International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 453-464 www.ijdmsrjournal.com ISSN: 2582-6018

A Clinicopathological Study on Benign Lesions of Larynx and Their Management

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Submitted: 10-10-2022 Accepted: 21-10-2022

I. INTRODUCTION

Larynx can be involved with benign lesions of various causes such as infective, inflammatory, traumatic, neurogenic, congenital, functional and benign neoplasm. Smoking, infection, allergy along with voice abuse seem to be the most common causative factors of laryngeal disorders.

Benign lesions of larynx can be classified as:

- Non- Neoplastic: - Vocal nodules, Vocal polyps, Reinke's edema, Contact ulcer, Intubation granuloma, Leukoplakia, Tubercular granuloma, Amyloid deposits.
- Neoplastic: -Papilloma's, Chondroma, Hemangiomas, Adenoma.
- Cystic: Laryngocele, Ductal cyst, Saccular cyst

Diagnosis is the key for the management of the disorder. Laryngologist needs to distinguish between malignant and benign lesions as in some cases benign lesions also present with features like that of malignant lesions. Small lesions can be excised endoscopically by CO2 laser, KTP laser or by microlaryngeal instruments. Larger lesions extending beyond laryngeal framework often requires pharyngotomy or laryngo- fissure.

Indirect laryngoscopy examination affords a clear, two-dimensional image of the larynx from above the anatomic structures of interest. It does not require sophisticated instrumentation and is very easy and less time consuming. One must look for presence of a lesion and sites and side of the lesion if any. Another very important point to be noted is the mobility of both vocal cords. These details are fair enough to diagnose most of the common clinical conditions.

However, in some cases histopathological examination is mandatory for diagnosis or before planning the treatment.

Indirect laryngoscopy is limited by several factors. But persistence makes nearly all laryngeal structures visible. There is a small subset of patients who do not tolerate laryngoscopy.

One notable limitation of simple indirect laryngoscopy is that the examination does not yield a recordable and reproducible image of the larynx and vocal tract. More importantly, the unaided human eye is unable to visualize the vibratory patterns of the true vocal folds during phonation and also the hidden areas of larynx are not visualized.

If the patient is symptomatic and there is no obvious lesion, it would be a wise decision to get a stroboscopy done.

During the last decade there has been tremendous advance in the field of laryngology. Advent of micro-laryngoscopy and endolaryngeal microsurgery as well as recently introduced fiberoptic telescope have reduced our dependence on mirror examination and greatly improved the diagnostic ability. Further advancements are made in the recent years with the introduction of Videostroboscopy and high speed and high definition photography. Videostroboscopy provides a multidimensional approach which immensely improves the accuracy of diagnosis and planning the management of benign lesions of the larynx.

The field of laryngology took big leaps with the introduction of lasers in 1960s for treating variety of laryngeal pathologies, both benign and malignant. The better understanding of microarchitecture of vocal cords paved for the use of Carbon dioxide laser and KTP laser in laryngeal lesions.

This study is taken up in order to get an insight of the various benign lesions of the larynx, its incidence, clinicopathogenesis and management.

AIMS AND OBJECTIVES

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- To study the incidence of various types of benign lesions of larynx and the various modes of clinical presentation.
- To evaluate the etiological features of benign lesions of larynx.
- To correlate the clinical and histopathological diagnosis.
- To study the management of various types of lesions with different treatment modalities.

II. MATERIALS AND METHODS

- The present study" Clinico pathological study of Benign Lesions of Larynx" has been carried out in the Department of ENT, Silchar MedicalCollege,Silcharoveraperiodof1yearsfro mMay 2020to April2021.
- Total 50 patients were taken in the present study.

➢ **INCLUSION CRITERIA**

- All patients attending ENTOPD with hoarseness of voice, foreign body sensation in the throat, vocal fatigue, difficulty in breathing.
- Age ≤**1 0 - ≥ 85years.**
- Bothmalesandfemales.

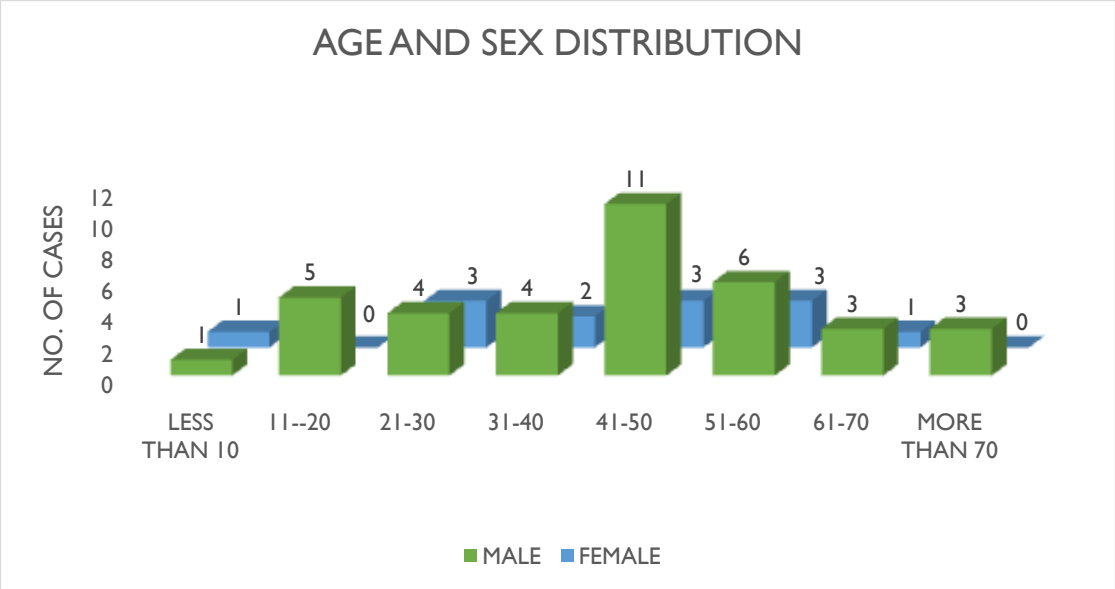
➢ **EXCLUSION CRITERIA**

- Patients with clinical diagnosis of malignancy of larynx.
- Patients with speech defect due to central nervous system lesion.
- Patients with oral and pharyngeal pathology leading to change in voice.
- Patients with nasal and nasopharyngeal pathology leading to change in voice.

III. RESULTS AND OBSERVATION

TABLE 1: - AGE AND SEX DISTRIBUTION

AGE IN YEARS	MALE		FEMALE		TOTAL	
	No.	%	No.	%	No.	%
≤10	1	2.7	1	7.7	2	4
11-20	5	13.5	0	0	5	10
21-30	4	10.8	3	23.1	7	14
31-40	4	10.8	2	15.4	6	12
41-50	11	29.7	3	23.1	14	28
51-60	6	16.2	3	23.1	9	18
60-70	3	8.1	1	7.7	4	8
>70	3	8.1	0	0	3	6
TOTAL	37	100	13	100	50	100



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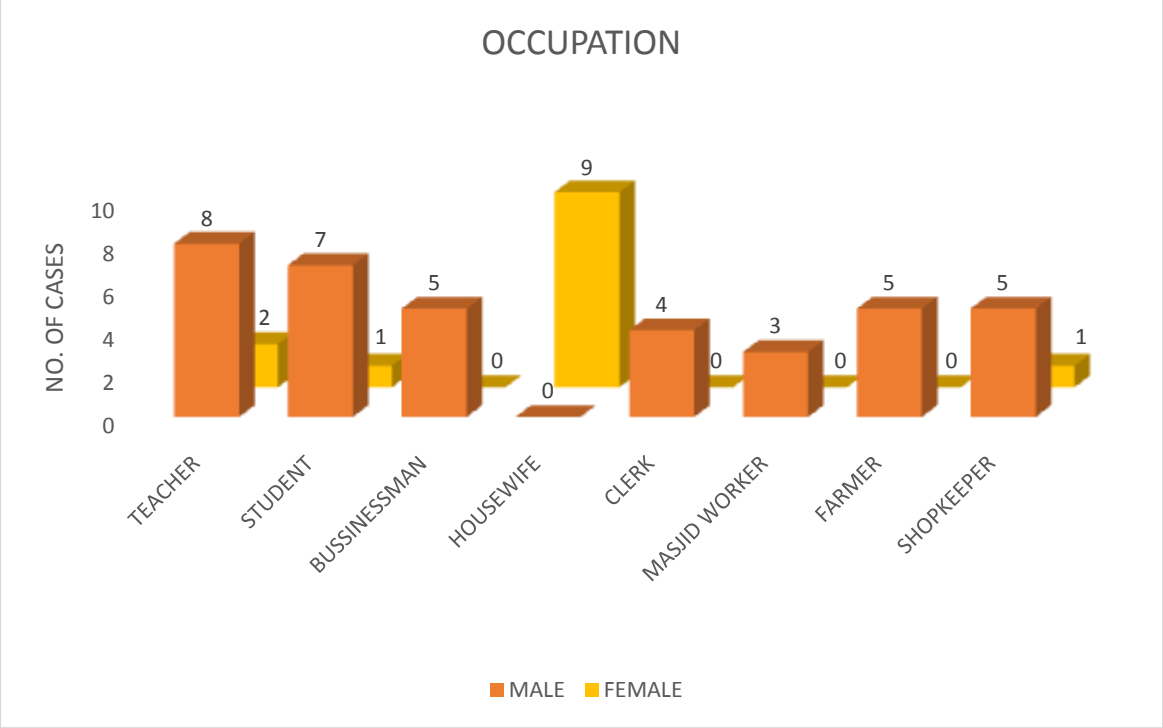
• Maximum number of cases i.e.,11 cases (29.7%), belonged to41–
• 50 years of age group and minimum number of cases i.e., 1case (2.7%),belongs to≤
• 10 years of age group. Youngest patient was 3 years old and eldest patient was 82 years old.
• Maximum number of cases was seen in males 37 cases (74%) as compared to females 13 cases (26%).

TABLE2: - OCCUPATION

OCCUPATION	MALE		FEMALE		TOTAL	
	No.	%	No.	%	No.	%
TEACHER	8	21.6	2	15.3	10	20
STUDENT	7	18.9	1	7.6	8	16
BUSSINESSMAN	5	13.5	0	0	5	10
HOUSEWIFE	0	0	9	69.2	9	18
CLERK	4	10.8	0	0	4	8
MASJIDWORKER	3	8.1	0	0	3	6
FARMER	5	13.5	0	0	5	10
SHOPKEEPER	5	13.5	1	7.6	6	12
TOTAL	37	100	13	100	50	100



Out of the 50 cases examined, majority of patients i.e., 10 cases (20%) belonged to the teaching class and the least i.e., 3 cases (6%) were Masjid workers. Among males, teaching class was dominating with 8 cases(21.6%) and among females, house wives were predominant with 9cases(69.2%).Among student group, comprised males (18.9%) andfemales (7.6%).

TABLE 3: - PREDISPOSING FACTORS

PREDISPOSING FACTORS	NUMBER OF CASES (n=50)	PERCENTAGE

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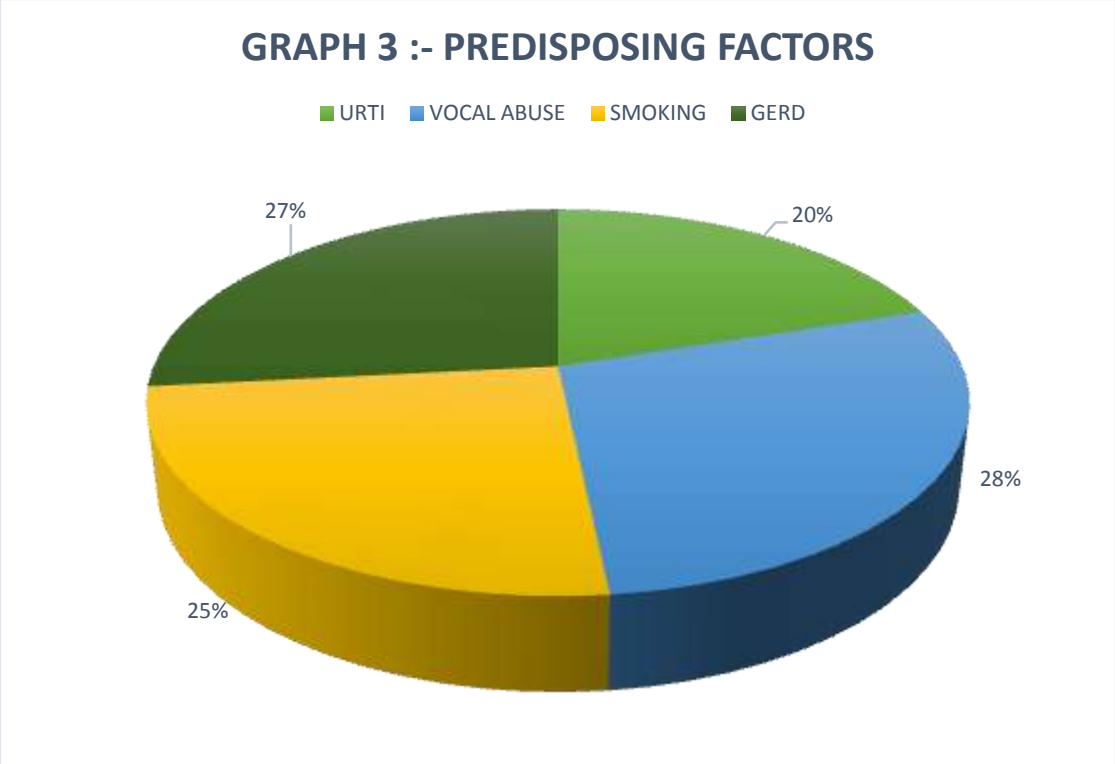
UPPER RESPIRATORY INFECTION	24	48
VOCAL ABUSE	34	68
SMOKING	30	60
GERD	32	64



About 34 cases (68%), showed vocal abuse as the most common predisposing factors, followed by Gastroesophageal reflux disease (GERD) i.e.,32 cases (64%) followed by smoking i.e.,30 cases (60%), and least number of cases i.e., 24 cases (48%) showed upper respiratory tract infection.

TABLE 4:- CLINICAL PRESENTATION

SYMPTOMS	NUMBER OF CASES (n=50)	PERCENTAGE
HOARSENESS OF VOICE	32	64
FOREIGN BODY SENSATION IN THROAT	24	48
VOCAL FATIGUE	40	80
DIFFICULTY IN BREATHING	12	24

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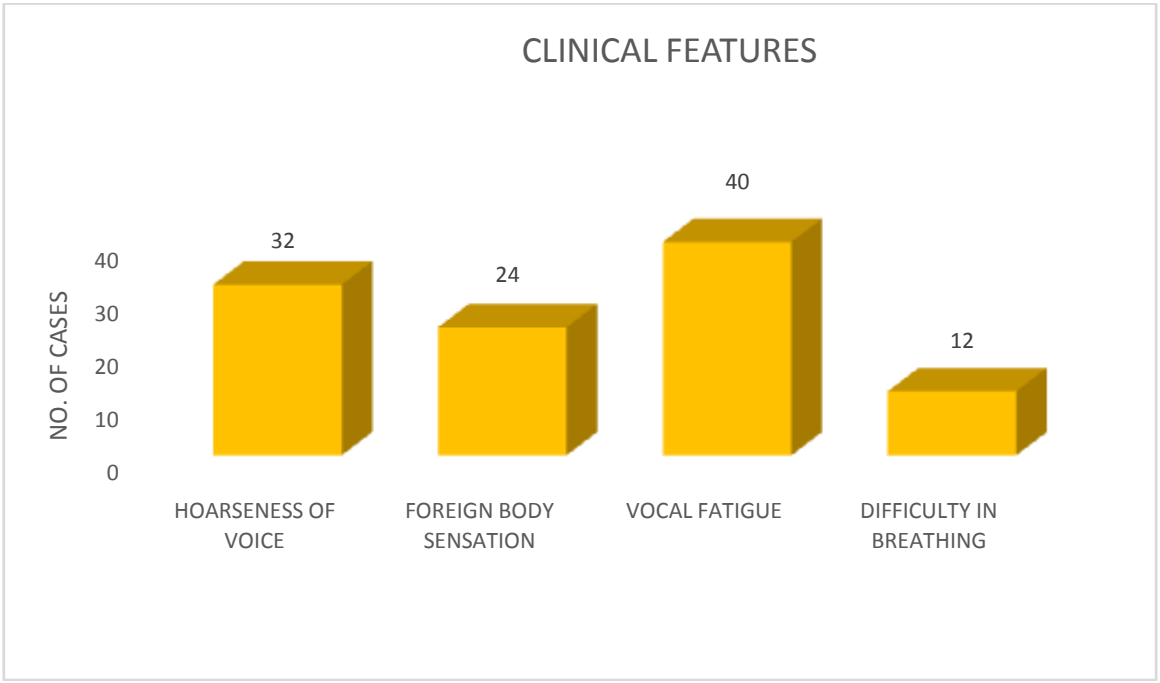

About 40 cases (80%), presented with vocal fatigue, followed by 32 cases (64%) with hoarseness 0f voice, 24 cases (48%) with foreign body sensation inthroat and 12 cases(24%) with difficultyin breathing.

TABLE 5: - DURATION OF THE SYMPTOMS

DURATION	NO. OF CASES	PERCENTAGE
2 WEEKS	6	12
3 WEEKS	4	8
4 WEEKS	4	8
1 MONTH	2	4
2 MONTHS	6	12
3 MONTHS	6	12
4 MONTHS	6	12
5 MONTHS	8	16
6 MONTHS	4	8
7 MONTHS	4	8
TOTAL	50	100

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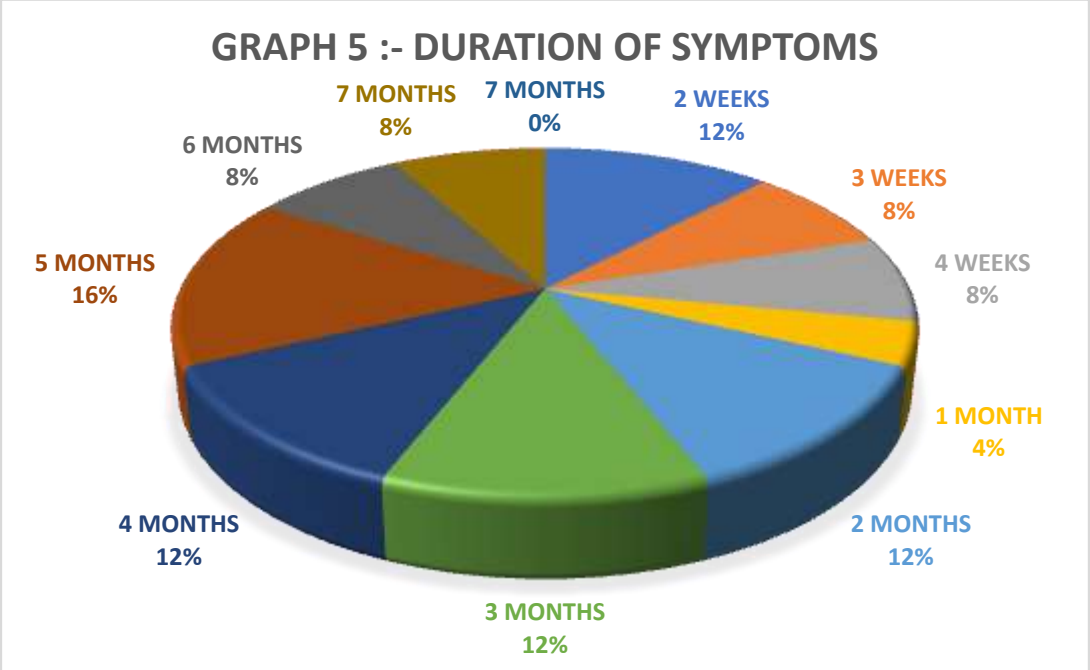

Maximum number of patients i.e., 8 cases (16%) had the symptoms for 5 months. Least number of patients i.e., 2 cases (4%) had the symptoms for just 1 month.

TABLE6: - DIAGNOSIS

FINDINGS	NUMBER OF CASES (n=50)	PERCENTAGE
B/L VOCAL CORD POLYP	2	4
B/L VOCAL CORD NODULE	14	28
RT VOCAL CORD NODULE	4	8
LT VOCAL CORD NODULE	5	10
RT VOCAL CORD POLYP	6	12
LT VOCAL CORD POLYP	7	14
REINKE'S EDEMA	11	22
RECURRENT RESPIRATORY PAPILLOMATOSIS	1	2
TOTAL	50	100

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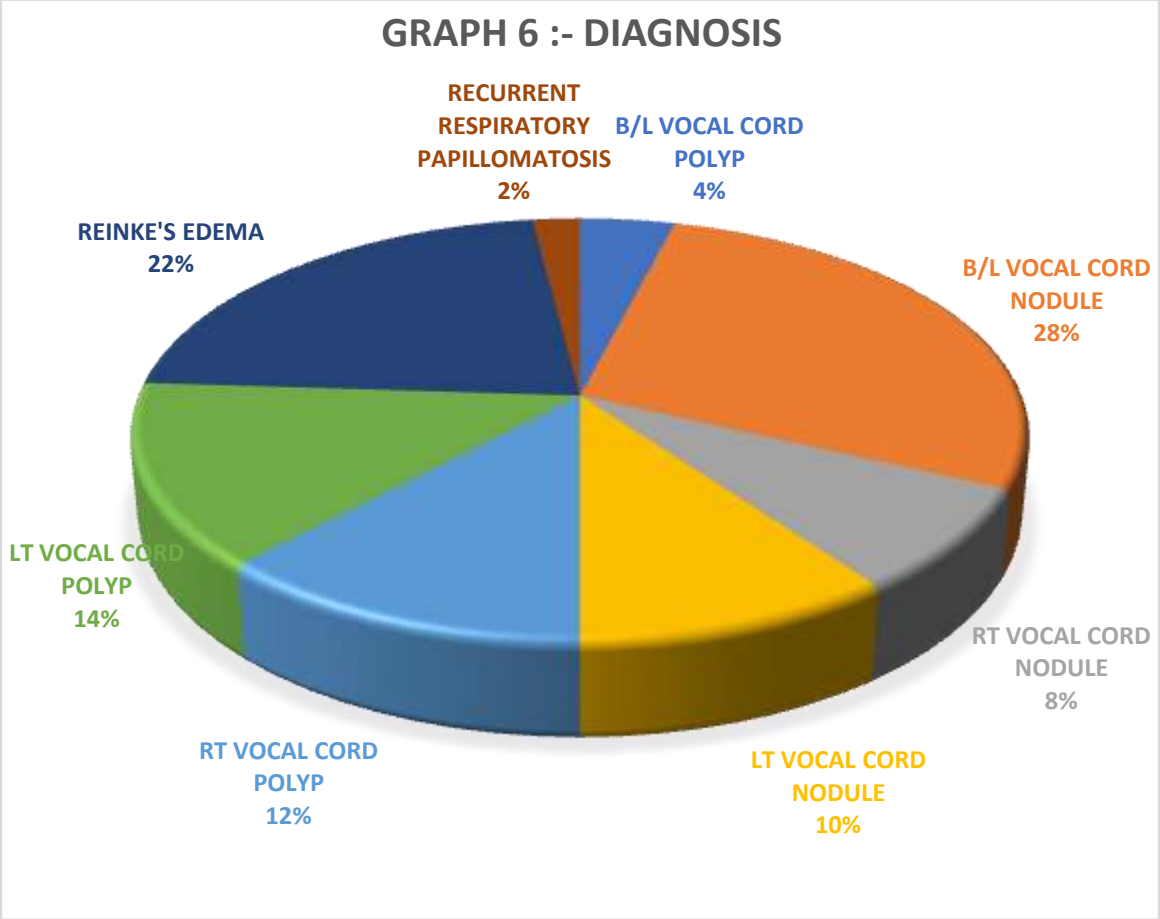

Maximum number of cases i.e.,14(28%) we rediagnosed with B/L Vocalcord nodule, followed by 11 cases (22%) diagnosed with Reinke's edema,7cases(14%)diagnosed with Left Vocalcordpolyp,6 cases(12%) diagnosed with Right Vocal cord polyp and 5 cases (10%) diagnosed with Left vocal cord nodule, 4 cases (8%) diagnosed with Right vocal cord nodule and 2cases(4%)ofB/LVocalcordpolypand1 case (2%) of Recurrent Respiratory Papillomatosis wasdiagnosed.

TABLE 7: - HISTOLOGY TYPES

CLINICAL DIAGNOSIS	HISTOPATHOLOGY	NO. OF CASES	PERCENTAGE
VOCAL CORD POLYP	INFLAMMATORY	10	20
	ANGIOMATOUS	5	10
VOCAL CORD NODULE	VOCAL CORD NODULE	23	46
REINKE'S EDEMA	EPITHELIAL HYPERPLASIA	11	22
RECURRENT RESPIRATORY PAPILLOMATOSIS	SQUAMOUS PAPILLOMA	1	2
TOTAL		50	100

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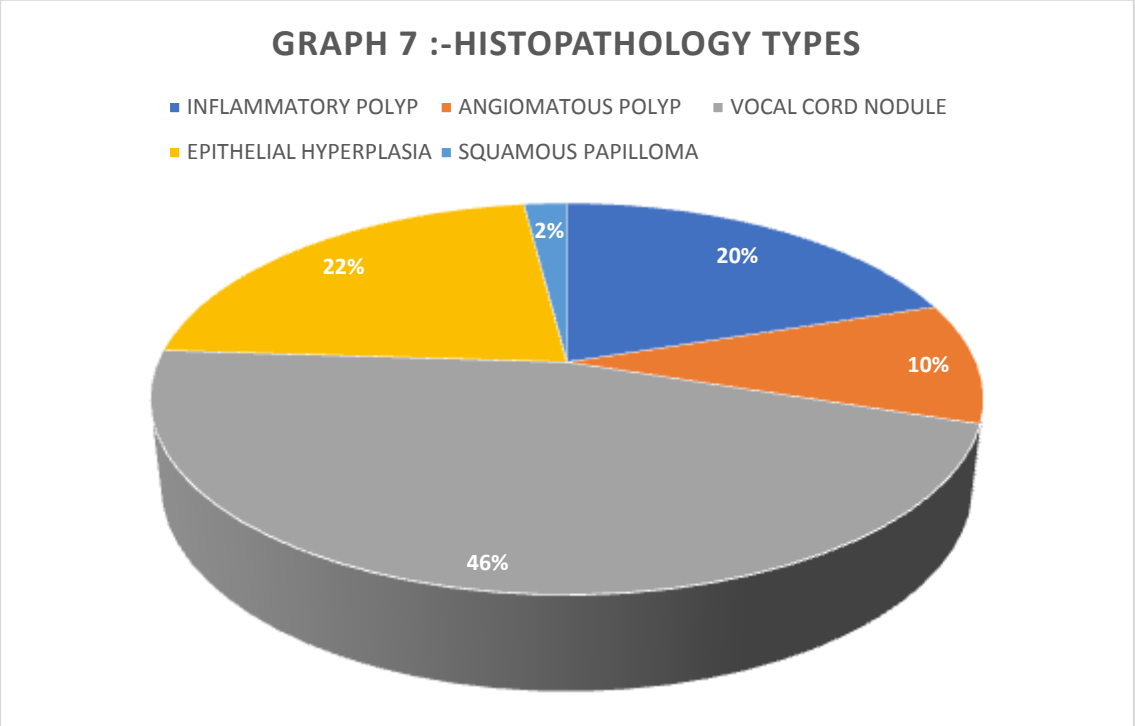

In our study, after histopathological examination, out of 50 cases 23 (46%) were vocal cord nodules, 10 (20%) were inflammatory polyp and 5 (10%) were angiomatous polyp, 11 (22%) were epithelial hyperplasia seen in Reinke's edema and 1(2%) was squamous epithelia seen in Recurrent respiratory papillomatosis.

TABLE 8 :- SITE OF LESION

DIAGNOSIS	**ANTERIOR 1/3rd + MIDDLE 1/3rd**	**ANTERIOR 1/3rd + POSTERIOR 2/3rd**	**TRUE VOCAL CORD**	**SUBGLOTTIS + GLOTTIS**
VOCAL POLYP	15	0	0	0
VOCAL NODULE	0	23	0	0
REINKE'S EDEMA	**0**	**0**	**11**	**0**
RECURRENT RESPIRATORY PAPILLOMATOSIS	**0**	**0**	**0**	**1**
TOTAL	15	23	11	1

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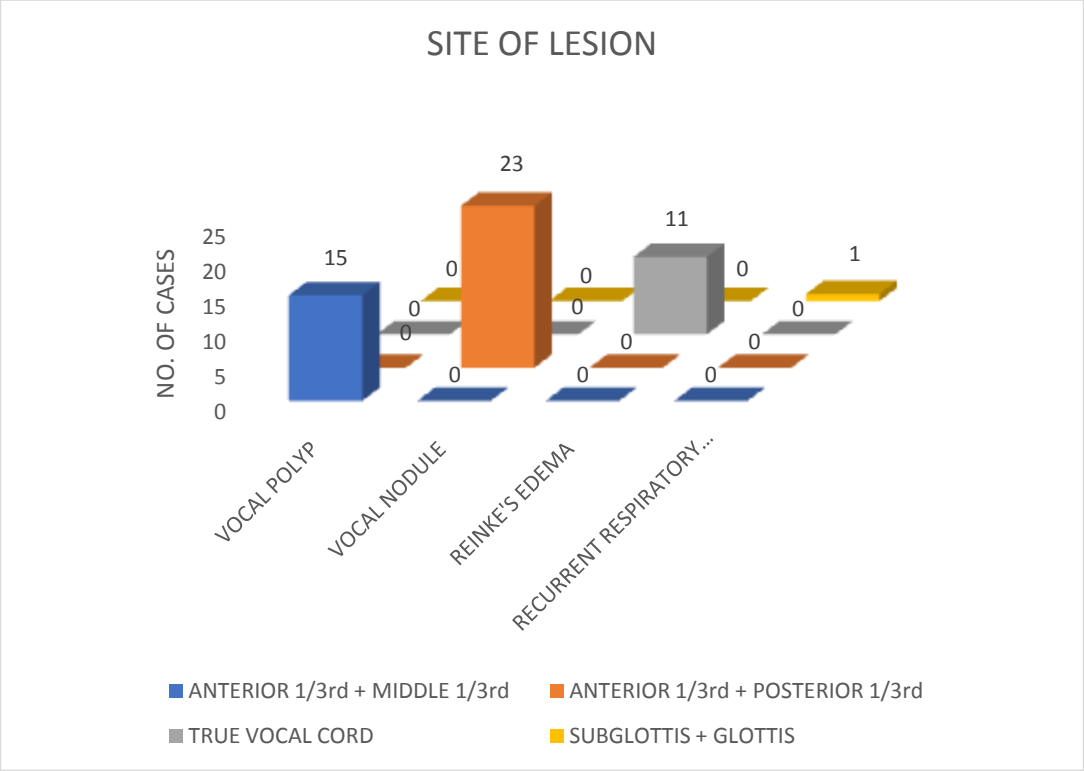

In our study, Vocal cord nodule were seen arising from Anterior 1/3rd and Posterior 2/3rd of true vocal cord, Vocal polyp were seen arising from Anterior 1/3rd and Middle 1/3rd of true vocal cord, Reinke's edema was seen to entirely involve true vocal cords and Recurrent Respiratory Papillomatosis was seen to arise from both Subglottis and glottis region.

TABLE 9: - TREATMENT GIVEN

CAUSES	VOCAL HYGIENE		VOCAL HYGIENE + MEDICAL MANAGEMENT		MICRO-LARYNGEAL SURGERY + VOICE REST+ VOCAL HYGIENE		TOTAL	
	No.	%	No.	%	No.	%	No.	%
B/L vocal cord polyp	0	0	0	0	2	11.7	2	4
B/L vocal cord nodule	0	0	13	46.4	1	5.8	14	28
RT vocal cord nodule	2	40	2	7.2	0	0	4	8
LT vocal cord nodule	3	60	2	7.2	0	0	5	10
RT vocal cord polyp	0	0	0	0	6	35.3	6	12
LT vocal cord polyp	0	0	0	0	7	41.2	7	14
Reinke's edema	0	0	11	39.2	0		11	22
Papilloma	0	0	0	0	1	5.8	1	2
Total	5	100	28	100	17	100	50	100

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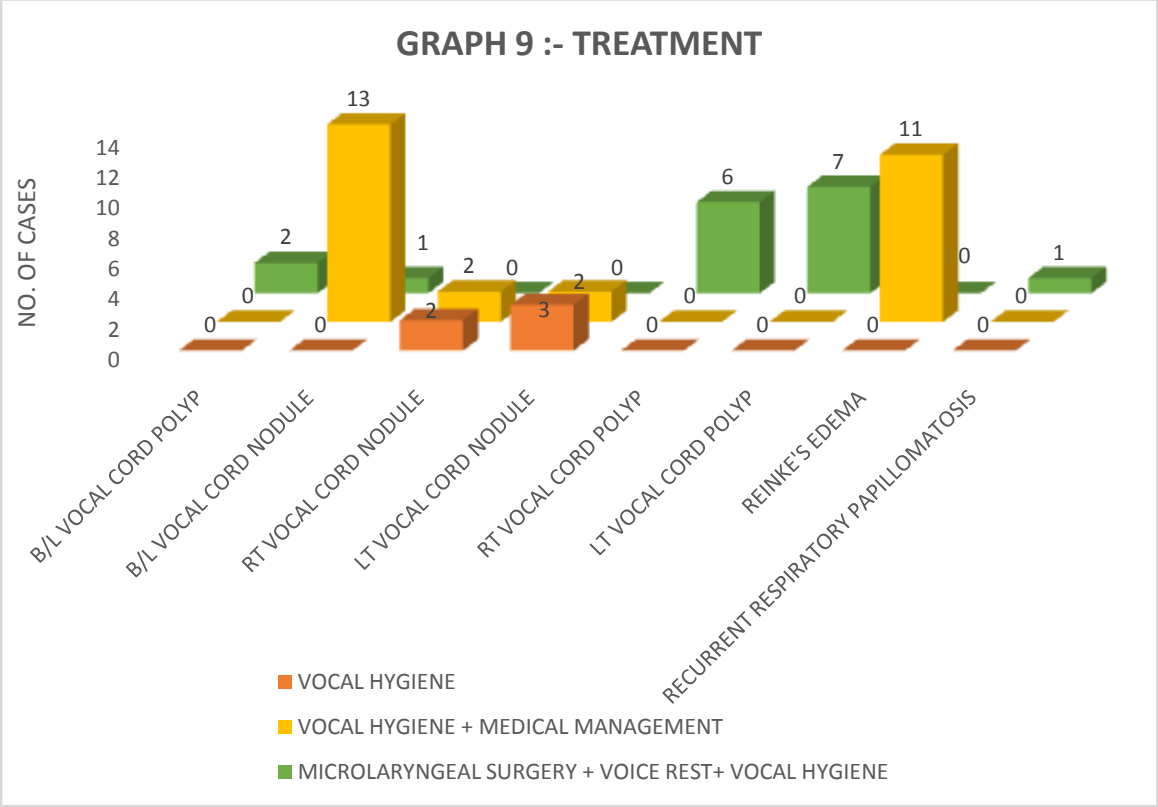

Out50cases,25cases(50%)wereadvised to follow proper Vocal hygiene along with Medical management, 20cases(40%) underwent Microlaryngeal surgery along with Voice rest and advised to follow proper Vocal Hygiene practices. 5cases(10%) were only advised to follow proper Vocal hygiene practices.

13 cases (46.4%) of B/L Vocalcord nodule were given Medical management along with proper Vocal Hygiene practicesand 1case(5.88%)underwentMicrolaryngeal surgery.

AllcasesofB/LVocalcordpolypi.e.,2(11.7%)underwent Microlaryngeal surgery.2cases (40%) of Right Vocalcordnodule was only advised proper Vocal hygiene practices while 2 cases (7.2%) were subjected to Medical management along with proper Vocal Hygiene practices.

3 cases (60%) of Left Vocalcord nodule was only advised proper Vocal hygiene practices while 2 cases (7.2%) were subjected to Medical management along with proper Vocal Hygiene practices.

7 cases (41.2%)of Left Vocalcordpoly p and 6 cases (35.3%) of Right Vocalcordpolyp underwent Microlaryngeal surgery.

AllcasesofReinke'sedemai.e.,11(39.2%) weretreated using medical management and proper Vocal Hygiene Practices.

1 case (5.8%) of Recurrent Respiratory Papillomatosis was subjected to Microlaryngeal surgery.

DISCUSSION AND CONCLUSION

- **AGE AND SEX DISTRIBUTION:**The age of patients under study ranged from ≤10 years to >70 years. The most common age group affected was the 4th decade of life (29.7%) followed by 5th decade (16.2%) and 1st decade (13.5%) of life. The benign lesions were more common in the males, 37 cases (74%) than in females, 13 cases (26%) with a male: female ratio of 2.84:1. As reported earlier, males are common victims of benign lesions. Higher incidence of these lesions in males may be because of them being involved more in occupations demanding excessive use of voice, which is consistent with studies by Chopra et al (1997).
- **AETIOLOGY:** Laryngeal benign lesions are more common in professional voice users viz. teachers (20%), students (16%), farmers (12%), businessman (10%), shopkeeper (10%) and clerk (8%) etc. In cases of non-professional voice users, the highest incidence occurs in housewives (18%). Our study is similar to a study done by Pawan Singhal et al

(2009). This may be likely because of the misuse or abuse of voice.

- In the present study, an attempt was made to study the role of the contributory factors in the causation of common benign lesions of the larynx. The role of smoking and GERD as the contributory factors in the aetiopathogenesis of benign lesions has been highlighted by many workers. A significant number of the patients in the present study were having exposure to smoking (30%) and GERD (32%). This observation further lends support to the generally held view that smoking and GERD act as aggravating factors in the causation of most benign lesions particularly the diffuse polypoid laryngitis (Reinke's oedema).
- In our study, we found 24 cases (48%) having association with upper respiratory tract infection. So, our findings correlate with some earlier observations which reveal the association of regional sepsis as a predisposing factor in the causation of these lesions.
- **SYMPTOMS:**Vocal fatigue was the most common presenting feature (80%), followed by Hoarseness of voice (64%), Foreign body sensation in throat (48%) and Difficulty in breathing (24%).
- The findings in our study was not similar with a study by Pawan Singh et al (2009) in which they noted that patients presented with hoarseness of voice (100%), vocal fatigue (52%), upper respiratory tract infection (25%), throat irritation (22%), and foreign body sensation in throat (8%) cases.
- **DURATION OF SYMPTOMS:**The patients presented with duration of symptoms ranging from a minimum of 2 weeks to a maximum of 7 months, and being symptomatic for less than 1 year. It was seen that patients with non–neoplastic lesions presented somewhat earlier whereas patients with neoplastic lesions had a longer history of their symptoms. In this regard, our findings were not consistent with a study performed earlier, as in their study duration of symptoms ranged from 1 month to 24 months.
- **DIAGNOSIS**:-In our study, we had found vocal nodules (46%), vocal polyp (30%) Reinke's oedema (22%) and recurrent respiratory papillomatosis (2%).
- In study done by Pankaj Kumar Doloi et al (2011) most common benign lesion noted was vocal polyp (37.5%), vocal cord nodule (27.5%), multiple laryngeal papillomatosis (10%), haemangioma (10%), vocal cord cyst (7.5%), epiglottic cyst (5%) and intubation granuloma (2.5%).
- **TREATMENT:**Vocal hygiene and Medical management were the treatment of choice in the majority of the cases studied (56%), and Microlaryngeal surgery with Voice rest and Vocal hygiene in (34%) cases and Vocal hygiene alone sufficed in the remaining (10%) cases of benign lesions of the larynx.
- **POST-OPERATIVE FOLLOW UP: -** Post-Operative management included vocal hygiene and complete voice rest for 2 weeks followed by gradual resumption of voice in order to resume the normal function of the vocal cords.
- In our study, majority of patients (84%) were totally symptoms free following treatment and about (16%) have partial recovery of their symptoms.
- In study carried by Suliman Saudi et al (2013), majority of patients (90%) were totally symptom free post treatment and (10%) had partial recovery of their symptoms.

IV. SUMMARY

- This study "A CLINICOPATHOLOGICAL STUDY OF BENIGN LESIONS OF LARYNX AND THEIR MANAGEMENT" was conducted in 50 patients with Symptoms of hoarseness of voice, Foreign body sensation, Vocal fatigue, and difficulty in breathing who presented to the Department of Otorhinolaryngology, Silchar medical college and hospital, Silchar.

- Most of the patients included in the study had symptom of vocal fatigue as the most common symptom.
- The patients with vocal abuse and more voice demand were shopkeeper, students, teachers, housewife, businessman.
- There was a male preponderance amongst the study patients, Vocal cord nodule was found to be the most common benign vocal fold lesion.
- The male: female sex ratio was 2.8:1.
- The study sample included 23(46%) patients with vocal cord nodule, 15(30%) patients with vocal polyp, 11(22%) patients with Reinke's oedema, and 1(2%) patient with recurrent respiratory papillomatosis.
- All the patients underwent indirect and direct laryngoscopy ,17 patients underwent microlaryngeal surgery, while the remaining 23 patients were managed by conservative treatment. Treatment initially focuses on medical management of irritants, improving vocal habits and vocal behaviour modification through speech therapy. Surgical treatment

when indicated should be precise with an adherence to the principles of advanced surgical technique.

- Out of 50 patients, the lesions completely resolved in 42 cases, while persistent lesion was seen in 8 cases.

- The symptoms of benign laryngeal lesions may vary from mild hoarseness to stridor. Early diagnosis can lead to effective management and good recovery from the disease.