Original article:

Quantitative Evaluation of Laryngopharyngeal Reflux with Reflux Finding Score (RFS).

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Abstract

Introduction*:** Laryngopharyngeal reflux (LPR) also known as extra esophageal reflux disease refers to retrograde flow of gastric contents to the upper aero-digestive tract. Belafsky, Postma, and Koufman have developed the reflux finding score (RFS) to diagnose LPR. My aim was to test the score in patients with LPR to reveal the validity and effectiveness of present medical management based on changes in RFS. ***Materials and Methods: One hundred patients with LPR were examined prospectively in District Hospital Pulwamawith 70 degree Hopkins endoscope and RFS was evaluated both before start and completion of a set medical management with lifestyle modifications. 76.7% patients reported symptomatic improvement after one month of treatment. There was no significant quantitative decrease in RFS after one month of treatment.

Conclusion: Based on this study RFS is a reliable and quantitative system to evaluate and follow up patients at the time of diagnosis and subsequent evaluation after therapy.

Keywords: Laryngopharyngeal reflux, reflux finding score (RFS), lifestyle modification, proton pump inhibitors

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Introduction:

Laryngopharyngeal reflux (LPR) is retrograde movement of gastric contents into the larynx and pharynx leading to a variety of upper aero digestive tract symptoms. It is estimated that 4–10% of patients presenting to otolaryngologists have LPR.[1,2] Furthermore, 50–60% of chronic laryngitis cases and difficult to treat sore throats may be related to LPR.[3]

The symptoms of LPR are a result of exposure of the upper aero digestive tract to gastric juice; this causes a variety of symptoms such as hoarseness of voice, post-nasal drip, sore throat, dysphagia, chronic cough, chronic throat clearing, and excessive phlegm in the throat. The most frequent complaint is cervical dysphagia (33%) followed by globus 19%, sore throat 17%, and chronic throat clearing 14%. LPR is the reflux of gastric acid into the larynx and pharynx. There are various synonyms of LPR like reflux laryngitis, extraesophageal reflux, gastropharyngeal reflux, pharyngoesophageal reflux, supra esophageal reflux out of which extraesophageal reflux is the most accepted term.[4]

The factors responsible for producing upper airway symptoms and laryngeal pathology are acid, pepsin, bile acids, and trypsin. Pepsin along with acid was found to be the most injurious agents with a strong association with laryngeal lesions.[5]Unlike oesophagus larynx is devoid of mucociliary clearance of gastric contents and is more susceptible to reflux associated injury than oesophagus or stomach. Besides gastric acid, pepsin and bile acids also play a vital role in pathogenesis of LPR. This can be validated by the fact that all patients don't improve with PPIs(proton pump inhibitors).

My aim was to prospectively evaluate patients diagnosed with LPR on the basis of reflux finding score and quantitatively assess the improvementif any after one monthof treatment.

Materials and Methods:

This prospective cross sectional study was done in District Hospital Pulwamafrom May 2018 to November 2018.One hundred patients diagnosed with laryngopharyngeal reflux (LPR) were included in this study. Patients below 20 years of age and with acute symptoms were excluded from

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this study. All patients underwent a 70 degree Hopkins rod examination under local anaesthesia at the start and completion of treatment. The duration of treatment was one month and all patients were put on twice daily dose of esomeprazole and syrup Alginate thrice a day. All patients were advised life style modifications. Endoscopic pictures were recorded and quantitative evaluation with reflux finding score (RFS) (Table 1) was done both at start and culmination of treatment.

The reflux finding score (RFS) is an 8-item clinical severity rating scale based on laryngoscopic findings. It includes the most common laryngeal findings related to LPR and ranges from 0 to 26; it has been shown that any individual with an RFS of more than 7 has LPR.

Table 1:Reflux finding score(RFS).

Findings	Score
Subglottic edema	**0** **Absent** **2** **Present**
Ventricular obliteration	**2** **Partial** **4** **Complete**
Erythema/hyperemia	**2** **Arytenoids** **4** **Diffuse**
Vocal fold edema	**1** **Mild** **2** **Moderate** **3** **Severe** **4** **Polypoid**
Posterior commissure hypertrophy	**1** **Mild** **2** **Moderate** **3** **Severe** **4** **Polypoid**
Granuloma/granulation of tissue	**0** **Absent** **2** **Present**
Thick endolaryngeal mucus	**0** **Absent** **2** **Present**

Observations:

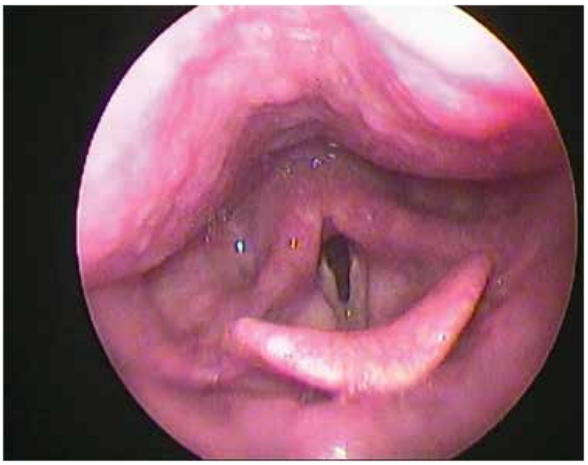

Figure 1: Reflux finding score 8-thick endolaryngeal mucosa

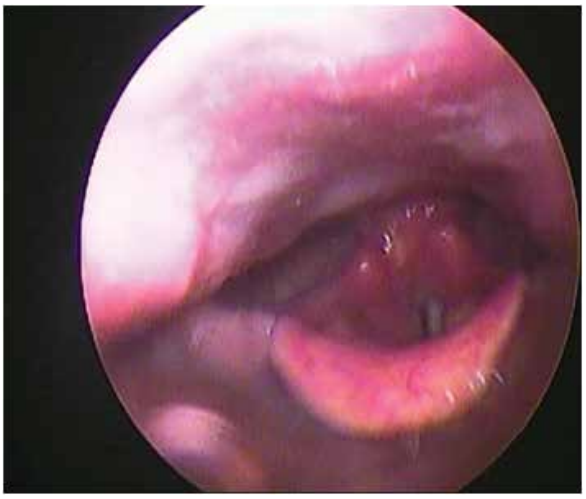

Figure 2: Reflux finding score 12-posterior commissure hypertrophy

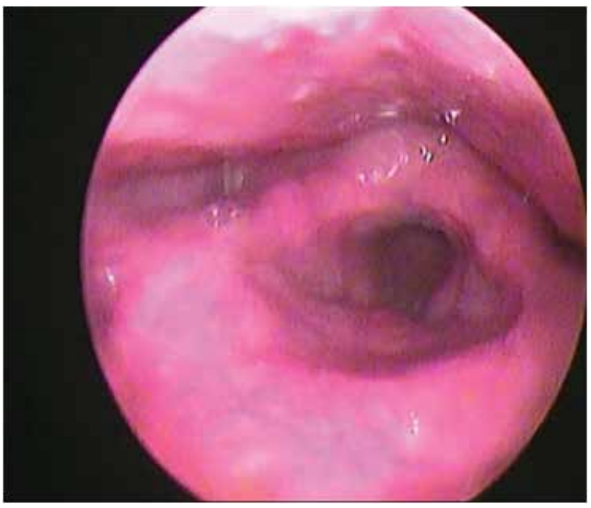

Figure 3: Reflux finding score 10-Vocal fold oedema/erythrema

Figure 4: Reflux finding score 11-Diffuse laryngeal oedema

In this study 43 patients (43%) had LPR(Table 2) with reflux finding score of more than 7. Thirty two out of forty three patients were females with a male female ratio of 0.34:1.

Table 2: Reflux finding score at diagnosis.

Reflux finding score	Number of patients
Less than 7	**57**
More than 7	**43**

The maximum RFS was 16. Thirtyone patients (72%) had posterior commissure edema followed by hyperemia anderythrema which was found in 25(58%) patients.Sensation of lump was the most common symptom (72% patients). Recurrent throat clearing was observed in 60% patients (Figure 1).

Thirty three patients(76.7%) reported symptomatic improvement after one month of treatment. There was no significant quantitative decrease in RFS after one month of treatment. Patients with posterior commissure oedema had least improvement in RFS. Patients with hyperemia and erythrema showed maximum improvement in RFS after one month of treatment.

Discussion:

Diagnosis of LPR in outpatient setting is usually made by symptoms and laryngeal signs. A 24 hour ambulatory ph monitoring is currently the gold standard for diagnosis of LPR, however it's not without limitations. It's an invasive test and its sensitivity is 74%-80%.[6]Around 10% patients presenting to an otolaryngologist has LPR. In my study maximum diagnosed cases of LPR were young females who were housewives indicating that the disease is more common in people with sedentarylifestyle. The most common presenting symptoms of LPR include hoarseness,globus symptoms,dysphagia, sore throat, throat clearing, and chronic cough.In my study females were more common to present with globus like symptoms and males were common to present with cervical dysphagia. Current recommendation for management of LPR is empirical therapy with twice daily proton-pump inhibitors for 2–4 months[7]. However there is no common consensus regarding duration of treatment. In my study patients were put on twice daily dose of esomeprazole and thrice daily dose of syrup Alginate.All patients were also strictly advised about life style modifications.

Belafsky*et al.* in their study stated that RFS is a highly reproducible score with the high correlation coefficient for each individual item without much inter or intra-observer variability[8]. In their study the physical findings of LPR were found to take more time than the improvement in symptoms per se. These findings were also replicated in my study as 76.7% patients reported symptomatic improvement with no significant decrease in RFS. Another aspect other than the pH of the gastric acid is the content of the acid namely enzymes. Pearson et al.[9] highlighted that, although acid can be controlled by protonpump inhibitor (PPI) therapy, all of the other damagingfactors (i.e. pepsin, bile salts, bacteria and pancreatic proteolyticenzymes) remain potentially damaging on PPItherapy and may have their damaging ability enhanced. Therefore all patients in my study were advised life style modifications. Lifestyle modifications included increasing water intake, exercise, avoiding heavy meals. Avoiding sleeping within 2 h of meal. Dietary changes of reducing caffeine,alcohol and citrus fruits, with multiple small meals were advised. In nonresponsive patients anxiety and psychological evaluation needs to be considered.

In patients non responsive to medical management, surgical options like fundoplication can be discussed. In a study by Quadeeret al[10] they demonstrated improvement in symptoms in 10% percent patients and improvement in signs in 80% patients. However all the patients refused surgical intervention in this study.

Conclusion:

The author concludes that using laryngoscopic findings as the only diagnostic tool for LPR was highly subjective. Our observations were in accordance to the above study and our results suggest that RFS is a reliable and quantitative system to evaluate and follow up patients at the time of diagnosis and subsequent evaluation after therapy. LPR has many hidden aspects both etio pathogenesis and management before we can achieve complete cure on diagnosis. Life style modifications need to be propagated to masses in order to achieve less severity of symptoms and decrease incidence of LPR.

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