ORIGINAL RESEARCH PAPER
Volume - 15 | Issue - 01 | January - 2026 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CLINICAL CHARACTERISTICS OF LPR AND ROLE OF REFLUX SYMPTOM INDEX AND REFLUX FINDING SCORE IN ASSESSING TREATMENT RESPONSE IN PATIENTS WITH LPR

Otorhinolaryngology

Aniket Daund* Junior resident III, Dept Of Otolaryngology, Nagpur. *Corresponding Author
Devendra Mahore Prof & Head, Dept Of Otolaryngology, Nagpur.
Seema Patel Associate Prof, Dept Of Otolaryngology, Nagpur.
Ashish Keche Assistant Prof, Dept Of Otolaryngology, Nagpur.

ABSTRACT

Introduction: Laryngopharyngeal reflux (LPR) is a common extra-oesophageal manifestation of reflux disease with varied and nonspecific ENT symptoms, often occurring without classical GERD features. The Reflux Symptom Index (RSI) and Reflux Finding Score (RFS) are validated tools used for diagnosis and assessment of treatment response. This study evaluates the clinical characteristics of LPR and the role of RSI and RFS in monitoring therapeutic outcomes. **Study Design:** Hospital-based longitudinal observational study. **Study duration:** November 2022 to April 2025. **Materials And Methods:** 90 adult patients (>18 years) with symptoms suggestive of LPR and RSI >13 attending a tertiary care centre in central India were included. Patients with suspected laryngeal malignancy or unwilling to participate were excluded. All patients underwent symptom assessment using RSI, videolaryngoscopic evaluation with RFS, and upper gastrointestinal endoscopy graded by the Los Angeles classification. Patients received proton pump inhibitor therapy (pantoprazole 40 mg twice daily) for 8 weeks. Pre- and post-treatment RSI and RFS were compared using appropriate statistical tests. **Results:** Out of the 90 patients, 55.55% were male, with a mean age of 48.77 years. The most common symptoms were throat pain (76.66%), heartburn (58.88%), and globus sensation (56.66%). Common laryngoscopic findings included thick endolaryngeal mucus (78.88%) and laryngeal erythema (71.11%). LPR alone was observed in 62.22% of patients, while 37.77% had associated GERD. Mean RSI significantly decreased from 15.89 ± 2.73 to 6.62 ± 1.74 ($p < 0.001$), and median RFS reduced from 8 to 3 ($p < 0.001$) following treatment. **Conclusion:** LPR is a prevalent condition with diverse clinical presentations and frequently occurs without associated GERD. RSI and RFS are reliable, non-invasive, and cost-effective tools for diagnosing LPR and assessing treatment response, making them valuable in routine ENT practice.

KEYWORDS

Laryngopharyngeal reflux, Reflux Symptom Index, Reflux Finding Score, Gastroesophageal Reflux Disease.

INTRODUCTION:

Laryngopharyngeal reflux (LPR) is a common extra-oesophageal manifestation of reflux disease, presenting with nonspecific upper aerodigestive tract symptoms and often without typical gastroesophageal reflux disease (GERD) features[1,2] Due to diagnostic challenges and overlap with other ENT conditions, validated clinical tools such as the Reflux Symptom Index (RSI) and Reflux Finding Score (RFS) have gained importance for diagnosis and monitoring treatment response.We get many patients in day to day life with symptoms suggestive of LPR ; . It not only affects patients' quality of life but also poses a significant burden on healthcare systems due to its chronic nature and frequent misdiagnosis. If left untreated, LPR may contribute to complications such as vocal cord nodules, contact ulcers, chronic laryngitis, and in rare cases, may be implicated in laryngeal carcinoma [3,4],Hence timely diagnosis and appropriate management are therefore essential to prevent disease progression, reduce unnecessary investigations, and improve patient outcomes .This study aimed to evaluate the clinical characteristics of LPR, assess the role of RSI and RFS in treatment response, and analyse the association between LPR and GERD in a Central Indian population.

METHODOLOGY:

This longitudinal hospital-based study was conducted on 90 adult patients clinically diagnosed with LPR at a tertiary care centre in Central India between November 2022 and April 2025. Ethical clearance was obtained from the Institutional Ethics Committee before commencement of the study, and informed consent was taken from all participants. Adult patients aged more than 18 years presenting with symptoms and signs of LPR and having a Reflux Symptom Index (RSI) score greater than 13 were enrolled in the study. Patients with a clinical suspicion of laryngeal malignancy and those unwilling to participate were excluded. All subjects underwent symptom assessment using RSI, laryngoscopic evaluation using a 70-degree rigid laryngoscope with RFS scoring, and upper gastrointestinal endoscopy graded according to the Los Angeles classification. Reflux Symptom Index (RSI) isa 9 item patient questionnaire scoring system in order to assess severity of symptoms of LPR. Symptoms which were assessed included heartburn, regurgitation, dysphonia, globus, constant throat clearing, dry cough, presence of excessive mucus, choking episodes of coughing during lying down (Table1).

Reflux Finding Score is a 9-item clinical severity scale based on findings during videolaryngoscopy. Scale ranges from 0 (no abnormal findings) to a maximum 26 (worst score possible); items being derived from a pool of the most common laryngeal findings of patients with LPR (Table2)

Table 1 Reflux Symptom Index (RSI)

Within the last month, how did the following problems affect you?	0 = No problem 5 = Severe problem					
1. Hoarseness or a problem with your voice	0	1	2	3	4	5
2. Clearing your throat	0	1	2	3	4	5
3. Excess throat mucus or postnasal drip	0	1	2	3	4	5
4. Difficulty swallowing food, liquids, pills	0	1	2	3	4	5
5. Coughing after you ate or after lying down	0	1	2	3	4	5
6. Breathing difficulties or choking episodes	0	1	2	3	4	5
7. Troublesome or annoying cough	0	1	2	3	4	5
8. Sensation of something sticking in your throat or lump in your throat	0	1	2	3	4	5
9. Heartburn, chest pain, indigestion or stomach acid coming up	0	1	2	3	4	5
Total						

Table 2 Reflux Finding Score

Subglottic edema	0-Absent, -present
Ventricular obliteration	2-Partial, 4-complete
Interarytenoid erythema/ hyperemia	2-Arytenoids only, 4-diffuse
Vocal cord edema	1-Mild, 2-moderate, 3-severe
Diffuse laryngeal edema	1-Mild, 2-moderate, 3-severe, 4-obstructing
Posterior commissure hypertrophy	1-Mild, 2-moderate, 3-severe, 4-obstructing
Granuloma/granulation tissue	0-Absent, 2-present
Thick endolaryngeal mucus	0-Absent, 2-present
Pseudosulcus	0-Absent, 2-present

and upper gastrointestinal endoscopy graded according to the Los Angeles classification.(Table3)

Table 3 Los Angeles classification of esophagitis

LA (A)	One (or more) mucosal break not longer than 5 mm that does not extend between the tops of two mucosal folds
LA (B)	One (or more) mucosal break more than 5 mm that does not extend between the tops of two mucosal folds
LA (C)	One (or more) mucosal break that is continuous between the tops of two or more mucosal folds but involves < 75% of the circumference
LA (D)	One (or more) mucosal break involving at least 75% of the esophageal circumference

Patients received standard medical therapy with proton pump inhibitor; tab pantaprazole 40 mg BD daily for 8 weeks . Treatment response was assessed after 8 weeks using RSI and RFS. Statistical analysis was performed by paired t-test and Wilcoxon signed-rank test.

RESULTS :

Total 90 patients evaluated, 50 were male and 40 were female. The mean age of patients was 48.77 years, with a slight male predominance (55.55%).

The most frequently reported symptom was throat pain, present in 76.66% of patients. This was followed by heartburn or chest pain (58.88%) and globus sensation or foreign body feeling (56.66%).

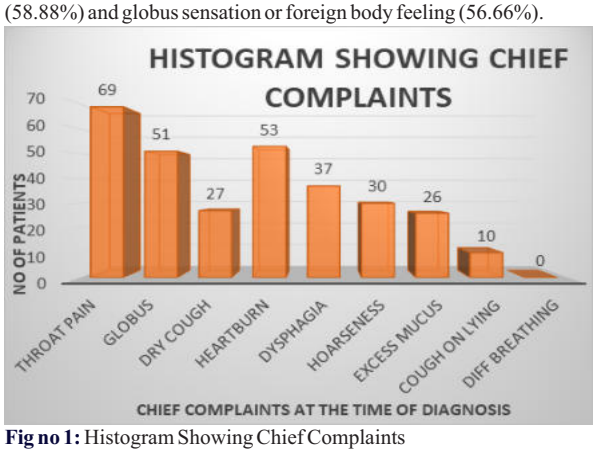

Fig no 1: Histogram Showing Chief Complaints

On videolaryngoscopic (VLS) examination of patients with suspected laryngopharyngeal reflux (LPR), the most commonly observed finding was thick endolaryngeal mucus, present in 78.88% of cases, indicating ongoing laryngeal irritation. This was closely followed by erythema/hyperemia, observed in 71.11%, reflecting mucosal inflammation likely secondary to acid exposure. Diffuse laryngeal edema was seen in 30% of patients.

Table No 4 : Videolaryngoscopic Findings According To RFS

SR NO	VLS FINDINGS	NO	PERCENTAGE
1	THICK ENDOLARYNGEAL MUCUS	71	78.88%
2	ERYTHMA/HYPEREMIA	64	71.11%
3	DIFFUSE LARYNGEAL EDEMA	27	30%
4	POSTERIOR COMMISSURE HYPERTROPHY	24	26.66%
5	VOCAL CORD EDEMA	23	25.55%
6	VENTRICULAR OBLITERATION	11	12.22%
7	PSEUDOSULCUS	0 4	4.44%
8	GRANULOMA/GRANULATION	0 0	0.00%

Image No 1: Thick Endolaryngeal MUCUS

Image No 2: Posterior Commissure Hypertrophy

Table No 5: Results Before And After Treatment

VARIABLES	MEAN RSI	MEDIAN RFS
BEFORE TREATMENT/ AT DIAGNOSIS	15.889	8
AFTER TREATMENT/ @ 2 MONTH F/U	6.622	3
P VALUE	<0.001	<0.001

In this study, both subjective (Reflux Symptom Index – RSI) and objective (Reflux Finding Score – RFS) measures showed significant improvement following treatment for Laryngopharyngeal Reflux (LPR). The mean RSI score decreased from 15.889 (SD = 2.729) to 6.622 (SD = 1.739) post-treatment, and a paired samples t-test revealed a statistically significant difference ($t = 40.88$, $df = 89$, $p < 0.001$), indicating a substantial reduction in patient reported symptoms.

Based on clinical, endoscopic, and diagnostic findings, 62.22% of patients were diagnosed with laryngopharyngeal reflux (LPR) alone, whereas 37.77% had LPR associated with gastroesophageal reflux disease (GERD). The mean RSI significantly decreased from 15.89 ± 2.73 pre-treatment to 6.62 ± 1.74 post-treatment ($p < 0.001$). The median RFS reduced from 8 (IQR 7–9) to 3 (IQR 3–4), which was also statistically significant. This indicates that a significant proportion of LPR cases can present independently of GERD, supporting the concept that LPR is a distinct clinical entity.

DISCUSSION:

The demographic profile, symptom distribution, and significant post-treatment reduction in RSI and RFS observed in this study are comparable to findings reported by Anagha Atul Joshi et al [6]and, Semmanaselvan et al.[7]. Similar to these studies, a substantial proportion of patients exhibited LPR without endoscopic evidence of GERD, supporting the concept of LPR as a distinct clinical entity. The magnitude of improvement in RSI and RFS reinforces their reliability as outcome measures for treatment response.

Table No 6 – Comparison Of Different Studies With Present Study

Sr. No.	Study	Mean Age (yrs)	Gender (M/F)	Demographic Context	Mean RSI Before Rx	Mean RSI After Rx	Mean RFS Before Rx	Mean RFS After Rx
1	Anagha A. Joshi et al. (2017) [37]	43.5	41□M /□59□ F	Urban ENT voice clinic	11.84	2.04	7.92	1.52
2	Semmanaselvan K et al. (2005) [39]	47.5	26M/24 F	Hospital OPD in India	19.18	2.52	12.62	0.30
3	Present Study	48.77	50□M /□40□ F	Urban tertiary-care centre, India	15.889	6.622	8 (median)	3 (median)

CONCLUSION:

LPR is a prevalent and under-recognized condition with diverse clinical manifestations.In this study, The most common symptoms were throat pain (76.66%), heartburn (58.88%), and globus sensation (56.66%). The most frequent laryngoscopic findings were thick endolaryngeal mucus (78.88%) and laryngeal erythema (71.11%). Upper GI endoscopy was normal in 62.22% of patients, while 37.77% showed evidence of GERD). The mean RSI significantly decreased from 15.89 ± 2.73 pre-treatment to 6.62 ± 1.74 post-treatment ($p < 0.001$). The median RFS reduced from 8 (IQR 7–9) to 3 (IQR 3–4), which was also statistically significant.

This suggest RSI and RFS are reliable, non-invasive, and cost-effective tools for diagnosing LPR and assessing treatment response. A substantial proportion of LPR patients do not demonstrate GERD on endoscopy, emphasizing the importance of symptom-based and laryngoscopic evaluation in routine ENT practice.

REFERENCES:

1. Koufman JA, Aviv JE, Casiano RR, Shaw GY. Laryngopharyngeal reflux:position statement of the committee on speech,voice and swallowing disorders of the American Academy Of Otolaryngology-Head And Neck Surgery. Otolaryngol Head Neck Surg. 2002;127:32-5.
2. Koufman JA, Amin MR, Panetti M. Prevalence of reflux in 113 consecutive patients with laryngeal and voice disorders. Otolaryngol Head Neck Surg. 2000;123:385-88.
3. Dale OT, Alhamameh O, Young K, Mohan S. Laryngeal sensory testing in the assessment of patients with laryngopharyngeal reflux. J Laryngol Otol.2010;124:330-32.
4. Jonathan E.Aviv, Savitha Collins. Upper aerodigestive manifestations of gastro oesophageal reflux disease. Cummings Otolaryngology Head And Neck Surgery,5th edition. 2010;896-897
5. Belafsky PC, Postma GN,Amin MR,Koufman JA. Symptoms and findings of laryngo pharyngeal reflux. Ear Nose Throat J. 2002;81(Suppl 2):10
6. Anagha Atul Joshi, Bhagyashri Ganesh Chiplunkar, Renuka Anil Bradoo. Assessment of treatment response in patients with laryngopharyngeal reflux. Indian J Otolaryngol Head Neck Surg. 2017;69(1):77-80
7. Semmanaselvan K, Narayanaswamy D, Krishnan R. Clinical profile and management of laryngopharyngeal reflux. *Indian J Otolaryngol Head Neck Surg.* 2005;57(2):121–124.
8. Jonaitis L, Pribuisiene R, Kupcinskas L, Uloza V. Laryngeal examination is superior to endoscopy in the diagnosis of the laryngopharyngeal form of gastroesophageal reflux disease. Scand J Gastroenterol 2006; 41: 131-137
9. Koufman JA. Laryngopharyngeal reflux is different from classic gastroesophageal reflux disease. Ear Nose Throat J2002; 81: 7-9