

Original Research Article

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Laryngopharyngeal reflux- diagnosis and management at a tertiary care centre

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ABSTRACT

Background: Laryngopharyngeal reflux (LPR) disease is a clinical entity due to the retrograde flow of gastric contents into the pharynx. It can be considered as an extraesophageal syndrome of gastroesophageal reflux disease (GERD). The objective of the present study is to study the clinical profile of LPR and their response to treatment.

Methods: 100 consecutive patients attending the outpatient department of ENT, presenting with a clinical profile of LPR were selected in the present study. The patients' symptoms were evaluated based on the reflux symptom index (RSI) and was followed by an endoscopic examination of larynx and a scoring was made based on reflux finding score (RFS). An RSI score of ≥ 13 and RFS of > 7 were considered for starting patients on LPR treatment. The patients were then put on treatment and followed up for 3 months.

Results: In our study population the most common symptom was foreign body sensation in throat (52%). The most common sign noted on endoscopic examination of larynx was hyperemia/erythema of laryngeal tissue particularly bilateral arytenoids. Majority of our patients responded well to combination of pantoprazole (40 mg) and domperidone (30 mg) for 4 weeks. This was evaluated in terms of reduction in the RSI and RFS scores.

Conclusions: LPR is more commonly encountered clinical entity and the otorhinolaryngologist should bear it in mind while treating patients for chronic complaints of throat pain, change in voice etc. Appropriate diagnosis and management of LPR can prevent unwarranted use of antibiotics and surgeries in these patients.

Keywords: Laryngopharyngeal reflux, Reflux symptom index, Reflux finding score

INTRODUCTION

Laryngopharyngeal reflux (LPR) represents a controversial subject in terms of both diagnosis and treatment. The recent trends show an increased interest in understanding and managing patients of LPR. The initial description of this condition dates back to atleast four decades.¹⁻⁶ It has become one of the most common conditions presenting in an otorhinolaryngology outpatient department which is diagnosed in approximately 10% of these patients.^{7,8} These patients usually present with vague symptoms such as dry cough, frequent clearing of throat, foreign body sensation in

throat, voice change, postnasal discharge etc adding to the ambiguity of the diagnosis.

Many of the patients having LPR have already received repeated courses of antibiotics or have been treated for conditions like chronic tonsillopharyngitis, chronic rhinosinusitis or asthma. Some patients have also undergone unwarranted surgeries such as tonsillectomy, middle meatal antrostomy, inferior turbinate reduction etc. Due to the chronicity of the condition, patients have also taken up on alternative treatment such as homeopathy etc.

LPR should be considered as a separate entity from gastroesophageal reflux disease (GERD). Laryngeal damage from reflux can occur directly or indirectly. Direct injury is usually the result of acid and pepsin coming in contact with the laryngeal mucosa.⁹ Bile salts also have been found and implicated to cause the laryngeal damage.¹⁰ Indirectly, vagal nerve triggering can occur due to distal oesophageal irritation from acid which can induce chronic cough and frequent throat clearing.¹¹

Hence there is a need to analyse laryngopharyngeal reflux manifestations in ENT patients. There is also a need to have a diagnostic and treatment protocol for these patients in order to have appropriate management.

The study was done with the objectives to study the clinical presentation of laryngopharyngeal reflux in

patients presenting to ENT outpatient and to present a diagnostic and treatment protocol for laryngopharyngeal reflux patients.

METHODS

The present study was a hospital based case series carried out from March 2018 to February 2019 in the outpatient department of ENT at Bangalore Medical College and Research Institute, Bangalore.

Patients presenting with symptoms suggestive of LPR such as frequent clearing of throat, chronic dry cough, post nasal discharge, foreign body sensation in throat etc., were included in the present study. An informed written consent was taken from the patients before proceeding further.

Table 1: Reflux symptom index (RSI).

S. no.	Symptoms	Scoring
1.	Hoarseness or a problem with your voice	0 1 2 3 4 5
2.	Clearing of throat	0 1 2 3 4 5
3.	Excess throat mucus or post nasal drip	0 1 2 3 4 5
4.	Difficulty swallowing food, liquid or pills	0 1 2 3 4 5
5.	Coughing after eating or after lying down	0 1 2 3 4 5
6.	Breathing difficulties of choking episodes	0 1 2 3 4 5
7.	Troublesome or annoying cough	0 1 2 3 4 5
8.	Sensations of something sticking in throat or a lump in the throat	0 1 2 3 4 5
9.	Heartburn, chest pain, indigestion or stomach acid coming up	0 1 2 3 4 5
Total		

Within the last month how did the following problems affect you? 0=no problem, 5=severe problem. Score of >13 were considered for treatment of LPR.

The patient's symptomatology was evaluated using the reflux symptom index (RSI).¹² This index makes use of 0-5 scale to describe the effect of LPR disease on the quality of life with respect to the nine main symptom categories (Table 1).

This was followed by subjecting the patients to endoscopic evaluation of larynx in the outpatient department. Application of the reflux finding score (RFS) was made which helped us quantify the effect of LPR on eight areas of the larynx (Table 2).

Criteria for starting patients on LPR treatment were RSI more than 13, RFS of more than 7 and no other identifiable cause of symptoms after detailed clinical examination and laryngeal endoscopy.

Patients were initially started with a combination of pantoprazole (40 mg) and domperidone (30 mg) once daily and were reviewed after four weeks. If patients were not responsive during the initial four weeks trial period, the pantoprazole and domperidone combination was given twice daily and patients were reviewed. The patients were followed up for a period of three months.

Table 2: Reflux symptom score (RFS).

S. no.	Finding	Scoring
1.	Subglottic edema	2=present 0=absent
2.	Ventricular obliteration	2=partial 4=complete
3.	Erythema/ hyperemia	2=arytenoids only 4=diffuse
4.	Vocal fold edema	1=mild 2=moderate 3=severe 4=polypoid
5.	Diffuse laryngeal edema	1=mild 2=moderate 3=severe 4=obstructing
6.	Posterior commissure hypertrophy	1=mild 2=moderate 3=severe 4=obstructing
7.	Granuloma/ granulation	2=present 0=absent
8.	Thick endolaryngeal mucus	2=present 0=absent
Total		

Score of >7 were considered for treatment of LPR.

RESULTS

A total of 100 patients clinically presenting with features suggestive of LPR were included in the present study. Of the 100 patients, 52 were females and 48 males. The patients were categorically placed according to the age distribution. The most common age group presenting in our study population was between 21-30 years i.e., 30 patients. This was followed by the age group of 31- 40 years having 19 patients. A total of 49 patients presented in the age group of 21-40 years (Table 3).

Table 3: Age distribution.

Sl. No.	Age group (in years)	No. of patients
1.	11-20	5
2.	21-30	30
3.	31-40	19
4.	41-50	17
5.	51-60	15
6.	>60	14

Total number of patients n=100.

Table 4: Symptomatology of patients.

Symptom	No. of patients
Change in voice	33
Clearing of throat	13
Excessive throat mucus/postnasal drip	2
Difficulty in swallowing	36
Cough after eating	1
Breathing difficulties	0
Troublesome cough	27
Foreign body sensation	48
Heart burn/chest burn	26

Using the reflux symptom index (RSI) questionnaire, the patients were evaluated for their symptomatology. A score of more than 13 was considered for further evaluation of the patients. The most common symptom presenting in our study population was a foreign body sensation in the throat, seen in 52% patients. This was followed by difficulty in swallowing (36 patients) and change in voice (33 patients). There was an overlap of symptoms seen in the patients (Table 4).

Using the reflux finding score (RFS), the patients were scored based on the findings of endoscopic examination of larynx. A score of more than 7 was taken into consideration for starting the patients on treatment for LPR. The most common finding noted in our study was erythema or hyperemia of the laryngeal tissue present in 61% patients. The most common site showing erythema was both the arytenoids and the interarytenoid region. This was followed by vocal cord edema seen in 35% patients. There were various grades of edema noted in our study (Table 5).

Table 5: Signs on endoscopic examination of larynx.

Clinical Sign	No. of patients
Subglottic edema	0
Ventricular obliteration	11
Erythema/ hyperemia	61
Vocal cord edema	35
Diffuse laryngeal edema	31
Posterior commissure hypertrophy	2
Granulations	10
Endolaryngeal mucus	33

A total of 28 patients in our study population were smokers with variable number of cigarettes consumed per day (average 3-4/day). It was found that the severity of LPR was more in this group of patients. Also the response to treatment was much slower in this subset of patients.

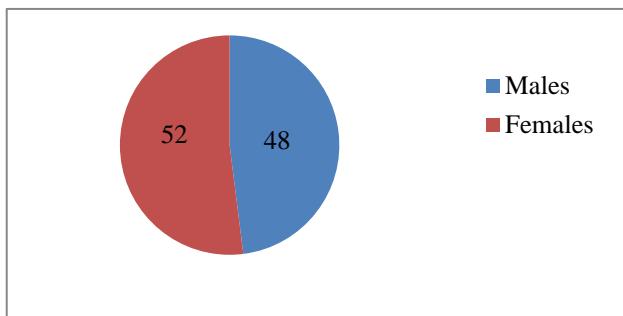


Figure 1: Gender distribution.

All our 100 patients were started on treatment with combination of pantoprazole (40 mg) and domperidone (30 mg) once daily and were reviewed after four weeks. Along with this, patients were advised lifestyle modifications such as to avoid skipping meals, avoidance of oily, fried and spicy food, avoid coffee, tea, chocolates, inclusion of mild to moderate physical activity such as brisk walking, jogging, cardio exercises etc., in their daily lifestyle and avoidance of smoking. 10 patients were lost to follow up. Of the 90 patients, 72 patients responded well after instituting this treatment for 4 weeks. The RSI and RFS scores showed an overall reduction after treatment. The remaining 18 patients required another course of pantoprazole and domperidone in a twice daily dosing for 4 weeks along with the lifestyle modifications. The review following this treatment after 4 weeks showed significant improvement in the RSI and RFS scores overall.

DISCUSSION

Laryngopharyngeal reflux is highly prevalent in the general population and its impact on health system is growing dramatically. It has been estimated that 10% of Americans show the symptomatology on a daily basis and 30-50% show it occasionally.^{13,14} Laryngopharyngeal

reflux is the preferred term because the presentation, mechanisms and manifestations differ from classic GERD. The patients present with wide array of clinical presentation which may mimic the clinical profile of acute pharyngitis, acute tonsillitis, acute rhinosinusitis or asthma. As a result of incorrect diagnosis and the chronicity of the condition, several patients receive multiple courses of unwarranted antibiotics and steroid therapy and some may be subjected to unnecessary surgical procedures such tonsillectomy or middle meatal antrostomy.



Figure 2: Bilateral arytenoid congestion with left vocal cord thickening.



Figure 3: Diffuse laryngeal edema.

In our study the number of females slightly outnumbered the males (52 females and 48 males). The most common age group affected was 21- 40 years in our study population. In a similar study done by Alam et al, the male to female ratio was equal.¹⁵ The mean age of patients presenting with LPR symptoms in their study was 39.6 years. In another study done by Koufman on 113 reflux patients, 49 were males and 69 were females.¹⁶ This was in concordance to our present study.

In our study of 100 patients of LPR, the most common presenting symptom was a foreign body sensation in throat noted in 52% of patients. The patients were evaluated using the reflux symptom index (RSI). In a study done by Koufman et al on 225 patients, hoarseness of voice was noted most frequently (71%).¹⁶ In the study done by Koufman et al, hoarseness and chronic throat clearing were noted in 88% of their patient population.¹⁶ Patients of LPR present with a wide array of symptoms

and the treating doctors need to have a good understanding of them to make the right diagnosis.

The most common sign noted on laryngeal examination in our study population was erythema or hyperemia of the laryngeal tissue seen in 61% of patients. The patients were scored based on the reflux finding score (RFS). In the study done by Alam et al on 150 LPR patients, inter arytenoid edema/congestion was noted in 72.7% of patients.¹⁵ This was in concordance to our present study.

Of the 90 follow-up patients, 72 responded well to the combination of pantoprazole (40 mg) and domperidone (30 mg) for duration of 4 weeks. In a study done by Alam et al on 150 LPR patients, vast majority of their patients (n=101) responded after 4 weeks of treatment with omeprazole given orally.¹⁵

LPR seems to be more prevalent in the society than previously reported in literature. The treating doctors should keep this condition in mind when patients present with the wide symptomatology of LPR. It should also be kept in mind that LPR is quite different in presentation, pathophysiology and response to treatment in comparison to GERD.

In addition to the medical line of treatment of a combination of proton pump inhibitors and prokinetic agents, the patients need to be stressed upon the importance of lifestyle modifications in terms of dietary changes, exercise and avoidance of smoking. These simple yet effective modifications in lifestyle bring about significant improvement of LPR in the long run.

CONCLUSION

LPR is a condition commonly encountered by otorhinolaryngologists in their outpatient setting. The condition seems to be more commonly seen than previously reported in literature. Many of the patients having LPR have received repeated courses of antibiotics or have been treated for conditions like chronic tonsillopharyngitis, chronic rhinosinusitis or asthma. LPR should be considered as a separate entity from gastroesophageal reflux disease (GERD). Laryngeal damage from reflux can occur directly or indirectly. Appropriate management of LPR can prevent the symptomatic use of various medical and surgical interventions and thus the overall morbidity.

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