (Table VIII).

Pathology	No. of Cases	Recurrence	% of Recurrence
Vocal Polyps	24	1	4.16%
Vocal Nodules	12	1	8.30%
Vocal Cyst	3	0	0
Laryngeal Papilloma	9	3	33.33%
TB Larynx	1	0	0
Fungal Laryngitis	1	0	0

**Table VIII**

N=50.





**DISCUSSION:** The results in this study are in concurrence with most of the reviewed studies. The sex incidence with male preponderance is similar to other studies. The higher incidence of benign lesions of the larynx was reported among males (68%) as compared to female (32%) with the Male:Female ratio of 2.12:1. This is in accordance with the study conducted by Pawan Singhal et al.<sup>[6]</sup> that reported a Male:Female 2.5:1. Kotby et al.<sup>[7]</sup> in a series of 19 patients with polyps, 68% of cases were male and 32% were female. The results in the study had patients age ranging from one and half years to 60 years. Maximum cases presented in the age group of 31 years to 40 years. Higher incidence of benign lesions were observed in professional voice users (PVU) (31 cases), teachers (10 cases), shopkeepers/ vendors (8 cases), bus conductors (5 cases), local leaders (4 cases) and auto drivers (4 cases). The highest incidence was observed in housewives followed by labourers and farmers among the non-professional voice users. These observations are in accordance with those of Baitha et al.<sup>[8]</sup> This may be likely because of the misuse or abuse of voice.

Regional sepsis in the form of infection of teeth, gums and sinus sepsis was observed in 40% of cases, this contradicts the findings of Epstein et al.<sup>[9]</sup> However, these findings are similar to the observations of Baitha et al. (48.4%). All these studies revealed that regional sepsis may be the predisposing factors in the causation of these lesions. In this study, the maximum number of patients had vocal cord polyps (48%) followed by vocal cord nodule (24%), laryngeal papilloma (18%), vocal cord cyst (6%) these findings indicate the preponderance of non-neoplastic tumors over neoplastic tumors confirmed by histopathological examination.

With regard to the site of the origin of benign tumors, true vocal cords were found to be the commonest site of the origin of all non-neoplastic tumors viz polyps, nodule and cysts. These findings are in accordance with the findings reported by Hegde et al. and Baitha. Vocal polyps and vocal nodules which together constitute 72% of cases were found at the junction of anterior one third and posterior two thirds of the true vocal cords. This is because of the mechanical force of vibration is most intense at this site. Overall, right

vocal cord 42% was involved and 32% lesions are seen on left vocal cord. This is similar to the study conducted by Asif A, Wani et al.<sup>[10]</sup> in which right vocal cord was involved more than left.

Hoarseness of Voice (HOV) 100% was found to be the most prominent and also the presenting feature of these lesions in this study followed by throat pain (28%), cough (21.8%), foreign body sensation (12.5%), difficulty in breathing (10.9%) and difficulty in swallowing (6.25%). This is in concordance with study conducted by Hegde.<sup>[11]</sup> Singhal et al. and Batra et al.<sup>[12]</sup>

In this study of Benign Lesions of the Larynx (BLL), vocal cord polyps were the commonest 48% this is in accordance with Dikkers et al.<sup>[13]</sup> However Chopra et al.<sup>[14]</sup>

Surgical treatment was the treatment of choice in majority of cases studied 82% and voice rest and rehabilitation sufficed in 18%. Of the different modes of management mentioned in the literature viz medical, surgical, physical and immunological, surgical remains the standard treatment of choice in all age groups and all tumors.

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, cyst etc.) post operatively Chagnon et al. However, it has been advised that surgical treatment of benign vocal fold lesion of the larynx must invariably be followed by post-operative voice correction therapy, otherwise recurrence is liable to occur.

Management of vocal cord polyps was done by Microlaryngeal Surgery (MLS) followed by voice rest for 7 days and speech therapy. There was a recurrence 4.16% of vocal polyp and the reason being that the patient was not committed to postoperative voice rehabilitation.

Vocal nodules were treated initially by educating the patients regarding proper vocal hygiene and the importance of adequate hydration for vocal cord function that is by drinking water, steam inhalation and avoiding excessive amount of drinks containing caffeine that is coffee, tea, colas, etc. Smoking cessation, reducing alcohol intake and avoiding exposure to fumes, dust and dry air, diet and reflux

reduction were also explained to the patients. Avoidance of vocal abuse and misuse/overuse and voice therapy by a highly skilled voice therapist for a minimum of 3 months is advised.

In this study, 9 cases (18%) were papillomas and the common sites of origin were vocal cords, false cords, ventricle and lingual surface of epiglottis. This is in accordance with study conducted by Kashima, Leventhal et al.<sup>[15]</sup> This indicates that respiratory papillomatosis have a predilection for the squamociliary junctions of the aerodigestive tract. All the cases were managed by debulking using microdebrider, laser and coblator, but the recurrence rate (33.33%) was high in these cases. All the clinically diagnosed cases were later confirmed by Histopathological Examination (HPE) and the patients were followed for 6 months.

**CONCLUSION:** The Benign Lesions of Larynx (BLL) produces symptoms with can vary from mild hoarseness to life threatening stridor creating a lot of mental and emotional tension in the patient and the family.

The early diagnosis of the lesion will lead to effective management and good recovery.

Males were more affected with these lesions.

Maximum number of cases was seen in the age group of 31 and 40 years.

Chronic misuse/abuse/smoking/alcohol throat clearing/LPR/GERD are precipitating factors.

Among these lesions vocal polyps were most common followed by vocal nodule.

The most common site involved is the true vocal cord at the junction of the anterior one third and posterior two thirds.

Microlaryngeal Surgery (MLS) and voice rest offer a cost effective, useful and safe method for management of benign laryngeal lesions.

Vocal nodules respond to voice therapy.

The standard treatment of choice in all type of benign tumor of larynx should consist of a triad of approach by Microlaryngeal surgery (microscopic or endoscopic, with or without use of lasers), Voice rest and Vocal rehabilitation.

Multiple resections are typical of laryngeal papilloma. In spite of debulking of laryngeal papillomas using microdebrider, laser and coblator the recurrence rate is high.

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