

An Experience of Laryngopharyngeal Reflux in Chest Disease Hospital

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ABSTRACT

Introduction: Laryngopharyngeal reflux (LPR) refers to the backflow of stomach contents into the throat that is into the hypopharynx. LPR is different from classical GERD. Chest physicians routinely see such patients and need to be well versed with this condition. Majority of such patients present with globus pharyngeus, cough, foreign body sensation and hoarseness.

Material and Methods: This prospective study was conducted in Government Chest Disease Hospital of Government Medical College Srinagar for a period of 2 years from Feb 2015 to Feb 2017. Patients with Symptoms of Chronic Cough, Dyspnea, Foreign body sensation, Change in voice and other symptoms of pharyngitis were evaluated in our chest disease hospital. Eighty patients out of these patients who were diagnosed as Laryngopharyngeal Reflux on the basis of RSI and RFS were enrolled in the study.

Results: Total number of patients included in the study were 80, 53 (66%) cases were females, 27 (34%). Frequent clearing of throat was the most common symptom present in 74 % of patients. Mean RSI of all patients was 25.75. Most common laryngoscopic sign in the study was found to be erythema/hyperaemia in 90% of patients. Mean RFS of the patients was 13

Conclusion: Chest Physicians should be aware of signs and symptoms of LPR so that these patients are not wrongly treated with antibiotics and antihistaminics. RFS of more than 7 and RSI of more than 13 are associated with high likelihood of LPR.

Keywords: Laryngopharyngeal Reflux, GERD, RFS, RSI, Chest Physician

INTRODUCTION

Laryngopharyngeal reflux (LPR) is the term which was coined by James and it refers to retrograde flow of gastric contents to the upper aero-digestive tract.¹ Various terms for LPR have been used in the medical literature: supraesophageal reflux, extraesophageal reflux, reflux laryngitis, laryngeal reflux, gastropharyngeal reflux, pharyngoesophageal and atypical reflux.² Chery³ in 1968 first reported Acid-related laryngeal ulcerations and granulomas. Pellegrini and DeMeester⁴ in 1979 were the first to document the link between these airway symptoms and reflux of gastric contents. They also proved that treatment of reflux disease results in elimination of these airway symptoms. Wiener *et al*⁵ (1986) were the first to use concurrent esophageal and pharyngeal Ph monitoring (double probe) for diagnostic evaluation of patients with LPR symptoms and showed that there are separate episodes of reflux that go up to the laryngopharynx, which are distinct. It was James¹ who first clearly differentiated between LPR and GERD. Consensus conference report on LPR was held in 1996 with group of well known laryngologist⁶ and then in 2002 position statement on LPR was made and gave treatment recommendations.² Since then the knowledge of the diagnosis and management of LPR have evolved with time. Laryngopharyngeal reflux and Gastroesophageal reflux disease (GERD) are different disorders.

LPR causes irritation and changes in the larynx. GERD is caused by the backflow of gastric contents into the esophagus, which leads to tissue damage or esophagitis and heartburn. The larynx and pharynx are also devoid of the acid clearance mechanism found in the esophagus and thus is far more liable to peptic injury. The vast majority of patients with LPR do not have esophagitis.¹ Patient with LPR present with nonspecific symptoms like globus sensation, vocal fatigue, hoarseness, chronic throat clearing.⁷ They do not usually have symptoms of gastroesophageal reflux.¹ That reflux as a common and important cause of chronic cough is not in dispute. GER is the second most common cause of chronic cough in immunocompetent patients who are non-smokers, are not taking ACE inhibitors and have normal chest X-rays. Considering the multifactorial etiology of rhinosinusitis, LPR must be considered one of the causes of chronic rhinosinusitis when other etiologies have been excluded and aggressive antibiotic treatments are ineffective. Few studies exist that correlate chronic sinusitis with GER, like studies of Di Baise JK *et al.* 1998,⁸ Monteiro VR⁹ *et al.* 200

Laryngoscopic findings are also nonspecific. The most common laryngoscopic finding is reflux laryngitis.² The most frequently observed LPR related findings are interarytenoid erythema or hyperemia, infraglottic edema (pseudo sulcus), ventricular obliteration, posterior commissure hypertrophy and/or pachyderma, granuloma or granulation tissue formation, and thick excessive endolaryngeal mucus. Pseudo sulcus vocalis, also known as infra-glottic oedema, is a pattern of edema on the ventral surface of the vocal fold that extends from the anterior commissure to the posterior larynx. The presence of pseudo sulcus alone is suggestive of a diagnosis of LPR.¹⁰ Belfasky *et al.* developed simple non-invasive, economical instruments which they named as Reflux symptom index and Reflux finding score to help in the diagnosis of LPR. The laryngoscopic examination is the primary procedure for diagnosing laryngopharyngeal reflux. Reflux finding score (RFS¹¹ is an 8 item clinical severity rating scale based on fiberoptic findings. The scale includes most common laryngeal findings related to LPR, it has been concluded that any individual with RFS greater than 7 has more than 95% probability of having LPR. These authors concluded that RFS accurately document treatment efficacy in patients with LPR. It ranges from 0 to 26 (worst score). Reflux symptom index (RSI)¹² on the other hand is a 9 item self administered

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outcome instrument. It has been stated that it accurately documents symptoms of patients with LPR. This index appears to be valid and is highly reproducible. An RSI of more than 13 is considered to indicate LPR. It ranges from 0 to 45 (worst possible score).

Ambulatory 24-hour dual probe pH monitoring for the detection of LPR reserved by American Gastroenterological Association¹³ for patients who do not respond to initial acid suppression and the use of pH monitoring as initial diagnostic study is also recommended in patients with more severe conditions possibly related to LPR such as sub-glottic stenosis and severe laryngospasm.¹³ Response to empiric treatment with PPI (the ‘Omeprazole test’) is a more common and acceptable initial diagnostic strategy for uncomplicated LPR.¹⁴

Standard therapeutic intervention for LPR includes lifestyle modifications, medical and surgical treatment. Proton pump inhibitors have become the treatment of choice even though conflicting results exists in their response.¹³

This study was done to observe different signs and symptoms of LPR and note RFS and RSI scores of our patients who presented to the chest disease hospital.

MATERIAL AND METHODS

This prospective study was conducted in Government Chest Disease Hospital of Government Medical College Srinagar for a period of 2 years from Feb 2015 to Feb 2017.

Patients with Symptoms of Chronic Cough, Dyspnea, Foreign body sensation, Change in voice and other symptoms of pharyngitis were evaluated in our chest disease hospital. Eighty patients out of these patients who were diagnosed as Laryngopharyngeal Reflux on the basis of RSI and RFS were enrolled in the study,

Inclusion Criteria

- Patients of different age groups with symptoms of LPR for the last 1 month having reflux symptom index (RSI) greater than 13 (Table 1) and reflux finding score (RFS) greater than 7 (Table 1).
- Normal Chest X-ray
- Normal Spirometry
- Normal Respiratory and CVS examination.

Exclusion Criteria

- Patients with some other obvious cause of symptoms and signs like infection, malignancy.
- Patient with history of antireflux medication in the preceding one month
- Patients with RFS less than 7 and/or RSI less than 13.
- History of Allergy

Procedure

Each patient underwent examination comprising of detailed history, General physical and CVS examination and detailed respiratory examination.

Examination of larynx was done by a pediatric Flexible bronchoscope. Patients who had diagnosis of LPR on first visit on the basis of symptom scoring called Reflux symptom index and laryngoscopic finding called reflux finding score were enrolled. Percentage of different symptoms, Mean RSI and RFS were noted and tabulated.

STATISTICAL ANALYSIS

Microsoft office 2007 was used for the statistical analysis. Descriptive statistics like mean and percentages were used to interpret the data.

RESULTS

Total number of patients included in the study were 80, 53 (66%) cases were females, 27 (34%) were males. Age of the patients varied from 10 to 50 yrs. No patient was less than 10 yrs of age. Maximum numbers of patients were in the age group 31 to 40 yrs forming about 37.5% of the study group. (Table -2)

Mean age of the study population was 37years.

Frequent clearing of throat was the most common symptom present in 74 % of patients followed by Foreign body sensation in throat in 60 % and cough in 52 % of patients (Table 3). Mean RSI of all patients was 25.75 (Table 3)

Most common laryngoscopic sign in the study was found to be erythema/ hyperaemia in 90% of patients followed by posterior commisure hypertrophy in 75% and ventricular obliteration in 61 % of patients. Pseudosulcus was seen in 50% (40 patient’s) and mean RFS of the patients was 13 (Table 4).

DISCUSSION

The most common symptoms of LPR

Reflux symptom index (RSI)		Reflux finding score(RFS)		Score
Complaint	Yes/no	Duration	Findings	
1			1 Pseudosulcus	0 absent, 2 present
2			2 Ventricular obliteration	0 none, 2 partial, 4 complete
3.			3 Erythema/ hyperaemia	0 none, 2 arytenoids only, 4 diffuse
4.			4 Vocal cord edema	0 none, 1 mild, 2 moderate, 3 severe, 4 obstructing
5.			5 Diffuse laryngeal edema	0 none, 1 mild, 2 moderate, 3 severe, 4 obstructing
6.			6 Posterior commisure hypertrophy	0 none, 1 mild, 2 moderate, 3 severe, 4 obstructing
7.			7 Granuloma/ granulation	0 present, 2 absent
8			8 Thick endolaryngeal mucus	0 absent, 2 present
9.			It ranges from 0 (lowest possible) to 26 (highest possible)	
Each point is ranked from 0 (no problem) to 5 (severe problem). It ranges from 0 to 45 (worst possible score)				

Table-1: Reflux symptom index(RSI) and Reflux finding score (RFS)

Age groups	Males	Females	Total	Percent
0 -10 years	0	0	0	0
11-20 years	2	6	8	10
21-30 years	7	17	24	30
31-40 years	12	18	30	37.5
41-50 years	6	12	18	22.5
Total	27	53	80	

Table-2: Age wise distribution of cases

Symptoms	Total no. of patients	Percentage
Hoarsness	29	36
Frequent clearing of throat	59 1 st M.C	74
Foreign body sensation	48 2 nd M.C	60
Troublesome or annoying cough	42 3 rd M.C	52
Excess throat mucus	24	30
Difficulty in swallowing foods, liquids or pills	38	47
Cough after eating or after lying down	25	31
Breathing difficulties	23	29
Heartburn, chestpain, indigestion or stomach acid coming up	40	49

Mean RSI (Reflux symptom index)

Age group	No. of patients	Mean RSI (25.75)
0-10	0	-
11-20	8	26
21-30	24	24
31-40	30	27
41-50	18	26

Table-3: Symptoms of LPR

Findings	Number of patients	Percentage
Erythema/hyperaemia	72 1 st MC	90
Posterior comm. Hypertrophy	60 2 nd M.C	75
Ventricular obliteration	49 3 rd MC	61
Pseudosulcus	40	50
Vocal fold edema	42	52.5
Diffuse laryngeal edema	43	53.7
Granulation/granuloma	31	39
Thick endolaryngeal mucus	31	39

Mean RFS (Reflux finding score)

Age group	No of patients	Mean RFS (13)
0-10	0	-
11-20	8	12
21- 30	24	14
31- 0	30	13
41-50	18	13

Table-4: Signs of LPR

are hoarseness, globus pharyngeus, dysphagia, cough, chronic throat clearing, post nasal drip and sore throat. These symptoms are often intermittent or 'chronic intermittent'. With these symptoms patients come to us in the chest disease hospital. However, these symptoms are not specific for LPR, and may be caused by rhinitis, asthma, laryngeal cancer, and many other pathologic conditions. The prevalence of symptoms attributed

to LPR is in the range of 15–20%. The classical laryngeal physical findings of LPR reported in otolaryngology literature are edema and erythema of the posterior commissure-so called posterior laryngitis.

Diagnosis can be made on the basis of the symptoms and laryngeal findings but ambulatory pH monitoring remains the gold standard even though recent literature questions its accuracy. Other diagnostic tests like barium esophagography or esophagoscopy are far less sensitive for LPR. Bilgen et al.¹⁵ 2003 concluded that empiric trial of PPI is an alternate for the 24 h double probe pH monitoring for the diagnosis of LPR¹⁷. Age of the patients varied from 10 to 50 yrs. No patient was less than 10 yrs of age. Maximum numbers of patients were in the age group 31 to 40 yrs forming about 37.5% % of the study group. Females (66%) outnumbered the males (34%) in the current study. This result is in accordance with the indexed literature like of Peter C.Belfasky et.al.¹¹ where 26% were males and 74% were females; Cem Bilgen et.al.¹⁵ where 36% were males, 64% were females; Tamer A. Mesallam et al¹⁶ where 65% were females and 35% were males, Sema Zer Toros et.al. ¹⁷where 73.3% were females and 26.6% were males and Patigaroo et. al.¹⁸ where females were 60% and males 40%. Criteria for diagnosis in these studies were pH monitoring except for Cem Bilgen, Tamer A Mesallam and Sema zer toros and Patigaroo et.al. where it was RFS, RSI, MRSI.

The results are at variance to the similar study done by Stefan Tauber¹⁹ where males were 53% and females were 47%.

Mean age of the study group was 37 which is in accordance with other studies where mean age were 48yrs¹⁷, 41.7yrs¹⁶, 51.3¹⁹ and 38¹⁸

Patients were evaluated with reflux symptom index and patients were only included in the study if their RSI was more than 13.

Frequent clearing of throat was the most common symptom present in 74 % of patients followed by foreign body sensation in throat in 60 % and cough in 52 % of patient's. Least common symptom was breathing difficulties. Sema Zer Toros et.al¹⁷ also found frequent clearing of throat as the most common symptom in their study on LPR patients.¹⁹

Patigaroo et.al.¹⁸ and Tamer A. Mesallam¹⁶ found globus sensation as the most common symptom with similar inclusion criteria's to our study. P.D. Karkos et al²⁰ found the most common symptom as Globus pharyngeus in 73% percent but it was based on mailed survey and not on study on patients. While some studies have found other most common symptoms of LPR like throat burning²¹, Hoarseness in 71%¹ and cough.²²

Mean RSI of all patients in our study was 25.75 while the mean RSI in Patigaroo et.al¹⁸ was 21. In two studies by Peter.C.Belfasky^{11,12} it was 19.3 and 19.9

Patients were also evaluated with reflux finding score and patients were only included in the study if their RFS was more than 7

Most common laryngoscopic sign in the study was found to be erythema/hyperaemia in 90% of patients followed by posterior commissure hypertrophy in 75% and ventricular obliteration in 61 % of patients. Pseudosulcus was seen in 50% (40 patient's). Other studies have also found erythema as most common sign like studies Book and Rhee²⁴, Mesallam and Stemple¹⁶ Karkos and Yates²⁰ and Toros and Toros.¹⁷

In contrast to our study other authors have noted other most

common laryngoscopic signs like posterior commissure hypertrophy by Belfasky and Postma¹¹ and Partial ventricular obliteration by Tezer and Kockar.²³

We noted Pseudosulcus in only 50 % of our study group which is similar to. Patigaroo et.al¹⁸ whereas Belfasky et al.¹⁰ in a study of 30 patients diagnosed on the basis of pH monitoring found pseudosulcus in 70% of study subjects and concluded that sensitivity and specificity of pseudosulcus in the diagnosis of LPR are 70 and 77% respectively.

Mean RFS of the patients was 13 which is in accordance to a similar study done by Patigaroo et. al¹⁸ where it was 12. Peter C. Belfasky¹¹ found that RFS at the entry was 11.5 while Cem Bilgen et.al¹⁵ noted their patients had mean RFS at entry as 14.8.

CONCLUSION

Chest Physicians see patients with symptoms of LPR. They should be well versed with symptoms of LPR and should have a command on the laryngoscopic findings because diagnosis of LPR is routinely made on the basis of reflux finding score(on laryngoscopy) and reflux symptom index of Wake Forest University. RFS of more than 7 and RSI of more than 13 are associated with high likelihood of LPR. Unless familiar with this condition, chest physicians can wrongly treat such patients with courses of antibiotics and antiallergics.

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