

Management Strategies of Laringopharyngeal Reflux

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Abstract

Laringofaringeal reflux is the retrograde movement of gastric contents that cause symptoms in the larynx. Laringopharyngeal reflux symptoms include dysphonia, globus faringeus, mild dysphagia, chronic cough and throat clearing. Physical examination found edema posterior comisura, edema vocal cord, ventricular obliteration and pseudosulcus. Diagnosis can be established by Reflux Symptom Index (RSI), Reflux Finding Score (RFI), dual pH probe monitoring and the use of PPI empiric. Management of laryngopharyngeal reflux are intervention of dietary, lifestyle modification and proton pump inhibitor (PPI) medication. Reported a case of 48-year-old female patient who was diagnosed with laringopharyngeal reflux and gave medicamentosa followed a diet and lifestyle modification. There are improvement of RSI and RFI after therapy.

Introduction

Laryngopharyngeal reflux (LPR) is the retrograde movement of stomach contents that causes symptoms in the larynx and hypopharynx (Liu, Krause, & Yadlapati, 2023). Laryngopharyngeal reflux occurs in 50% of patients with voice disorders (Liu et al., 2023); (Lin & Peng, 2023). The incidence in men is slightly higher than in women, with a ratio of 55%:45%. There is no different symptoms between gender (Abdulkarim, Farkash, & Hasen, 2024)

Symptoms of laryngopharyngeal reflux include dysphonia, globus pharyngeus, mild dysphagia, chronic cough, and throat clearing (Liu et al., 2023); (Lechien, Bock, Carroll, & Akst, 2020). The most common complaint is dysphonia. These symptoms can be triggered by excessive voice use, smoking, alcohol, infection, and allergies (Liu et al., 2023). Chest warmth and regurgitation are rare complaints (Lin & Peng, 2023)

Direct stimulation of pepsin, trypsin, and other enzymatic molecules, and the gastroduodenal contents may also irritate the lower esophagus, stimulating chemoreceptors and causing reflex coughing and hypersecretion of the laryngopharyngeal mucosa due the inflammatory response firstly, but the exact mechanism requires more evidence (Lin & Peng, 2023)

The most common signs were hyperemia/erythema of endolarynx, thick endolaryngeal mucus and posterior commissure hypertrophy. Reflux Finding Score (RFS) and Reflux Symptom Index (RSI) have shown some utility in management of patients with LPR (Abraham & Kahinga, 2022); (Belafsky & Rees, 2007)

Though originating through similar mechanisms, LPR and gastroesophageal reflux disease (GERD) differ in diagnostic and treatment guidelines, as well as their psychosocial impact (Liu et al., 2023). There is currently no gold standard for diagnosing LPR, so various treatment strategies are used in its management. (Lin & Peng, 2023); (Lechien et al., 2020)

Management of laryngopharyngeal reflux includes dietary regulation, lifestyle modifications, and the administration of proton pump inhibitors (PPIs) (Liu et al., 2023); (Lin & Peng, 2023); (Lechien et al., 2020). Dietary regulation are high-fat, low-protein diet, stress or anxiety, and tobacco (Lin & Peng, 2023)

Case Report

A 48-year-old female patient, who have profesion as a teacher and is a Christian, came with a complaint of hoarseness for the past 3 weeks. She has also had a sensation of a lump in her throat for the past 2 months. The patient complains of frequent throat clearing, excessive phlegm, difficulty breathing, and chest warmth. She states she has had frequent heartburn for the past 20 years.

There is no history of smoking, alcohol consumption, allergies, or asthma. She also has no fever, neck lumps, nausea, or vomiting. The patient has been treated by a general practitioner in her local area, but there has been no improvement.

Examination of the ears and nose was within normal limits. The throat showed a symmetrical pharyngeal arch, a central uvula, tonsils T1-T1, and a usual posterior pharyngeal wall. Indirect laryngoscopy revealed a normal epiglottis, edematous and hyperemic arytenoids, edematous but non-hyperemic ventricular folds and vocal folds, and an open rima glottidis. No enlargement of cervical lymph nodes was found. The laryngopharyngeal reflux was assessed with a Reflux Symptom Index score of 26 (Table 1).

Table 1
Result of Reflux Symptom index

No	Symptom	Score
1	Dysphonia or voice disorder	5
2	Clearing your throat	4
3	Excess throat mucus or post nasal drip	4
4	Difficulty swallowing	1
5	Coughing after you ate or after lying down	0
6	Breathing difficulties or choking episodes	4
7	Annoying cough	0
8	Lump in your throat	4
9	Heartburn, chest pain, indigestion or stomach acid coming up	4
Total		26

The examination using a flexible fiber-optic laryngoscope showed an RFS of 8, which is greater than 7 (Figure 1 and Table 2).



Figure 1. Fleksibel fiber optik laryngoscopy examination before therapy

Table 2
Result of *Reflux Finding Score*

No	Physical examination	Score	Info
1	Subglottic edema	0	Absent
2	Obliterasi ventrikel	2	Partial
3	Eritema/hiperemis	2	Aritenoid
4	Edema plika vocalis	1	Mild
5	Difus laryngeal edema	2	Moderate
6	Commisura posterior hipertrofi	1	Mild
7	Granuloma/granulation tissue	0	Absent
8	Endolaringeal mucus	0	Absent
Total		8	

The patient was diagnosed with laryngopharyngeal reflux and was given a prescription for lansoprazole 30 mg twice daily, erdosteine 300 mg three times daily, tinoridine HCl 50 mg twice daily, and fucoidan 100 mg once daily. The patient was advised to vocal rest for 2 weeks, avoid foods and drinks that can increase stomach acid production, and refrain from eating or drinking for at least 2 hours before strenuous exercise. The patient was also instructed not to eat or drink within 3 hours of bedtime and to elevate her head 4-6 inches while sleeping. She was asked to return for a follow-up in two weeks, but she was unable to do, thus the medication was prescribed for one month.

The patient returned one month later, and her hoarseness was gone. The phlegm in her throat, throat clearing, chest warmth, and difficulty breathing had decreased, but the sensation of a lump in her throat was still present. Examination of the ears and nose was within normal limits. The throat showed a symmetrical pharyngeal arch, a central uvula, tonsils T1-T1, and a good posterior pharyngeal wall. Indirect laryngoscopy revealed a normal epiglottis, normal arytenoids, good ventricular and vocal folds, and an open rima glottis. Assessment with the Reflux Symptom Index showed a score of 11 (Table 3).

Table 3
Result Reflux Symptomp index

No	Symptomp	Score
1	Dhysponia or voice disorder	0
2	Clearing your throat	2
3	Excess throat mucus or post nasal drip	2
4	Difficulty swallowing	0
5	Coughing after you ate or after lying down	0
6	Breathing difficulties or choking episodes	3
7	Annoying cough	0
8	Lump in your throat	2
9	Heartburn, chest pain, indigestion or stomach acid coming up	2
Total		11

The fiber-optic laryngoscopy examination showed an RFI score of 3 (Figure 2 and table 4).



Figure 2. Examination of laringoscopy fiber optic

Table 4
Result of *Reflux Finding Score*

No	Physical examination	Score	Info
1	Subglottic edema	0	Absent
2	Obliterasi ventrikel	0	Absent
3	Eritema/hiperemis	0	Absent
4	Plica vocalis edema	0	Absent
5	Difus laryngeal edema	2	Moderate
6	Comisura posterior hipertofi	1	Mild
7	Granuloma/granulation tissue	0	Absent
8	Endolaryngeal mucus	0	Absent
Total		3	

There was an improvement after the therapy was administered. The patient was diagnosed with laryngopharyngeal reflux with improvement, and was given a prescription for lansoprazole 30 mg twice daily and fucoidan 100 mg once daily. The patient was advised to avoid foods and drinks that can increase stomach acid production, refrain from eating or drinking for at least 2 hours before strenuous exercise, avoid eating or drinking within 3 hours of bedtime, and to elevate her head 4-6 inches while sleeping. One month later, during a phone conversation, the patient reported no further complaints.

Discussion

The factors that play a role in the barrier against reflux are the upper esophageal sphincter (UES), the lower esophageal sphincter (LES), esophageal acid clearance, and epithelial resistance (Aviv & Collins, 2010)

There are two theories for the occurrence of laryngopharyngeal reflux. The first is that direct trauma from pepsin causes damage to the larynx and surrounding tissues. The second theory states that acid in the distal esophagus causes vagal stimulation, leading to bronchoconstriction, chronic throat clearing, and coughing, which ultimately results in mucosal lesions. These two mechanisms can work synergistically to produce the pathological changes seen in laryngopharyngeal reflux (Abdulkarim et al., 2024); (Lechien et al., 2024); (Kenny, 2023)

Gaynor, as cited by Aviv, studied the direct exposure of stomach contents to the larynx of rabbits and dogs. Direct exposure at a pH of 4.0 resulted in inflammation of the mucosa and muscle, and this damage was more severe with longer exposure. At a pH of 1.4, severe mucosal ulceration, submucosal hemorrhage, and necrosis occurred. In dogs, an effect on mucociliary clearance occurred at a pH of 5.0, and there was no mucociliary clearance at a pH of 2.0. Changes in pH have a direct effect on mucociliary clearance and increase the viscosity of the mucus blanket. A decrease in mucociliary clearance will lead to a decrease in resistance to infection. Pepsin, which is found in stomach contents, is active at a pH of 4.5 and its enzymatic activity causes tissue damage (Aviv & Collins, 2010). The maximal activity of pepsin occurs at a pH of 2 and it becomes inactive at a pH of (Belafsky & Rees, 2007); (Abraham & Kahinga, 2022); (C. Li, Cao, & Wang, 2025).

Recent research shows that the enzyme carbonic anhydrase III, which functions as a protector of the laryngeal mucosa, especially in the vocal fold area, from damage caused by reflux contents, is not found in patients with laryngopharyngeal reflux (Y. Li et al., 2022). The level of this enzyme is high in normal mucosal epithelium (Abdulkarim et al., 2024); (Y. Li et al., 2022)

Various techniques have been developed to establish a diagnosis of laryngopharyngeal reflux. The symptoms complained of include persistent or recurrent dysphonia, throat clearing, a sensation of a lump in the throat (globus sensation), and coughing (Abdulkarim et al., 2024). Fraser, as cited by Aviv in his research, found that dysphonia and coughing were the most frequent symptoms of laryngopharyngeal reflux. In a survey by the American Broncho-Esophagological Association, the most common symptoms in patients with laryngopharyngeal reflux were throat clearing, persistent cough, chest warmth/dyspepsia, globus sensation, and changes in voice quality (Aviv & Collins, 2010). Singers and other vocal professionals often complain of morning hoarseness, which requires a longer time for them to warm up (Courey, Postma, & Osoff, 2010)

In 2002, Belafsky introduced the 9-item Reflux Symptom Index (RSI) to help clinicians determine the presence and severity of laryngopharyngeal reflux symptoms before and after treatment (Table 5). The RSI is a simple, easy-to-use, economical, and non-invasive test (Belafsky & Rees, 2007); (Lien, Lee, & Wang, 2023). Typically, patients with laryngopharyngeal reflux have a constellation of symptoms rather than an isolated symptom (Belafsky & Rees, 2007)

Data from a study conducted by Belafsky supports that an RSI greater than 10 is associated with high 24-hour double probe pH monitoring results. In a prospective study of 40 patients who received therapy for 2 months, there was an improvement in the average RSI from 19.8 to 13.9 after treatment (Lechien et al., 2020)

Dysphonia in laryngopharyngeal reflux is usually intermittent (Belafsky & Rees, 2007). The symptom of globus pharyngeus is found in 4%-10% of laryngopharyngeal reflux symptoms (Abdulkarim et al., 2024); (Lien et al., 2023). Globus is the sensation of a foreign object or obstruction in the throat (Belafsky & Rees, 2007); (Lien et al., 2023). Damage to the epithelial cilia causes secretion and the accumulation of these secretions results in chronic throat clearing (Abdulkarim et al., 2024); (Belafsky & Rees, 2007). This patient also complained of a lot of phlegm in her throat, leading to frequent throat clearing.

Direct irritation from stomach contents causes laryngeal spasms, which result in chronic coughing and a choking sensation. The combination of direct trauma from reflux contents and the presence of laryngospasm symptoms and throat clearing can lead to vocal fold edema, contact ulcers, and granulomas, which manifest as dysphonia, globus pharyngeus, and sore throat (Abdulkarim et al., 2024). This patient was found to have dysphonia and globus pharyngeus.

Table 5
Reflux symptoms index (RSI)⁴

Symptom	Skor					
Disfoni/voice disorder	0	1	2	3	4	5
Clearing your throat	0	1	2	3	4	5
Excess throat mucus or post nasal drip	0	1	2	3	4	5
Difficulty swallowing	0	1	2	3	4	5
Coughing after you ate or after lying down	0	1	2	3	4	5
Breathing difficulties or choking episodes	0	1	2	3	4	5
Annoying cough	0	1	2	3	4	5
Lump in your throat	0	1	2	3	4	5
Heartburn, chest pain, indigestion or stomach acid coming up	0	1	2	3	4	5

The diagnosis of laryngopharyngeal reflux is established when the RSI score is greater than 13 (Lechien et al., 2020); (Lien et al., 2023). A technique currently being developed to standardize the examination of laryngopharyngeal reflux is the Reflux Finding Score (RFI). This allows for a better diagnosis, the evaluation of clinical improvement, and the assessment of treatment efficacy in patients (Table 6) (Lin & Peng, 2023). The RFI is an eight-item scale used to standardize the diagnosis of

laryngopharyngeal reflux, which is obtained from a fiber-optic laryngoscopy examination. The scale ranges from 0 for no abnormalities to a maximum of 26 (Liu et al., 2023); (Lin & Peng, 2023); (Belafsky & Rees, 2007). A study by Belafsky showed that an RFS value greater than 7 is associated with a positive dual pH probe result with a sensitivity of 95% (Lin & Peng, 2023)

Table 6
Reflux Finding Score (RFS)²

Physical examination	Score		Info
Subglottic edema	2	=	Present
	0	=	Absent
Obliterasi ventrikel	2	=	Partial
	4	=	Complit
Eritem/hiperemis	2	=	Only aritenoid
	4	=	Difus
Plica vocalis edema	1	=	Mild
	2	=	Moderate
	3	=	Severe
	4	=	Polipoid
Diffuse laryngeal edema	1	=	Mild
	2	=	Moderate
	3	=	Severe
	4	=	Obstruction
Comisura posterior hipertrofi	1	=	Mild
	2	=	Moderate
	3	=	Severe
	4	=	Obstruction
Endolaryngeal mucus	2	=	Present
	0	=	Absent

Subglottic edema, also known as vocal pseudosulcus, was first introduced by Koufman in 1995 (Lin & Peng, 2023); (Belafsky, Postma, & Koufman, 2002); (Hickson, Simpson, & Falcon, 2001). A vocal pseudosulcus is subglottic edema that extends from the anterior commissure to the posterior larynx. This condition can be distinguished from a true sulcus, where the sulcus is located on the edge of the vocal fold and ends in its middle portion. A true sulcus is caused by the adhesion of the vocal fold epithelium to the vocal ligament (Figure 3) (Lin & Peng, 2023); (Belafsky et al., 2002); (Hickson et al., 2001); (Soni, Gupta, Jotdar, Gupta, & Yadav, 2024).

Vocal pseudosulcus is found in 90% of patients with laryngopharyngeal reflux.15 In a separate study, it was stated that pseudosulcus has a sensitivity of 70% and a specificity of 77% for laryngopharyngeal reflux (Abdulkarim et al., 2024); (Belafsky et al., 2002); (Soni et al., 2024)

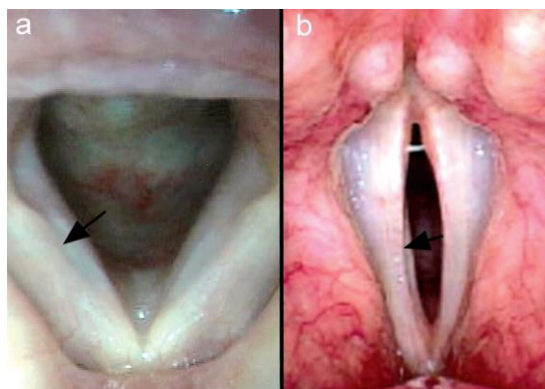


Figure 3. Pseudosulcus vocalis (a) and true sulcus vocalis (b)

Ventricular obliteration is found in 80% of patients with laryngopharyngeal reflux. The presence of edema in the vocal folds and ventricular folds causes the boundary between them to be obscured. In partial ventricular obliteration, the ventricular space is reduced, and the edges of the ventricular folds are indistinct. In complete ventricular obliteration, the vocal folds and ventricular folds appear to meet, and no ventricular space is visible (Lin & Peng, 2023); (Soni et al., 2024). Pseudosulcus and ventricular obliteration are the best markers for laryngopharyngeal reflux (Y. Li et al., 2022). In this patient, partial ventricular obliteration was found.

Laryngeal erythema is a non-specific finding in laryngopharyngeal reflux. Changes in erythema are difficult to assess because they depend on the quality of the fiber optics, the video monitor, and the light source (Lin & Peng, 2023); (Soni et al., 2024). Therefore, the assessment of laryngeal erythema is limited to localized erythema on the arytenoids only or diffuse erythema if it affects the entire larynx (Soni et al., 2024).

Vocal fold edema is considered mild if there is swelling on the free edge of the vocal folds, and moderate if a pseudosulcus is present. Severe edema is when there is significant, persistent swelling, and polypoid if there is polypoid degeneration (Lin & Peng, 2023); (Soni et al., 2024). In this patient, mild vocal fold edema was found.

Most physical examination findings for laryngopharyngeal reflux consist of edema in the posterior larynx (Aviv & Collins, 2010). Edema in the posterior larynx is a result of direct trauma from acid reflux and is a clinically classic sign of laryngopharyngeal reflux. Posterior commissure edema, vocal fold edema, and pseudosulcus are found in 70% of all patients with laryngopharyngeal reflux (Abdulkarim et al., 2024). In this patient, edema was found in the posterior commissure and vocal folds.

Diffuse laryngeal edema is assessed by comparing the size of the airway to the size of the larynx. The grading ranges from grade 1 to grade 4. Grade 1 diffuse laryngeal edema is when there is mild edema in the larynx; grade 2 is when the edema protrudes into the lumen, usually due to posterior laryngeal hypertrophy; grade 3 is when the ratio of the airway to the total laryngeal diameter is less than half; and grade 4 is when there is airway obstruction (Soni et al., 2024). In this patient, grade 2 diffuse laryngeal edema was found.

Posterior commissure hypertrophy is frequently found in laryngopharyngeal reflux. In a normal state, the cuneiform cartilages are still visible. In mild posterior commissure hypertrophy, a mustache-like appearance is seen, and in moderate hypertrophy, the swelling of the posterior commissure mucosa forms a straight line behind the larynx. Severe posterior commissure hypertrophy is when a protrusion from the posterior larynx toward the airway is visible, and very severe is when there is clear obliteration of the

airway.² Among 96 patients, 47% had posterior laryngeal edema with ulceration, and only 3 had granulomas (Aviv & Collins, 2010). In this patient, mild posterior commissure hypertrophy was found.

The 24-hour pH monitoring is considered the gold standard for diagnosing laryngopharyngeal reflux (Aviv & Collins, 2010); (Belafsky et al., 2002). This examination is very sensitive in distinguishing the presence of acid reflux. The distal pH probe is placed approximately 4 cm above the lower esophageal sphincter. The proximal pH probe is placed in the hypopharynx, approximately 1 cm above the upper esophageal sphincter (Belafsky & Rees, 2007); (Aviv & Collins, 2010); (Lien et al., 2023). A positive pH value is considered to be below four. This examination is not a routine procedure for diagnosing laryngopharyngeal reflux (Liu et al., 2023); (Aviv & Collins, 2010). It is invasive, expensive, and causes discomfort to the patient (Lin & Peng, 2023); (Belafsky & Rees, 2007); (Aviv & Collins, 2010); (Y. Li et al., 2022). This examination also cannot determine the severity of a person's laryngopharyngeal reflux symptoms and cannot predict the response to therapy (Liu et al., 2023); (Abdulkarim et al., 2024).

Noordzij, as cited by Aviv, compared pH probe results with the severity of laryngopharyngeal reflux symptoms and showed that positive dual pH probe results had poor predictive value for the severity of signs and symptoms of laryngopharyngeal reflux. The sensitivity of this test is not more than 75%-80%. In another study on laryngopharyngeal reflux at Wake Forest University, it was estimated that 59% of dual pH probes were negative, so dual pH probe examination alone is not sufficient to diagnose laryngopharyngeal reflux (Aviv & Collins, 2010). In this patient, dual pH probe examination was not performed because the equipment was not available.

Another method for diagnosing laryngopharyngeal reflux is with empiric PPI therapy. Empiric therapy with PPIs is currently widely used as an alternative modality (Liu et al., 2023); (Abraham & Kahinga, 2022); (Belafsky & Rees, 2007). The advantages of this empiric PPI approach are that it is easy to use and sensitive. Empiric PPI therapy is recommended for 2-3 months.⁸ If there is no improvement in symptoms after 3 months of using PPIs twice a day, it is likely that the symptoms are not due to laryngopharyngeal reflux.⁶ In this patient, there was an improvement in symptoms after the administration of PPIs.

Histopathological examination of laryngopharyngeal reflux reveals a picture of squamous epithelial hyperplasia with chronic inflammatory infiltration in the submucosa. The progressive disease can lead to epithelial atrophy and ulceration with the accumulation of fibrin, granulation tissue, and fibrosis in the submucosa (Abdulkarim et al., 2024)

An esophagram is performed in laryngopharyngeal reflux patients when surgical therapy is planned. In diagnosing the condition, an esophagram is not very helpful. In a study by Giachio, as cited by Aviv, of 28 patients with laryngopharyngeal reflux, esophagram images showed reflux in 45% of cases, while 50% were normal (Aviv & Collins, 2010)

Clinically, laryngopharyngeal reflux and classic GERD can be distinguished based on symptoms, reflux patterns, and response to therapy. In patients with laryngopharyngeal reflux, reflux occurs in an upright position (during the day), esophageal motility is good, and it is usually not accompanied by esophagitis and chest burning. It has been stated that 62% of voice and laryngeal disorders are caused by GERD (Kim et al., 2022); (Mohammadi, Ghadimi, & Saedi, 2005)

The treatment of laryngopharyngeal reflux includes dietary regulation, lifestyle modification, and medication (Liu et al., 2023). Medication includes the use of PPIs (proton pump inhibitors), antacids, H₂ blockers, prokinetic agents, and mucosal cryoprotectants (Abdulkarim et al., 2024); (Aviv & Collins, 2010). Laryngopharyngeal reflux can be divided into three categories: minor, major, and life-threatening (Belafsky & Rees, 2007)

Minor laryngopharyngeal reflux involves symptoms that do not interfere with daily activities and work. Major laryngopharyngeal reflux involves symptoms that interfere with daily activities and work. Dysphonia in a mechanic is classified as minor laryngopharyngeal reflux, but in a singer, it is considered major laryngopharyngeal reflux. Life-threatening laryngopharyngeal reflux is when there is stenosis or airway spasm (Belafsky & Rees, 2007). This patient was categorized as having major laryngopharyngeal reflux.

Dietary modifications include avoiding foods and drinks that can increase stomach acid production and weaken the upper esophageal sphincter. These types of drinks include coffee, alcohol, tea, and carbonated beverages. Smoking also increases stomach acid production and should be avoided (Lin & Peng, 2023)

According to the U.S. Department of Agriculture, the average pH of food is between 2.5 and 6.0. Foods that are low in acid have a pH above (Abdulkarim et al., 2024); (Belafsky & Rees, 2007), such as meat, poultry, seafood, milk, and fresh vegetables. Most acidic foods are fruits and tomatoes. Pepsin is a stable molecule and becomes active when the pH decreases (Y. Li et al., 2022)

Lifestyle modifications include vocal rest. Do not eat or drink for at least 2 hours before strenuous exercise and 3 hours before bedtime, and elevate the head 4-6 inches while sleeping (Liu et al., 2023); (Aviv & Collins, 2010)

PPIs are the main medication therapy for laryngopharyngeal reflux.[2,4,20] Acid reflux can be reduced by up to 80% with the use of PPIs. The recommended dose of PPIs is twice a day (Lin & Peng, 2023); (Abdulkarim et al., 2024). There is a difference in response between once-daily and twice-daily PPI administration. Administering PPIs for 2 months provides symptom improvement in most patients (Lin & Peng, 2023); (Lechien et al., 2020); (Belafsky & Rees, 2007). A study by Belafsky²¹ showed that with the administration of PPIs, symptom improvement occurred within 2 months. After 2 months, there was no significant improvement in symptoms. Symptom improvement is not always followed by an improvement in physical findings. Physical findings improve more slowly than the symptoms complained of by the patient. Improvement in physical findings can take up to 6 months. Therefore, therapy should be given for at least 6 months or until a complete improvement in physical findings has occurred ($RFS < 5$) to avoid the possibility of symptom recurrence. Contrary to Wong's explanation (Wong, Hanson, Waring, & Shaw, 2000), if symptoms improve over 2-3 months, PPI administration can be discontinued. PPIs are given again if symptoms recur.

PPIs are taken on an empty stomach and are most effective when taken in the morning 30 minutes before breakfast. The administration of omeprazole at a dose of 40 mg for 6-24 weeks in the evening provides an improvement in RFI and RSI in laryngopharyngeal reflux (Abdulkarim et al., 2024). Kenny (Kenny, 2023) recommends initial PPI therapy twice daily, along with lifestyle modifications. Patients who do not respond to twice-daily PPI administration after 6 months should undergo a re-examination with a dual pH probe. If the dual pH probe is abnormal and the patient does not improve with PPI administration, it is called PPI resistant.

Antacids can be given for minor laryngopharyngeal reflux or as an adjuvant therapy with other modalities for major laryngopharyngeal reflux. Antacids neutralize stomach acid, which prevents tissue damage and deactivates pepsin because the pH is higher (Kenny, 2023); (Y. Li et al., 2022)

H2 blockers can be given for minor laryngopharyngeal reflux or for adjuvant therapy. Patients with H2 blocker therapy and lifestyle modifications experienced a 54% improvement in symptoms after 6 weeks of therapy, and 92% had a recurrence of symptoms after stopping the H2 blockers (Belafsky & Rees, 2007); (Kenny, 2023)

For minor laryngopharyngeal reflux, H2 blockers can be given twice daily or PPIs once daily. If there is no improvement within two months, the PPI dose is increased to twice daily. For major laryngopharyngeal reflux, twice-daily PPI therapy can be given. If there is no improvement within two months, an H2 blocker can be added in the evening. In life-threatening laryngopharyngeal reflux, if possible, the patient should undergo dual pH probe monitoring. PPIs can be given three to four times daily depending on the dual pH probe results (Horvath, Hagmann, Burri, & Kraft, 2021)

The external upper esophageal sphincter (UES) compression device is a relatively new LPR treatment available. It creates 20-30 mmHg of intraluminal esophageal pressure by using combination of an external UES compression device and PPI provided better symptomatic relief in patients with LPR compared to PPI alone. Cricoid cartilage pressure and strengthens the upper esophageal specter to reduce reflux. As an adjunct to PPI therapy, a recent study assessed the effectiveness of an external UES . The external UES compression device is advocated for nighttime sleep compression device in patients with LPR symptoms. Surgical treatment is not a main option for LPR and its role in LPR is unclear. The nine trials included in a review analysis all demonstrated that anti-reflux surgery could be considered for individuals who have not responded to PPI therapy and laparoscopic fundoplication is the preferred surgical treatment for treating LPR symptoms (Lin & Peng, 2023); (Lien et al., 2023)

Conclusion

Management of laryngopharyngeal reflux (LPR) presents its own challenges. Many factors play a role. Various strategies to treat LPR can lead to significant recovery. Lifestyle modifications, dietary changes, and pharmacotherapy can all be options.

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