

Original Research Article

Clinical characteristics and treatment outcomes of benign laryngeal lesions: a retrospective observational study from a tertiary care centre

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ABSTRACT

Background: The larynx is a complex organ of the upper aerodigestive tract responsible for phonation, respiration, and airway protection. Benign laryngeal lesions commonly present with hoarseness of voice and significantly affect quality of life. Early diagnosis and appropriate management are essential to restore normal vocal function and prevent chronic morbidity.

Methods: A retrospective observational study was conducted in the department of otorhinolaryngology, Assam Medical College and Hospital, Dibrugarh, from January 2024 to June 2025. Thirty patients with benign laryngeal lesions were evaluated based on clinical presentation, etiological factors, type of lesion, management, and treatment outcomes. Diagnosis was confirmed by laryngoscopic examination and histopathological analysis where indicated.

Results: The majority of patients belonged to the 25-48 years age group, with slight male predominance. Teachers constituted the largest occupational group (33.33%). Vocal abuse was the most common etiological factor (40%). Hoarseness of voice was the predominant presenting symptom. Vocal cord polyp was the most common lesion (36.7%), followed by vocal cord nodules (30%). Microlaryngeal surgery was performed in 46.7% of patients, while the remainder improved with conservative treatment including voice rest and speech therapy.

Conclusions: Benign laryngeal lesions are commonly associated with vocal abuse and predominantly affect individuals in the productive age group. Early diagnosis, vocal hygiene, and timely intervention provide favorable outcomes and help prevent chronic voice disorders.

Keywords: Benign laryngeal lesions, Hoarseness, Microlaryngeal surgery

INTRODUCTION

The larynx is a complex and multifunctional organ situated in the upper aerodigestive tract. It plays a vital role in phonation, respiration, and protection of the lower airway during swallowing. Any pathological condition affecting the larynx can result in symptoms such as hoarseness of voice, breathing difficulty, dysphagia, throat irritation, and aspiration.¹

Benign laryngeal lesions are non-malignant growths that remain localized and generally do not invade surrounding tissues or metastasize. Common benign lesions include

vocal cord polyps, vocal nodules, vocal cord cysts, Reinke's edema, papilloma, laryngocele, and epiglottic cysts. These lesions are frequently associated with vocal abuse, smoking, chronic irritation, and improper voice habits.²

Hoarseness of voice is the most common presenting complaint in patients with benign laryngeal lesions and can significantly affect social interaction and occupational performance, particularly in professional voice users. Although many lesions respond to conservative management, some require surgical intervention for definitive diagnosis and restoration of normal phonatory function.²

The present study was conducted to evaluate the clinical profile, etiological factors, and treatment outcomes of benign laryngeal lesions in patients attending a tertiary care centre.

METHODS

Study design and setting

This retrospective observational study was conducted in the department of otorhinolaryngology, Assam Medical College and Hospital, Dibrugarh, Assam, a tertiary care referral centre catering to patients from upper Assam and neighbouring states. The study was carried out over a period of 18 months, from January 2024 to June 2025. The study protocol was approved by the institutional ethics committee before commencement. Patient confidentiality was maintained throughout the study, and all collected data were anonymized prior to analysis.

Sample size

A total of 30 patients diagnosed with benign laryngeal lesions during the study period were included. Case records were retrieved from the medical records department and reviewed retrospectively. Patients of all age groups and both sexes with complete clinical, laryngoscopic, operative, and follow-up records were considered eligible for inclusion.

Patients diagnosed with malignant or premalignant laryngeal lesions, those with incomplete or missing medical records, recurrent malignant lesions, previous laryngeal malignancy, or systemic neurological disorders affecting voice production were excluded from the study.

Clinical evaluation

The demographic details of all patients, including age, sex, occupation, and residential status, were recorded. A detailed clinical history was obtained from the medical records with special emphasis on the duration and progression of hoarseness of voice, vocal fatigue, throat discomfort, foreign body sensation, chronic cough, dysphagia, breathing difficulty, and other associated symptoms.

Potential etiological factors such as occupational voice use, vocal abuse, smoking, tobacco chewing, alcohol consumption, upper respiratory tract infections, laryngopharyngeal reflux, allergy, and exposure to environmental irritants were documented wherever available. Relevant medical and surgical history was also reviewed.

Clinical examination and diagnostic evaluation

All patients underwent a comprehensive otorhinolaryngological examination. Indirect laryngoscopy was initially performed whenever feasible,

followed by video laryngoscopy for detailed visualization of the laryngeal structures. The site, size, number, laterality, surface characteristics, mobility of the vocal cords, and extent of the lesion were documented.

Routine laboratory investigations were performed whenever indicated before surgical intervention.

Management

Treatment was individualized according to the type, size, and severity of the lesion as well as the patient's symptoms. Conservative management included vocal hygiene education, voice rest, hydration, anti-reflux medication where indicated, treatment of associated upper respiratory tract infections, smoking cessation advice, and speech therapy for appropriate patients.

Patients with persistent symptoms, large lesions, or lesions unlikely to respond to conservative measures underwent microlaryngoscopic excision under general anaesthesia.

Outcome assessment

Treatment outcomes were assessed using follow-up records. Improvement in voice quality, resolution of symptoms, recurrence of lesions, postoperative complications, and the need for additional intervention were noted whenever documented. Patients managed conservatively were evaluated for symptomatic improvement following medical treatment and voice therapy.

Statistical analysis

Data were entered into Microsoft Excel and analysed using descriptive statistical methods. The findings were presented using tables and figures.

RESULTS

Most of the patients with benign laryngeal lesions were in the 36-48 years of age group (14 cases), followed by 49-60 years (7 cases) and 25 to 36 years (6 cases) and only one case seen in 0-12 years, 13-24 years and above 60 years.

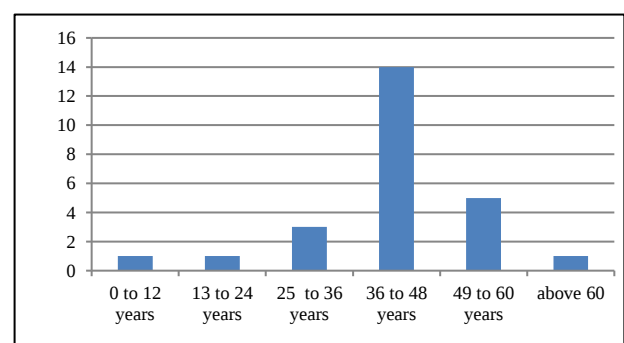


Figure 1: Age distribution of patients.

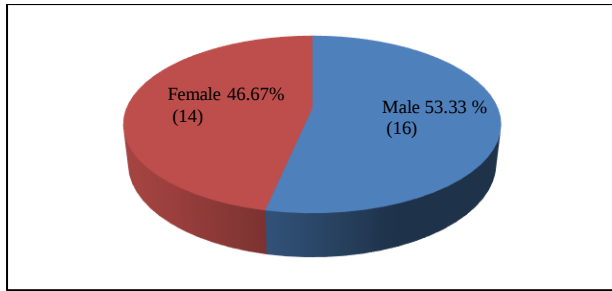


Figure 2: Gender distribution.

Out of 30 patients, 16 were males and 14 were females, showing slight male predominance.

Table 1: Distribution of patients according to their occupation.

Occupations	Number of cases	Percentage
Teacher	10	33.33
Housewives	8	26.67
Labourers	9	30
students	2	6.67
singer	1	3.33

Teachers constituted the largest occupational group, accounting for 33.33% of cases, followed by labourers (30%) and housewives (26.67%). Students and singer represented 6.67% and 3.33% of cases respectively.

Table 2: Distribution of patients according to probable synergistic etiological factors.

Etiological factors	Number of cases	Percentage
Vocal abuse only	12	40
Vocal abuse and smoking	5	16.67
Vocal abuse and other irritant	3	10
No vocal abuse	10	33.33

Vocal abuse alone was the most common etiological factor, observed in 40% of patients. Vocal abuse associated with smoking was seen in 16.67% of cases, while 10% had vocal abuse along with other irritants. However, 33.33% of patients had no history of vocal abuse.

The duration of complaints was 4-6 months in the majority of patients (33.3%), followed by complaints of ≤ 3 months in 26.67% of cases. Symptoms lasting for 7-12 months were observed in 23.3% of patients, while 16.7% had complaints persisting for more than 12 months (Table 3).

Vocal cord polyp was the most common lesion observed, accounting for 36.7% of cases, followed by vocal cord nodules in 30% of patients. Vocal cord cysts were seen in 16.7% of cases, while Reinke's edema and papilloma constituted 10% and 6.6% respectively (Table 4).

Table 3: Distribution of patients according to duration of complaints (months).

Duration of complaints (in months)	Number of patients	Percentage
≤ 3 months	8	26.67
4-6 months	10	33.3
7-12 months	7	23.3
>12 months	5	16.7

Table 4: Distribution of patients according to type of lesion.

Types of lesion	Number of cases	Percentage
Vocal cord polyp	11	36.7
Vocal cord nodule	9	30.0
Vocal cord cyst	5	16.7
Reinke's edema	3	10.0
Papilloma	2	6.6

Hoarseness of voice was the most common presenting symptom, followed by vocal fatigue, throat irritation, and foreign body sensation. The duration of symptoms ranged from 2 months to 10 years. Microlaryngeal surgery was performed in 14 patients (46.7%), whereas the remaining patients improved with conservative management including voice rest, medical treatment, and speech therapy.

DISCUSSION

In the present study, benign laryngeal lesions were most commonly observed in the 36-48 years age group, followed by 49-60 years and 25-36 years. This finding is comparable to Sharma et al, who reported the highest incidence in the third, fourth, and fifth decades, and Baitha et al, who observed the majority of patients in the 21-50 years age group, with the fourth decade being the most commonly affected.^{2,7} Çobanoglu et al also reported a higher mean age (48.6 ± 13.62 years).¹⁰ In contrast, Singhal et al, Chavan et al, Ghosh et al, and Hiremath et al found the 21-30 years age group to be most commonly affected, whereas Hegde et al reported the 31-40 years age group and Shofoluwe et al reported a mean age of 34.74 ± 16.64 years.^{3-6,8,9}

The present study showed a slight male predominance, with 53.3% males and 46.7% females. Male predominance was also observed by Singhal et al (2.5:1), Baitha et al (2:1), Sharma et al (2.57:1), Hegde et al (2.82:1), Shofoluwe et al (2.3:1), Malik et al (70% males), Chavan et al (62% males), and Çobanoglu et al (71.4% males).^{2,3,5-8,10,11} The comparatively balanced gender distribution in the present study may reflect increasing occupational voice demands among females.

Teachers constituted the largest occupational group (33.33%), followed by labourers (30%) and housewives (26.67%), which is consistent with Sharma et al, who also

reported teachers as the most affected occupation.² In contrast, Baitha et al found the highest incidence among labourers followed by housewives, while Ghosh et al reported the maximum incidence among housewives.^{4,7}

Vocal abuse alone was the most common etiological factor (40%), followed by vocal abuse with smoking (16.67%) and vocal abuse with other irritants (10%), while 33.33% had no history of vocal abuse. Similar observations were made by Chavan et al and Hiremath et al, who also identified voice abuse as the commonest predisposing factor.^{6,9}

Vocal cord polyp was the most common lesion (36.7%), followed by vocal cord nodules (30%), vocal cord cysts (16.7%), Reinke's edema (10%), and papilloma (6.6%). Similar findings were reported by Singhal et al, Sharma et al (polyps 44%, nodules 33%), Hegde et al (polyps 47%, nodules 57%), Malik et al (polyps 56%, nodules 32%), Çobanoğlu et al (polyps 67.8%, nodules 7.0%), Shofoluwe et al (polyps 52.3%, nodules 34.7%).^{2,3,5,8,10,11} In contrast, Chavan et al (nodules 84%, polyps 11%) and Ghosh et al (nodules 30%, polyps 23%) reported vocal nodules as the predominant lesion, while Baitha et al found vocal cord congestion to be the most common laryngoscopic finding.^{4,6,7}

Hoarseness of voice was the most common presenting symptom, followed by vocal fatigue, throat irritation, and foreign body sensation. Similar findings were reported by Chavan et al (hoarseness 84%, vocal fatigue 56%), Hegde et al and Baitha et al (100% hoarseness), Shofoluwe et al (94.8% hoarseness), and Hiremath et al (82.5% hoarseness).^{3,6-9} In the present study, smoking in association with vocal abuse was observed in 16.67% of patients. In contrast, Saha et al reported smoking as a risk factor in 50% of patients with benign vocal fold lesions.¹²

Regarding treatment, microlaryngeal surgery was performed in 46.7% of patients, while the remainder improved with conservative management, including voice rest, medical treatment, and speech therapy. This surgical rate was lower than that reported by Singhal et al (94%), Baitha et al (40 patients), and Hiremath et al (49 patients).^{5,7,9} In comparison, Shofoluwe et al reported that 43.2% of patients were managed with voice rest, 22.2% underwent direct laryngoscopic excision, and 8% required microlaryngeal surgery, highlighting the effectiveness of conservative treatment in selected cases.⁸

The study was limited by its retrospective design, small sample size, and single-centre setting. Further prospective studies with larger populations are needed to validate the findings.

CONCLUSION

Benign laryngeal lesions commonly affect individuals in the third and fourth decades of life and are strongly associated with vocal abuse. Hoarseness of voice remains

the predominant presenting symptom. Vocal cord polyps and nodules are the most frequently encountered lesions.

Early endoscopic evaluation, vocal hygiene education, timely medical management, and surgical intervention when indicated are essential for achieving good voice outcomes and preventing chronic voice disorders.

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