



ORIGINAL RESEARCH

Laryngopharyngeal Reflux – Difficulties in treatment during Covid pandemic

Malarvizhi Ravisankar^{1*†}, Sravanthi Puvvada^{2†}, Anitha Balakrishnan², Muthubabu Kasiviswanathan^{2†}, Surya Gayathri Chinnasamy² and Manaswini Ubbani²

¹Department of Otorhinolaryngology, SRM Medical College Hospital and Research Institute, Kattankulathur, India

²Department of Otorhinolaryngology, Meenakshi Medical College Hospital and Research Institute, Kanchipuram, India

***Correspondence:**

Malarvizhi Ravisankar,
mavi_20042003@yahoo.com

†ORCID:

Malarvizhi Ravisankar: 0000-0002-5228-125X
Sravanthi Puvvada: 0000-0002-8035-9827
Muthubabu Kasiviswanathan: 0000-0002-9295-7189

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Abstract

Introduction: COVID-19 as a pandemic has resulted in a fear of the unknown and as a remedy in our population many have turned to home remedies for immune boosting as well as commercially available immune boosters. Most are spices, which in overuse tend to cause reflux diseases.

Aim: To study the outcomes of treatment of laryngopharynx reflux (LPR) in ENT clinics and assess the need for imaging studies such as video-laryngoscopy (VLS/VDL) examinations in convincing the patient of the diagnosis and adherence to treatment.

Materials and methods: 52 subjects were chosen, and their data were analyzed in 4 zones with shared geographic borders. Subjects with known gastritis, gastric surgeries or taking drugs prone to gastritis were excluded from the study. Videolaryngoscopy was done in all subjects during the presentation and in the monthly follow-up period.

Results: Males were commonly affected. 44% of cases were attributed to overuse of immune boosters. The most common presenting symptoms were foreign body (FB) sensation, frequent throat clearing, and dysphagia. Only 7 patients had a voice change. All patients benefitted from PPI with prokinetics and counseling. 98% of patients needed VLS pictures or video for counseling.

Conclusion: Immune booster intake should be moderated and its side effects should be taught to the population. Anxiety-induced Laryngopharyngeal reflux disease (LPRD) can be treated without anti-anxiety drugs with proper education of the condition to the patient and relaxation techniques.

Keywords: anxiety, COVID immune boosters, laryngopharyngeal reflux, reassurance, VLS

Introduction

The emergence of COVID-19 as a pandemic and the subsequent effects on human life have caused a great deal of anxiety among the general population. The advent of aversion to drugs has now increased in recent times, making people move to age-old immune boosters

from the kitchen. Though some of them have been proved to have a scientific basis behind their use; some are just placebos.

The use of these immune boosters should be in moderation and only as an aid to nature, not the sole source. Their excessive use in quantities more than prescribed has caused a lot more harm than benefit.



Immune boosters

So what are these immune boosters that are here? Turmeric, pepper, garlic, ginger, papaya extracts, siddha preparations, herbs from the backyard such as hibiscus flowers, etc.

These are a routine part of our Indian diet. They are to be consumed in moderation to enhance the flavor or palatability. They are known to enhance the immune system when taken regularly with food but not as a sole food item. With fear of the unknown during the pandemic, people have started consuming them as sole food or their mixture in quantities and concentrations that are more harmful than beneficial.

Laryngopharyngeal reflux disease (LPRD)

A common cause of foreign body sensation and sore throat with a cough in erect posture in otherwise asymptomatic people is Laryngopharyngeal reflux disease (LPRD). LPRD is defined as the reflux of gastric content into the larynx and pharynx (1).

Gastro-esophageal reflux can come in contact with the pharyngeal and laryngeal structures and leave behind inflammation. The pathway being exposed continuously to a bolus of different consistencies thus gets inflamed chronically. The added exposure to the mucosa of arytenoids, ary-epiglottic folds, epiglottis and vestibular folds leads to their inflammation and the patient develops a chronic cough to clear the mucosa of secretions and develops the mannerism of hawking repeatedly to clear the secretions. Some even have pronounced changes in voice due to edema of the vocal folds. The following table enumerates the system for scoring the reflux changes given by Belafsky et al. (2) A reflux finding score (RFS) above 7 is suggestive of LPRD (2, 3, 4) (Table 1).

TABLE 1 | Reflux finding score (RFS).

S.No.	Region	Description
1.	Subglottic edema	[2 = Present; 0 = Absent]
2.	Ventricular obliteration	[2 = Partial; 4 = Complete]
3.	Erythema/hyperemia	[2 = Arytenoid Only; 4 = Diffuse]
4.	Vocal fold edema	[1 = Mild; 2 = Moderate; 3 = Severe; 4 = Polypoidal]
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]

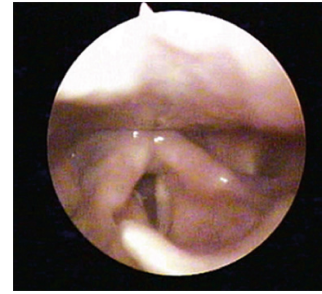


FIGURE 1 | Showing thick mucus. 46-year-old female, LPRD with voice change and cough as presenting complaint.

Pandemic and LPRD

With the fear of the unknown causing uncertainty and anxiety in people and looking to natural remedies, the incidence of LPRD has gone up in the current times of pandemic. The cause can be either alone or in combination. The quarantine period and economic slowdown had led to significant changes in the livelihoods of people. The major complaints are often masqueraded by other complaints of chest pain, choking sensation, tinnitus, and neck pain (Figure 1).

Materials and methods

An ambispective study was conducted in 4 zones with a shared geographical border during the months of September–October 2020. Data were collected through detailed clinical history and examination with the aid of indirect laryngoscopy (IDL) and video laryngoscopy (VLS/VDL) to document and use as a counseling aid. Consent was obtained to use the demographic data and symptoms and signs from patients who were between the ages of 18 and 85 years. Patients with prior gastro-esophageal anatomical defects like hiatus hernia, previous gastro-esophageal surgeries, intake of drugs that had known side effects of gastritis, and those who had a history of longstanding gastritis and obstructive sleep apnoea syndrome (OSAS) were excluded from the study. Sampling was convenience sampling, with those who gave consent to the study being included.

Inclusion criteria

(1) Patients who were between the ages of 18 and 85 old, (2) patients with symptoms of Foreign Body (FB) sensation and frequent throat clearing, (3) Patients with symptoms of LPRD and (4) patients with no prior history of allergic rhinitis.

Exclusion criteria

(1) Patients having prior gastro-esophageal anatomical defects such as hiatus hernia, previous gastro-esophageal surgeries, intake of drugs that had known side effects of gastritis, (2) patients who had a history of long-standing gastritis and OSAS, (3) patients with allergic rhinitis, and (4) patients less than 18 years of age and above 85 years of age.

52 patients were selected after assessing symptoms and an examination done with VLS/VDL and followed up for 3 months. The collected data were analyzed and the data were studied and represented by descriptive statistics.

All patients reporting to the out patient department (OPD) of the authors were questioned regarding the use of immune boosters and home remedies as part of routine history taking. Based on patient-related complaints, IDL and VLS were done to confirm the diagnosis. Only if the immune boosters/home remedies used exceeded in concentrations and frequency more than prescribed, the patient was selected as an inappropriate user and grouped under that category.

All patients were advised a PPI+Prokinetic drug twice a day regime for 21 days with weekly follow-up. During follow-up they were prescribed an additional antihistamine regime for 14 days if cough and post nasal drip were present. Based on the palpation of laryngeal crepitus and IDL/VLS findings, proteolytic enzymes were added to the regime for 7 days. No oral alginates or sucralfate suspensions were recommended. All patients were advised diet modification and to incorporate mild, regular physical exercise into their regimen. The patients' primary reason for taking immune boosters/home remedies in an appropriate dose or frequency was questioned and only if there was a significant fear of COVID that made them take it, was documented as anxiety.

Results

The study showed that males (61.5%) were more commonly affected, followed by females and the intersex population. The incidence was more common among the age group of 36 to 40 years (46%). Low in the 26–30 year age group (3.8%). The most common presenting symptoms were foreign body sensation (67%) followed closely by cough (65%) and frequent hawking (65%). The least was the symptom of a change in voice (9.6%), which is more evident when the scores are high and the duration of the presenting symptoms is longer (Figures 2, 3, 4 and Table 2).

Most subjects presented within weeks of symptoms. Late presentations were less and so were, early presentations. Among the male subjects, 4 had exposure to tobacco in the form of inhalation and 2 had both tobacco and alcohol as chronic usage. Among females, only 3 had smoking as a risk factor. Intersex population 1 had exposure to tobacco inhalation. All the remaining cases didn't have any form of exposure to tobacco or alcohol (Figures 5, 6).

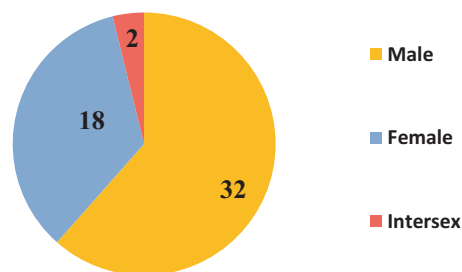


FIGURE 2 | Sex distribution.

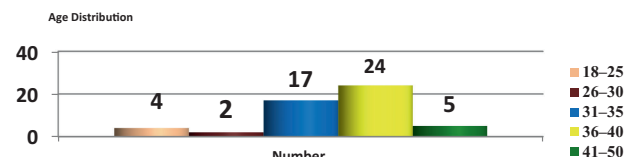


FIGURE 3 | Age distribution.

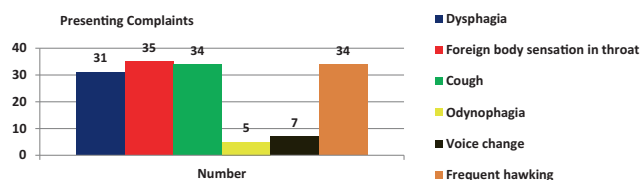


FIGURE 4 | Presenting duration.

The causative factor for LPRD was assessed only after administering a questionnaire on diet and habits. 29 cases had anxiety and 23 had overused self-prescribed immune boosters and remedies. After VLS, RFS scoring was done and a majority of patients came under the group 2 category.

All the patients were treated with PPI with prokinetics for 21 days and addition of antihistamines was needed in 48 cases for 7 days. A proteolytic enzyme like trypsin/chymotrypsin/serratiopeptidase was needed in 44 cases. Relaxation techniques were advised in 30 cases. All the patients were advised a change in diet (Table 3).

Most symptoms resolved in 14 days; complaints of FB sensation and dysphagia took a longer time to completely resolve; though reports of their improvement were documented within 3 days of starting PPI with prokinetics. Chest pain was a common masquerading symptom during emergency room (ER) visits; which, on detailed examination and history, found to be non-cardiogenic. Associated gastroesophageal reflux disease (GERD) was very common. 98% of patients needed imaging in the form of video to corroborate the nature of the disorder and for counseling to relieve them of anxiety. Among the total 52 subjects, 6 needed an UGI-scopy by a gastroenterologist to rule out GERD and esophagitis. 7 patients with dysphonia needed help from a speech language pathologist for swallowing and speech therapy (Figure 7).

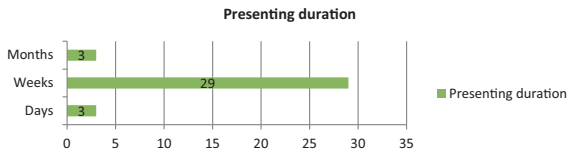


FIGURE 5 | Duration of presenting symptoms.

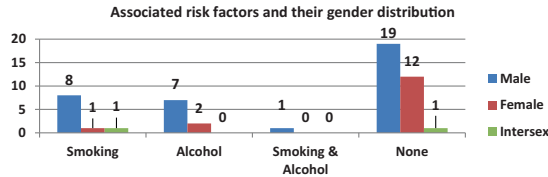


FIGURE 6 | Associated risk factors.

TABLE 2 | Reflux grading in study.

Group	Reflux score at time of presentation	Number
I	0–6	0
	7–10	12
II	11–15	33
	16–18	5
III	19–20	2
	21–26	0

Discussion

Toshimi Chiba’s paper on LPRD states LPRD is diagnosed in approximately 10% of subjects to ENT clinics. He gives the most diagnosing features as erythema, edema, and inter arytenoid hypertrophy. Administration of PPI with additional bedtime histamine-2 receptor antagonists has been shown to be effective in the treatment of LPRD. In our

TABLE 3 | Mean duration of resolution of symptoms.

Symptom	Time for complete resolution of symptoms (mean)
Cough	14 days
Foreign body sensation	36 days
Frequent hawking/throat clearing	14 days
Dysphagia	45 days
Odynophagia	4 days
Change in voice	14 days

observation, twice a day, PPI or histamine-2 antagonist was beneficial (5).

Salihefendic et al. (6) used a reflux symptom index questionnaire in 2,123 and among them 390 tested positive. They were treated with protocols and algorithms. 82% showed improvement with basic treatment. They said that almost every 5th of the people visiting a family medicine physician showed symptoms of LPR. During pandemic LPRD was rampant but only few ventured to clinics (6).

Sarkar et al. (7) advocated the use of prokinetics with PPI to aid in the early resolution of symptoms of LPRD. Their study showed that dietary habits reflected LPRD. They concluded that vocal fold edema was more important than laryngeal erythema in the diagnosis of LPRD. The use of IDL/VLS in these patients was beneficial in our observation (7).

In Chin-Lung it was found that there is only a weak correlation between LPR symptoms and endoscopic findings. It is not recommended to make a diagnosis of LPR solely based on laryngoscopic results. The study also states that LPR treatment generally requires an aggressive approach, including high doses of proton pump inhibitors over long periods (twice daily for 3–4 months). Additional management options were advocated, such as lifestyle

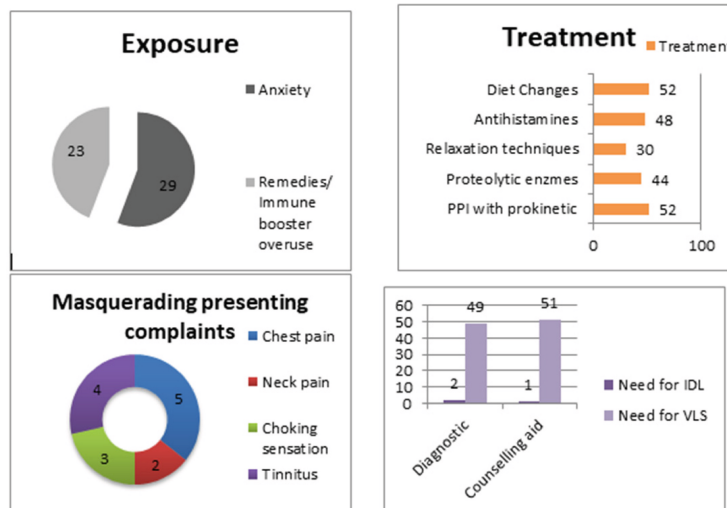


FIGURE 7 | Treatment, masquerading symptoms, and need for VLS in counseling.

changes, dietary modifications, weight reduction, and exercise. Laparoscopic anti-reflux surgery has been shown to reduce LPR-associated symptoms in patients who have a high quantity of refluxate and esophageal complications. In our observation during the pandemic a conservative approach (non-surgical) was beneficial (8).

Lechien et al. (9), study advocated the use of video stroboscopy in the diagnosis and monitoring of LPRD. It highlighted that the changes in diet combined with pantoprazole twice daily neutralized the acidity responsible for the inflammation of the upper aerodigestive tract leading to an improvement of laryngeal symptoms, signs, perceptual voice disorders, and several acoustic parameters, especially in rough patients. It showed that the hoarseness (especially roughness) of the suspected LPR patients could be due to complex pathophysiological mechanisms and not simply to edema of the vocal folds as reported previously. It was obvious that the healing of the vocal folds reported in suspected LPR patients could influence the voice, so that acoustic parameters would correlate with microscopic changes not always described in the RFS scale. Their videostroboscopic findings support the utilization of acoustic parameters (using an objective method to determine the most stable time interval) in the follow-up of LPR patients with hoarseness and to better understand vocal disorder development. Due to the pandemic, the subjects were assessed only with questionnaires and IDL/VLS in OPD and stroboscopy was avoided to restrict contamination (9).

Patel et al.'s (10) study gave the most common symptoms of LPRD as dysphonia, cough, globus pharynges, and throat clearing. In our study, the globus pharynges predominates and dysphonia is only in severe cases. Though Patel et al.'s (10) study advocates the use of PPI, they also advise neuromodulators like Amitriptyline and gabapentin if the initial therapy with PPI fails; suggesting it is more of a functional laryngeal disorder. As a measure of anxiety control, we used Amitriptyline only as a last resort in our subjects (10).

Martinucci et al.'s (11) study quoted the LPRD definition of Vakil et al. (1). Their study suggested a growing prevalence of LPRD in cases of GERD. The study also showed that, despite maximal acid suppression, patients still had symptoms to some extent. They assessed that LPRD is a multi-factorial syndrome and that GERD is not the only cause in pathogenesis. This observation was also noticed in our study (11).

Strengths and limitations

The study was conducted with limited resources during the COVID pandemic 1st wave, wherein the personal protective devices were cost limiting in getting larger data. The study was conducted in 4 contiguous districts in the same state with a diverse population, including migrants so that bias

in selection could be avoided. The questionnaire used was customized to the patient and administered by a single trainee in otorhinolaryngology who was assigned only data acquisition without knowing the title of the study to avoid information bias.

Conclusion

Males were more commonly affected in the study population, with most of them within the age range of 36–40 years. FB sensation in the throat, frequent hawking, coughing, and dysphagia were the common symptoms. PPI with prokinetics remains the mainline treatment for LPR. Improvement in the RFS score was evident within a week of starting medical therapy. Immune boosters and remedies overdose by self-prescription has caused the majority of symptomatic subjects. The patients needed re-assurance with VLS/VDL for counseling regarding the severity of the disorder as well as to relieve their anxiety.

Conflict of interest

Nil.

Ethical committee approval

IEC approval is deemed not applicable.

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