

Endoscopic Findings and Symptom Correlation in Patients with Laryngopharyngeal Reflux Disease (LPRD)

R. Sandeep¹, K. V. V. Ramji², M. Sagar³, Basetti Namratha⁴

¹Assistant Professor, Department of ENT/Otorhinolaryngology, Government Medical College, Bhadradi Kothagudem, Telangana, India. ²Assistant Professor, Department of ENT/Otorhinolaryngology, Gandhi Medical College, Secunderabad, Telangana, India. ³Assistant Professor, Department of ENT/Otorhinolaryngology, Gandhi Medical College, Secunderabad, Telangana, India. ⁴Junior Resident, Department of ENT/Otorhinolaryngology, Government Medical College, Bhadradi Kothagudem, Telangana, India.

Abstract

Background: Laryngopharyngeal reflux disease (LPRD) is increasingly recognised as an important cause of chronic throat symptoms. Endoscopic evaluation remains a valuable diagnostic tool, but correlation with symptomatology is essential for accurate diagnosis and clinical decision-making. The objective is to analyse the distribution of symptoms in patients with LPRD, document endoscopic findings, and determine correlations between clinical presentation, endoscopic features, and reflux finding score (RFS). **Material and Methods:** A prospective observational study was conducted on 50 patients clinically diagnosed with LPRD. Detailed symptom assessment was performed using a structured proforma. All patients underwent laryngoscopic examination, and findings were documented according to the Reflux Finding Score. Symptom severity was assessed using a Likert scale, and correlations were analysed with appropriate statistical tests. **Results:** The most frequent symptoms were throat clearing (64%), hoarseness of voice (56%), and globus sensation (44%). Chronic cough (36%) and dysphagia (24%) were less common (Table 1). Endoscopic evaluation revealed posterior commissure hypertrophy (60%) and interarytenoid oedema (52%) as the predominant findings, followed by ventricular obliteration (36%), erythema of the vocal cords (32%), and diffuse laryngeal oedema (20%) (Table 2). Symptom–endoscopic correlations showed statistically significant associations: throat clearing with posterior commissure hypertrophy ($p=0.02$), hoarseness with interarytenoid oedema ($p=0.03$), globus sensation with ventricular obliteration ($p=0.04$), and chronic cough with diffuse laryngeal oedema ($p=0.05$), whereas dysphagia showed no significant association (Table 3). Symptom severity correlated positively with RFS, with mean scores of 5.4 ± 1.2 (mild), 8.6 ± 1.8 (moderate), and 11.2 ± 2.0 (severe), demonstrating significant correlation ($r=0.42-0.61$, $p<0.05$) (Table 4). **Conclusion:** Symptom–endoscopic correlation enhances diagnostic accuracy in LPRD. Posterior commissure hypertrophy and interarytenoid oedema are the most reliable markers, and higher RFS values parallel increasing symptom severity. Integrating clinical and endoscopic assessment is crucial for early diagnosis and management.

Keywords: Laryngopharyngeal reflux, endoscopy, throat symptoms, reflux finding score, correlation.

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INTRODUCTION

Laryngopharyngeal reflux disease (LPRD) is increasingly recognised as a distinct clinical entity caused by the retrograde flow of gastric contents into the larynx, pharynx, and upper aerodigestive tract. Unlike classical gastroesophageal reflux disease (GERD), which predominantly presents with heartburn and regurgitation, LPRD manifests with extraesophageal symptoms such as throat clearing, chronic cough, hoarseness of voice, globus sensation, and dysphagia.^[1,2] These atypical manifestations often contribute to diagnostic challenges and frequent misclassification as allergic, infectious, or functional disorders.

The pathophysiology of LPRD involves mucosal injury from repeated exposure to acid and pepsin, leading to oedema, erythema, and structural alterations of the laryngeal mucosa.^[1,3] Flexible laryngoscopy plays a central role in evaluation, directly visualising mucosal changes. The Reflux Finding Score (RFS), a validated and widely used tool, quantifies laryngeal abnormalities and strengthens diagnostic

reliability.^[3,4] However, endoscopic features alone are not considered pathognomonic, and inter-observer variability often complicates interpretation, making clinical correlation indispensable.^[4]

Recent studies have demonstrated the considerable burden of LPRD among patients presenting with chronic throat symptoms. The condition significantly impacts quality of life, yet the correlation between symptoms and endoscopic findings remains variable across different populations.^[2,5] Establishing this relationship is essential for improving diagnostic precision,

Address for correspondence: Dr. K. V. V. Ramji,
Assistant Professor, Department of ENT/Otorhinolaryngology, Gandhi Medical
College, Secunderabad, Telangana, India
E-mail: ramji.bmc@gmail.com

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guiding appropriate treatment strategies, and reducing unnecessary empirical therapy.

The present study was designed to evaluate the distribution of symptoms, document endoscopic findings, and analyse their correlation with symptom severity and RFS in patients with LPRD.

MATERIALS AND METHODS

This prospective observational study was conducted in the Department of ENT at Government General Hospital (GGH), Kothagudem, Telangana, from January 2025 to June 2025. After obtaining informed consent, 50 patients presenting with clinical features suggestive of laryngopharyngeal reflux disease (LPRD) were enrolled. Institutional Ethics Committee approval was secured prior to the commencement of the study.

Inclusion Criteria

Adults aged 18–65 years with symptoms such as throat clearing, hoarseness, globus sensation, chronic cough, or dysphagia suggestive of LPRD.

Patients are willing to undergo endoscopic evaluation and provide written informed consent.

Exclusion Criteria

Patients with a history of smoking, alcohol abuse, vocal abuse, or recent upper respiratory tract infection.

Patients with structural laryngeal lesions, vocal cord paralysis, malignancy, or prior laryngeal surgery.

Individuals with known gastroesophageal reflux disease on

anti-reflux medication.

Clinical Assessment

Each patient underwent detailed history taking and symptom evaluation using a structured proforma. Symptom severity was graded on a five-point Likert scale (mild, moderate, severe).

Endoscopic Evaluation

All patients were examined with a 70° rigid laryngoscope or flexible fiberoptic nasopharyngolaryngoscope. Endoscopic findings were documented using the Reflux Finding Score (RFS), which includes parameters such as posterior commissure hypertrophy, interarytenoid oedema, ventricular obliteration, diffuse laryngeal oedema, and erythema of the vocal cords.

Data Analysis

Symptom distribution and endoscopic findings were tabulated. Correlations between clinical symptoms, endoscopic changes, and RFS were analysed using the chi-square test and Pearson’s correlation coefficient where appropriate. A p-value <0.05 was considered statistically significant. Data were processed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA).

RESULTS

A total of 50 patients with clinically suspected laryngopharyngeal reflux disease (LPRD) were evaluated. The most frequently reported symptom was throat clearing (64%), followed by hoarseness of voice (56%) and globus sensation (44%). Chronic cough and dysphagia were observed in 36% and 24% of patients, respectively [Table 1].

Table 1: Distribution of Symptoms among Patients with LPRD (n=50)

Symptom	Frequency (n)	Percentage (%)
Throat clearing	32	64
Hoarseness of voice	28	56
Globus sensation	22	44
Chronic cough	18	36
Dysphagia	12	24

Endoscopic evaluation revealed that posterior commissure hypertrophy (60%) and interarytenoid edema (52%) were the predominant findings. Ventricular obliteration (36%),

erythema of the vocal cords (32%), and diffuse laryngeal edema (20%) were also documented [Table 2, Figure 1].

Table 2: Endoscopic Findings in Patients with LPRD (n=50)

Endoscopic finding	Frequency (n)	Percentage (%)
Posterior commissure hypertrophy	30	60
Interarytenoid edema	26	52
Ventricular obliteration	18	36
Erythema of vocal cords	16	32
Diffuse laryngeal edema	10	20

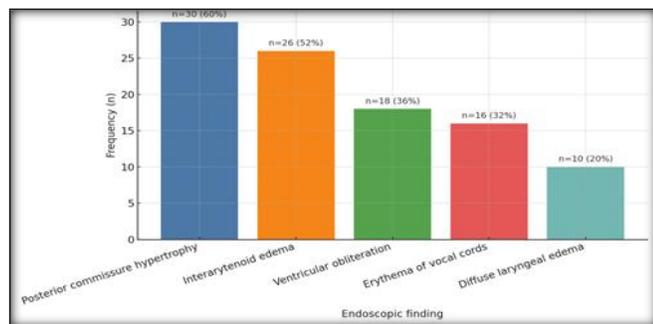


Figure 1: Endoscopic Findings in Patients with LPRD

Correlation analysis between clinical symptoms and endoscopic findings demonstrated significant associations. Throat clearing was significantly correlated with posterior commissure hypertrophy (p=0.02), while hoarseness of voice was strongly associated with interarytenoid oedema (p=0.03). Globus sensation correlated with ventricular obliteration (p=0.04), and chronic cough was significantly related to diffuse laryngeal oedema (p=0.05). Dysphagia, however, did not demonstrate any significant correlation with endoscopic findings (p>0.05) [Table 3].

Table 3. Symptom Correlation with Endoscopic Findings (n=50)

Symptom	Most correlated endoscopic finding	p-value
Throat clearing	Posterior commissure hypertrophy	0.02*
Hoarseness	Interarytenoid edema	0.03*
Globus sensation	Ventricular obliteration	0.04*
Chronic cough	Diffuse laryngeal edema	0.05*
Dysphagia	Erythema of vocal cords	>0.05

(*p < 0.05 = statistically significant)

Symptom severity was further analysed concerning the Reflux Finding Score (RFS). Patients with mild symptoms exhibited a mean RFS of 5.4 ± 1.2 , whereas those with moderate symptoms had a mean RFS of 8.6 ± 1.8 . The highest scores were observed among patients with severe

symptoms (11.2 ± 2.0). A positive correlation was established between symptom severity and RFS ($r=0.42-0.61$), with statistically significant associations across all severity groups ($p<0.05$) [Table 4].

Table 4: Symptom Severity and Reflux Finding Score (RFS) Correlation (n=50)

Symptom severity (Likert scale)	Mean RFS score \pm SD	Correlation coefficient (r)	p-value
Mild	5.4 ± 1.2	0.42	0.01*
Moderate	8.6 ± 1.8	0.55	0.002*
Severe	11.2 ± 2.0	0.61	0.001*

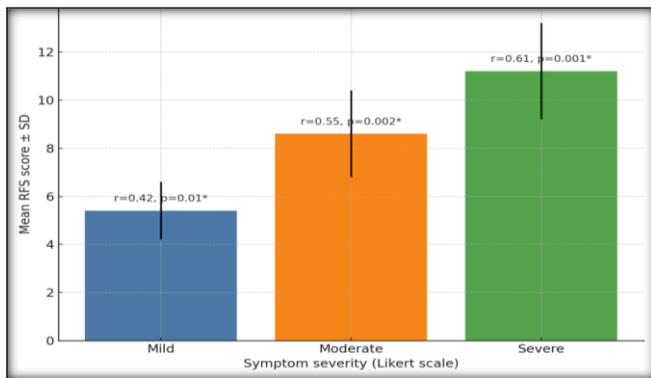


Figure 2: Symptom Severity and Reflux Finding Score (RFS) Correlation

DISCUSSION

Laryngopharyngeal reflux disease (LPRD) continues to be a diagnostic challenge because of its nonspecific clinical manifestations and overlapping features with other laryngeal disorders. In our prospective study at Government General Hospital, Kothagudem, we evaluated 50 patients to explore the correlation between symptoms, endoscopic findings, and reflux finding scores (RFS).

The most frequent symptoms in our cohort were throat clearing (64%) and hoarseness of voice (56%), followed by globus sensation (44%) and chronic cough (36%). Dysphagia was comparatively less common (24%). This distribution highlights the predominance of throat irritation and voice-related complaints, consistent with evidence that LPRD primarily presents with extraesophageal symptoms rather than classical manifestations of gastroesophageal reflux disease.^[6]

Endoscopic assessment revealed posterior commissure hypertrophy (60%) and interarytenoid oedema (52%) as the most frequent findings, in agreement with established RFS parameters.^[7] Ventricular obliteration (36%) and erythema of the vocal cords (32%) were also observed, while diffuse laryngeal oedema (20%) was less common, possibly

reflecting early disease presentation. These findings align with previous literature demonstrating that posterior laryngeal changes are the hallmark indicators of reflux injury.^[6,8]

Significant correlations between symptoms and laryngeal findings were identified. Throat clearing correlated with posterior commissure hypertrophy, hoarseness with interarytenoid oedema, and globus sensation with ventricular obliteration. Recent reviews have described similar associations, emphasising that symptom–endoscopy correlation can improve diagnostic precision, although individual variability remains a concern.^[8,9] Dysphagia did not demonstrate a significant association, which is consistent with its multifactorial aetiology and reduced specificity for LPRD.^[9]

An important observation in our study was the positive correlation between symptom severity and RFS. Patients with severe symptoms demonstrated significantly higher RFS values than those with mild or moderate symptoms. This reinforces the clinical utility of RFS when combined with symptom severity scales for improving diagnostic accuracy and disease monitoring.^[7,10,11] Nevertheless, inter-observer variability in endoscopic interpretation persists, underscoring the need for standardised protocols and multi-parameter assessment.^[12]

From a clinical standpoint, our findings highlight two key aspects. First, throat clearing and hoarseness of voice, when associated with characteristic endoscopic features, are reliable indicators of LPRD in routine practice. Second, integrating RFS with structured symptom assessment provides a more objective diagnostic framework, allowing early initiation of therapy and monitoring of treatment outcomes.

Limitations

The study is limited by its relatively small sample size and the absence of pH or impedance monitoring, which are considered gold-standard tests. Furthermore, treatment response was not evaluated, restricting the longitudinal assessment of symptom–endoscopy correlations.

CONCLUSION

The present study highlights that symptom–endoscopic correlation plays a pivotal role in diagnosing laryngopharyngeal

reflux disease (LPRD). Throat clearing and hoarseness of voice emerged as the most frequent symptoms, while posterior commissure hypertrophy and interarytenoid oedema were the predominant endoscopic findings. Statistically significant associations between specific symptoms and corresponding laryngeal changes reinforce the diagnostic reliability of clinical evaluation when combined with endoscopy. Furthermore, the positive correlation between symptom severity and reflux finding score (RFS) underscores the value of this scoring system in quantifying disease burden. Integrating symptom assessment and endoscopic evaluation enhances diagnostic accuracy and guides effective management.

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Conflicts of interest

There are no conflicts of interest.

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