UT Southwestern Medical Center

How a GI Does It: Laryngopharyngeal Reflux

What's New in GI 2026

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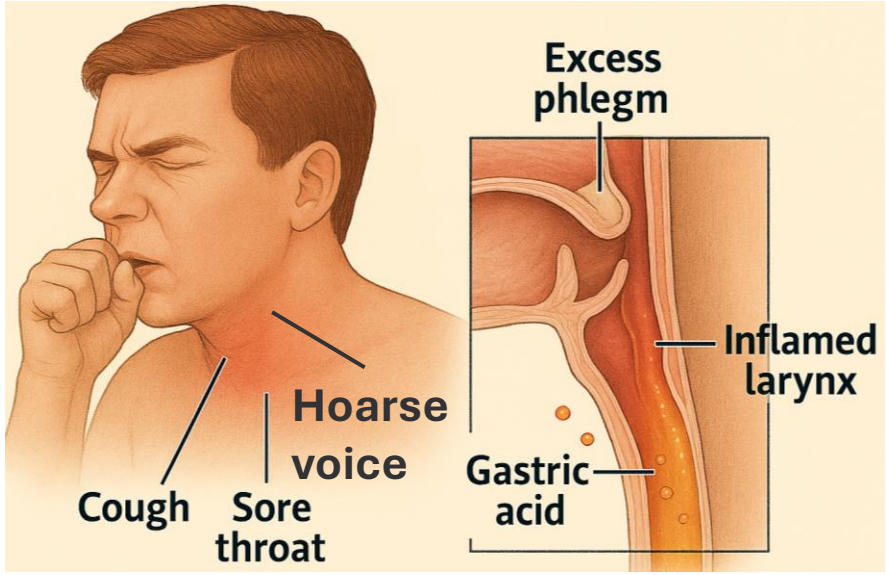
Laryngopharyngeal Reflux

- **Upper esophageal and airway symptoms attributed to GERD**
- ~25% of patients with GERD report laryngeal symptoms
  - 10% of ENT and GI visits
- Challenging to diagnose and treat
  - No gold standard for diagnosis
  - Symptoms can be from non-GERD causes
  - Expensive - $13,700 per patient over 5 years
  - Frustrating for patients
- Increasing GI research and clinical progress in diagnosis and management of LPR

Connor NP, J Voice 2007. Yadlapati CGH 2020. Carroll, Laryngoscope 2017

Laryngopharyngeal Symptoms

- Throat-clearing
- Hoarse voice
- Sore throat
- Cough
- Excess mucus
- Regurgitation
- Globus
- Dental erosions
- Burning mouth / tongue
- Postnasal drip
- Asthma

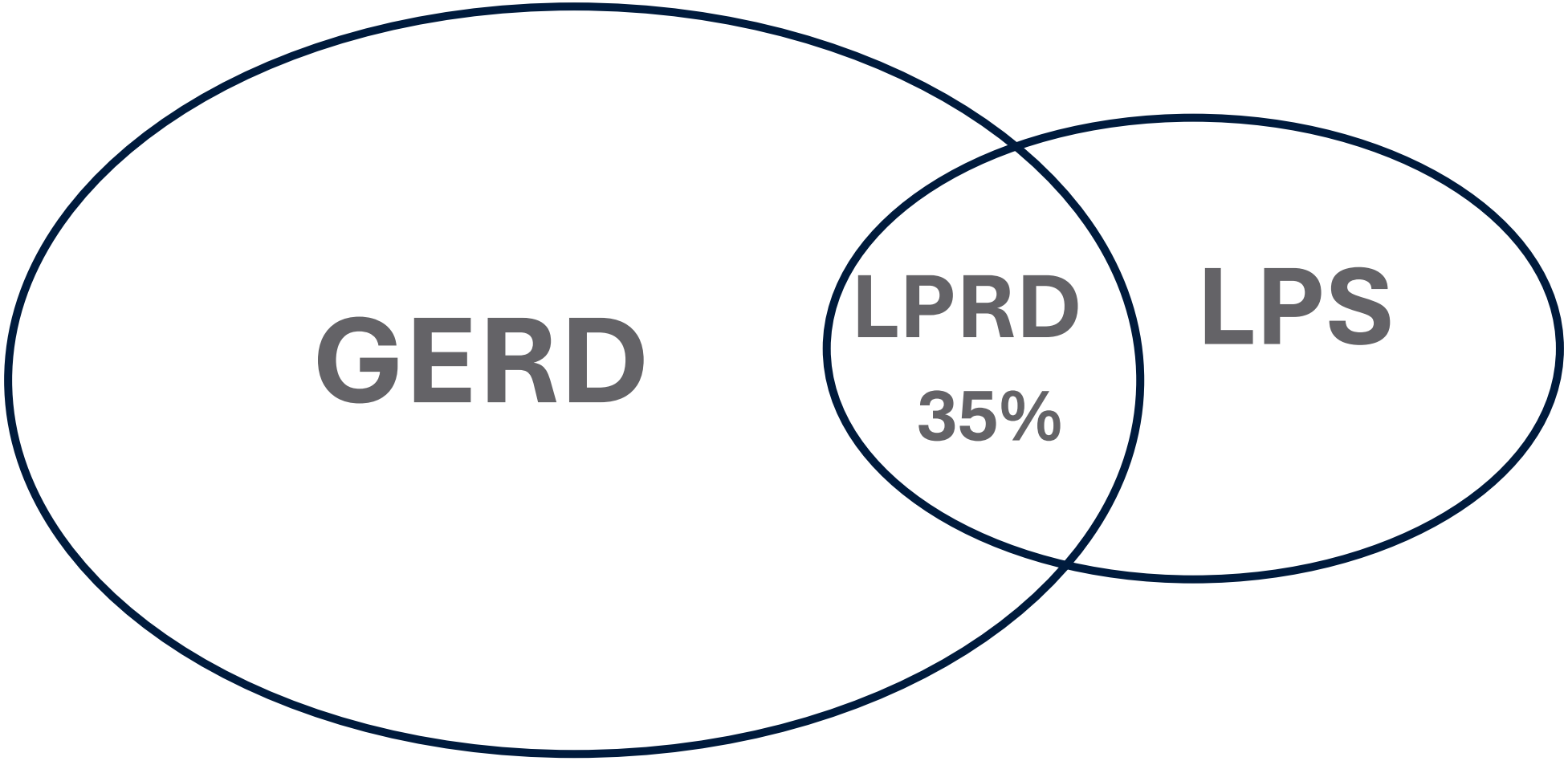


Defining Terms : GERD, LPS, and LPRD

- **Gastroesophageal Reflux Disease (GERD)** is the condition in which the reflux of gastric contents into the esophagus results in symptoms and/or complications
- **Laryngopharyngeal Symptoms (LPS)** are chronic, frequent throat and upper airway symptoms that may be induced by retrograde flow of gastric contents to the upper esophagus, pharynx, and larynx
- **Laryngopharyngeal Reflux Disease (LPRD)** - LPS and objective evidence supporting the relationship between LPS and GERD

Katz…Dunbar, et al, AJG 2022. Yadlapati et al. AJG 2026 Feb 1;121(2):322-336.

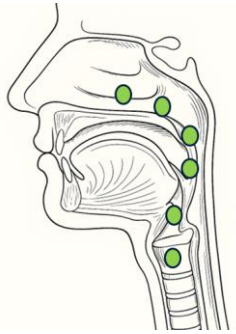
Laryngopharyngeal Symptoms may not be from GERD



Krause, Greytak et al. AJG 2024

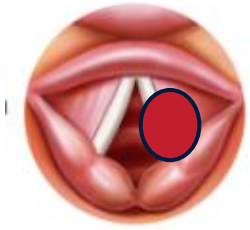
What could it be besides GERD?
Other causes of laryngopharyngeal symptoms

Allergic Rhinitis

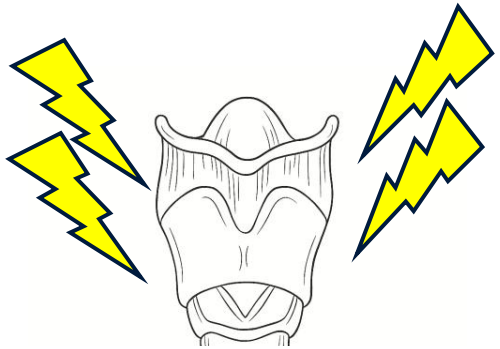


Sinusitis / Post-Nasal Drip

Vocal Strain



Vocal cord nodules

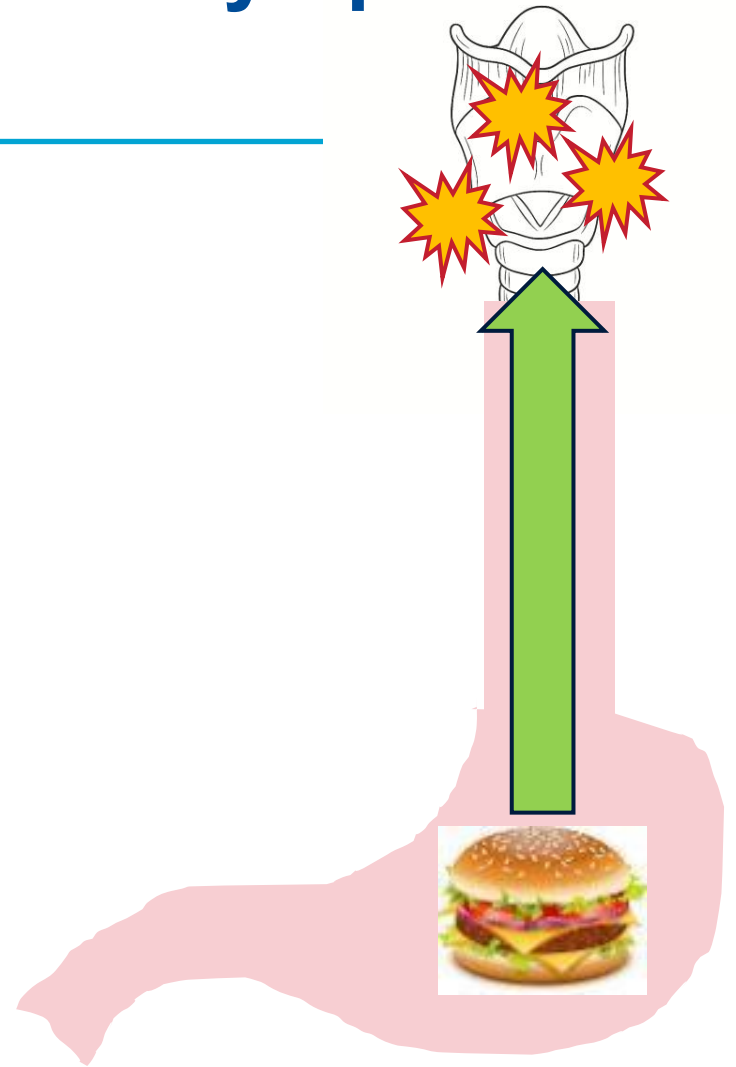


Laryngeal Hyperresponsiveness

Cancer

What Causes Laryngopharyngeal Reflux Symptoms - Reflux or Reflex?

- **Reflux** of acid, bile, pepsin to the proximal esophagus, pharynx, and larynx leads to inflammation, damage, and symptoms



Chan, AJG 2025

What Causes Laryngopharyngeal Reflux Symptoms - Reflux or Reflex?

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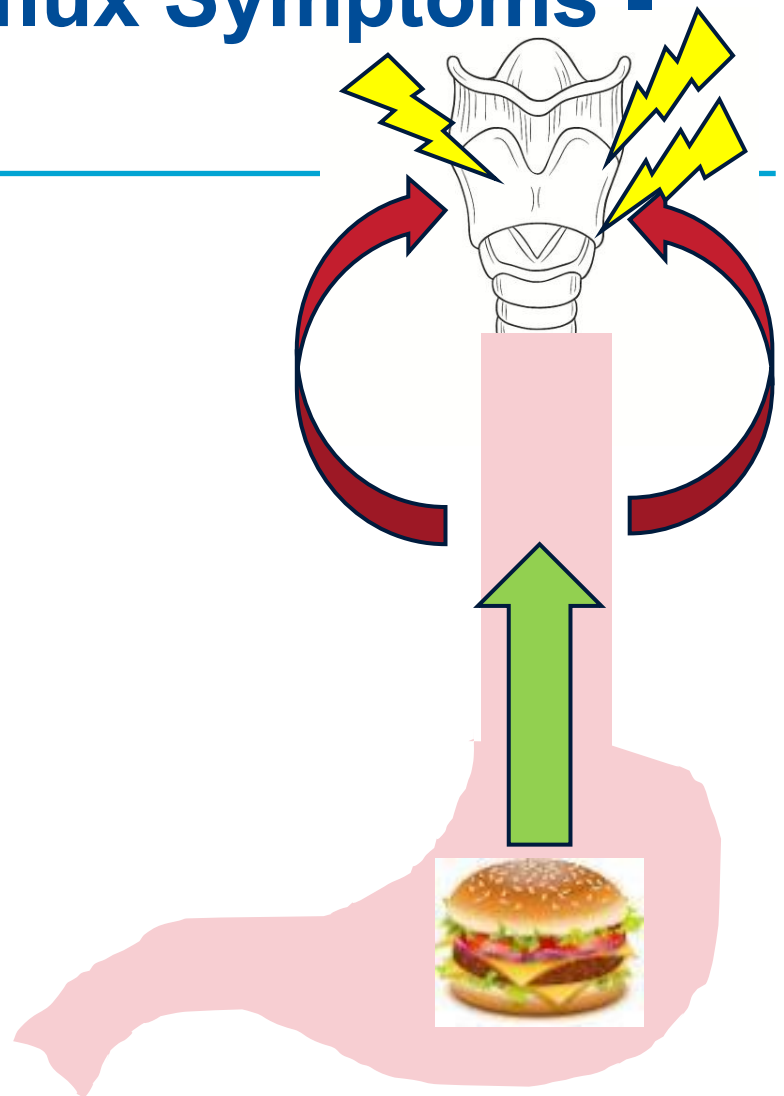
- **Reflex** - gastric contents in the esophagus stimulate a vagal reflex that leads to LPS and airway hyper-responsiveness



Chan, AJG 2025

Guidance for Evaluation and Management of LPR

ACG Clinical Guideline for the Diagnosis and Management of Gastroesophageal Reflux Disease

Philip O. Katz, MD, MACG[1], Kerry B. Dunbar, MD, PhD[2,3], Felice H. Schnoll-Sussman, MD, FACG[1], Katarina B. Greer, MD, MS, FACG
Rena Yadlapati, MD, MSHS[5] and Stuart Jon Spechler, MD, FACG[6,7]

AGA Clinical Practice Update on the Diagnosis and Management of Extraesophageal Gastroesophageal Reflux Disease: Expert Review

Joan W. Chen,[1] Marcelo F. Vela,[2] Kathryn A. Peterson,[3] and Dustin A. Carlson[4]

The San Diego Consensus for Laryngopharyngeal Symptoms and Laryngopharyngeal Reflux Disease

Rena Yadlapati, MD, MS, MSHS, FACG[1], Philip Weissbrod, MD[2], Erin Walsh, CCC-SLP, IBCLC, BCS-S[2], Thomas L. Carroll, MD, PhD[3,4], Walter W. Chan, MD, MPH, FACG[5], Jackie Gartner-Schmidt, PhD, CCC-SLP[6], Livia Guadagnoli, PhD[7], Marie Jette, PhD[8], Jennifer C. Myers, PhD[9], Ashli O'Rourke, MD, MS[10], Rami Sweis, MD, PhD[11], Justin Wu, MD[12], Julie M. Barkmeier-Kraemer, PhD, CCC-SLP[13], Daniel Cates, MD[2], Chien-Lin Chen, MD, PhD[14], Enrique Coss-Adame, MD[15], Gregory Dion, MD[16], David Francis, MD, MS[17], Mami Kaneko, PhD[18], Jerome R. Lechien, MD, PhD, MS[19], Stephanie Misono, MD[20], Anais Rameau, MD[21], Sabine Roman, MD, PhD[22,23,24], Anne Vertigan, PhD[25,26,27], Yinglian Xiao, MD[28], Frank Zerbib, MD, PhD[29], Madeline Greytak, BA[1], John E. Pandolfino, MD, MS, MSCI, FACG[6] and C. Prakash Gyawali, MD, FRCP, FACG[30]

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Evaluation of Laryngopharyngeal Symptoms

Laryngoscopy

- Necessary for evaluation
  - Look for non-reflux causes including cancer
- **Not sufficient** for diagnosis of LPRD
- Laryngoscopy findings of LPR:
  - Infraglottic, vocal cord, and post-cricoid edema
  - Inter-arytenoid, posterior commissure mucosal hypertrophy
  - Erythema and mucus
- These findings are also found in healthy patients
  - 0f 105 asymptomatic volunteers, 86% had reflux findings on laryngoscopy

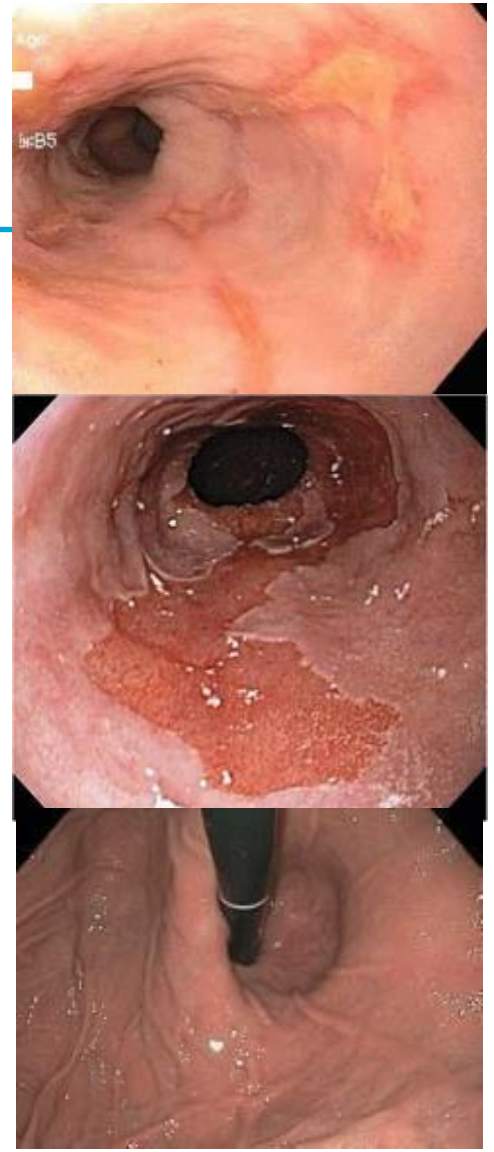
Hicks, J Voice 2002. Saha, Eg J Otolaryngol 2022.

Endoscopy – Looking for Evidence of GERD

- EGD findings that confirm GERD:
  - Los Angeles grade B, C, or D erosive esophagitis
  - Barrett's esophagus (biopsy-confirmed)
  - Peptic stricture
- 47% of pts with LPS had erosive esophagitis or hiatal hernia

- Even if GERD is confirmed

  …….LPS may still be from causes other than GERD



Krasue, Carlson, CGH 2024

Reference Standard for Evaluation for LPRD - Ambulatory Reflux Testing

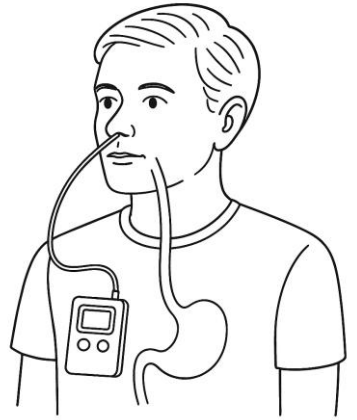
- When to use reflux testing:

- Isolated LPS – test first before treatment trials
- Normal endoscopy with concern for LPRD
- No improvement during PPI trial
- When long term treatment is needed
- Before considering invasive therapies such as surgery or endoscopic therapy

Yadlapati, AJG 2026

Which Reflux Test to Choose?

- Wireless capsule pH testing
  - 48-96 hours
  - Measures distal esophageal acid exposure
- pH impedance testing
  - 24 hours
  - Measures acid, weak acid, nonacid reflux
  - Measures reflux from distal to proximal esophagus
- Correlate symptoms with reflux events
- Oropharyngeal pH testing – not specific for LPRD



Chen, CGH 2023. Katz, AJG 2022. Yadlapati, AJG 2026

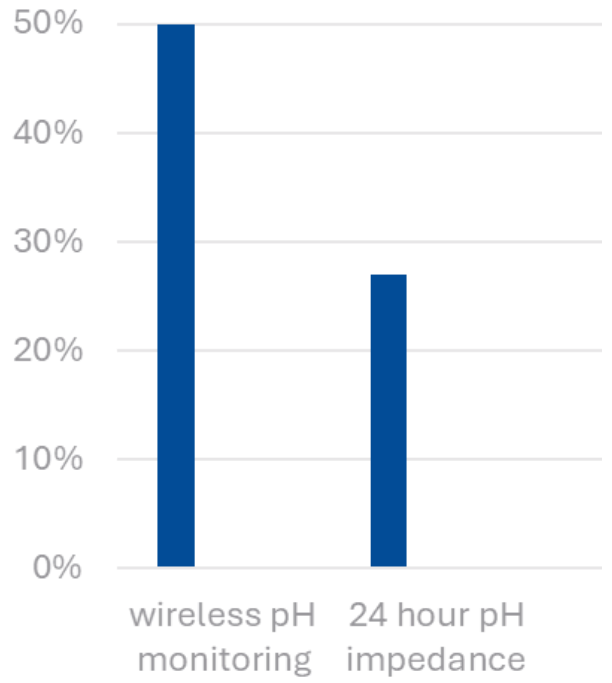
Which Reflux Test to Choose?

- Does this patient have known GERD?
  - LA grade B, C, D erosive esophagitis
  - Barrett's esophagus (biopsy-proven)
  - Peptic stricture
  - Prior abnormal pH study

- If GERD status is unknown
  - Wireless capsule 48-96 hour
  - pH impedance testing (if wireless not available)
  - **Off PPI and other acid suppression**

Wireless pH vs. pH Impedance in patients with LPS

- Multicenter retrospective study of 813 patients undergoing reflux testing for LPS
- Diagnostic yield for GERD was higher with prolonged wireless pH than pH impedance
  - 50% vs. 27%



Krause, AJG 2024

Reflux testing GERD and LPRD

	Confirms GERD / LPRD	Supportive of GERD /LPRD	When to Use
Wireless pH testing	AET > 6% on ≥2 days	AET > 4% on ≥1 day	• Use for ruling out GERD • Use for confirming GERD • If negative on all 4 days of wireless testing → not GERD
pH-impedance testing	AET > 6%	• 80 distal esophageal reflux events • >10 proximal esophageal reflux events • Positive symptom-reflux association • Low mean-nocturnal baseline impedance	• Use for assessing proximal extent of reflux • Use for determining whether weakly acidic or nonacid reflux are contributing to symptoms

Yadlapati, AJG 2026

Pepsin Testing

- Reflux of pepsin from the stomach to the oropharynx is thought to contribute to LPR
- Meta-analysis of 16 studies
  - Pepsin had a sensitivity 61%, specificity 67%, AUROC .67 for identifying LPR
  - Diagnostic accuracy higher with pepsin cutoff of 50 ng/ml
- Salivary pepsin testing can be considered as an adjunct
  - Not sufficient as a stand-alone test for diagnosis

Jing, Braz J Otorhino 2023

Treatment of Laryngopharyngeal Reflux

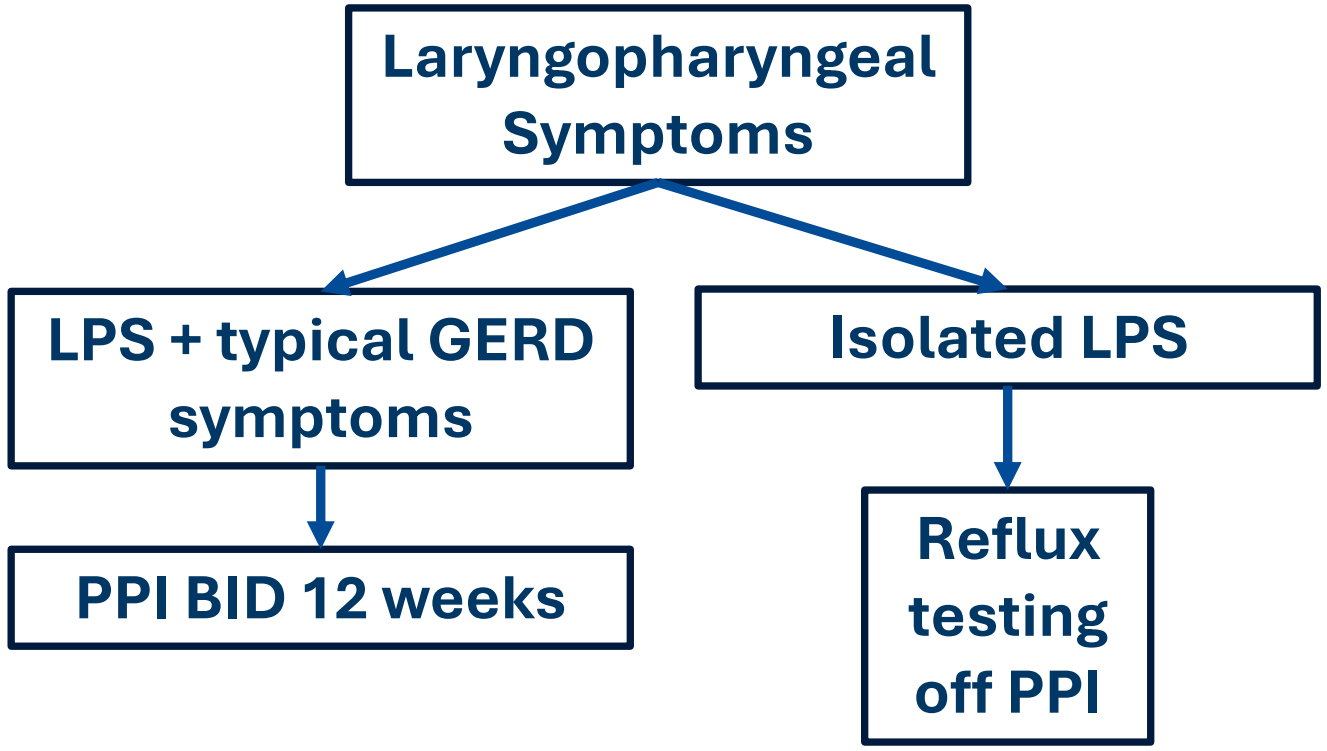
Diet and Lifestyle Changes for LPRD

- Dietary modification
  - Traditional GERD recommendations – low fat, low caffeine, low alcohol, avoid food triggers
  - Low-acid, alkaline, low sugar, high-protein, low fat, plant-based diet
  - Mediterranean diet with low acid, alkaline water
- Lifestyle interventions
  - Stay upright after eating for several hours
  - Lay in left decubitus position
  - Upper esophageal compression device
    - Applies 20-30 mmHg pressure to the cricoid area
    - 35% of pts improved with PPI, 55% with PPI + band

Lechien, Laryngoscope 2022 Yadlapati , DDS 2022. peptest.co.uk

Proton Pump Inhibitors and LPS

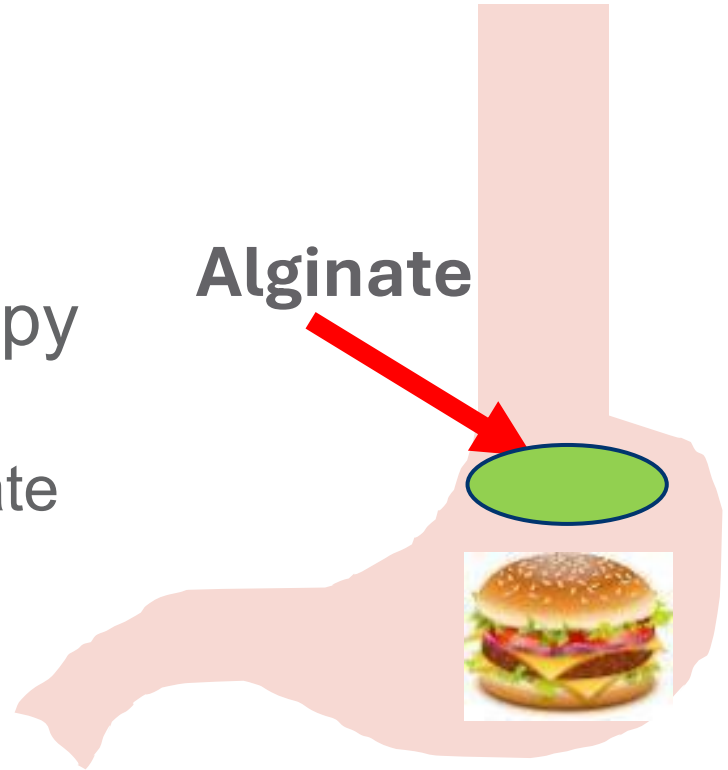
- PPI trial often performed for LPS
- 3 - 4 months of PPI twice daily
- Up-front testing for GERD is more cost-effective than PPI trials followed by testing



Chen, CHG 2023. Yadlapati, AJG 2026. Shah, CGH 2025

Alginates

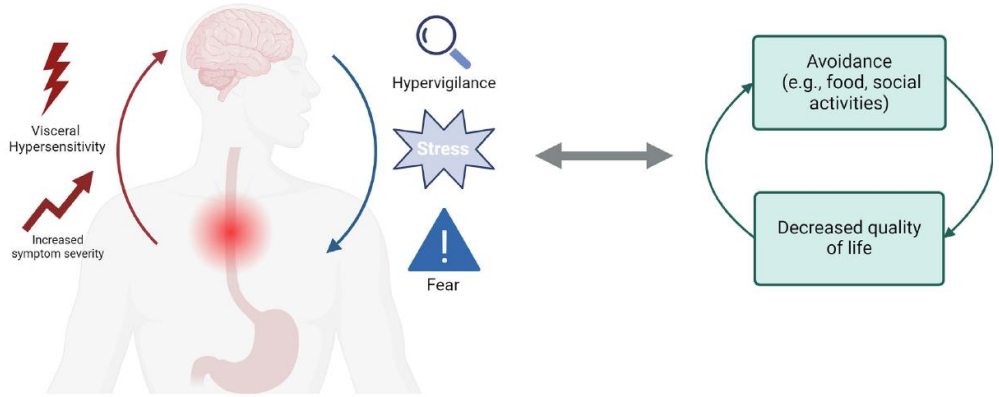
- Dosed QID – after meals + bedtime
- Floats on top of the acid pocket and gastric contents in the stomach
- Also studied in LPR – effective as add-on therapy with PPIs
  - 183 pts with LPR randomized to PPI or PPI + alginate
  - Improved reflux scores
- Several non-prescription options available
  - Liquids, capsules, gels, powders



McGlashan, Eur Arch Otolaryng 2009. Reimer,, APT 2016

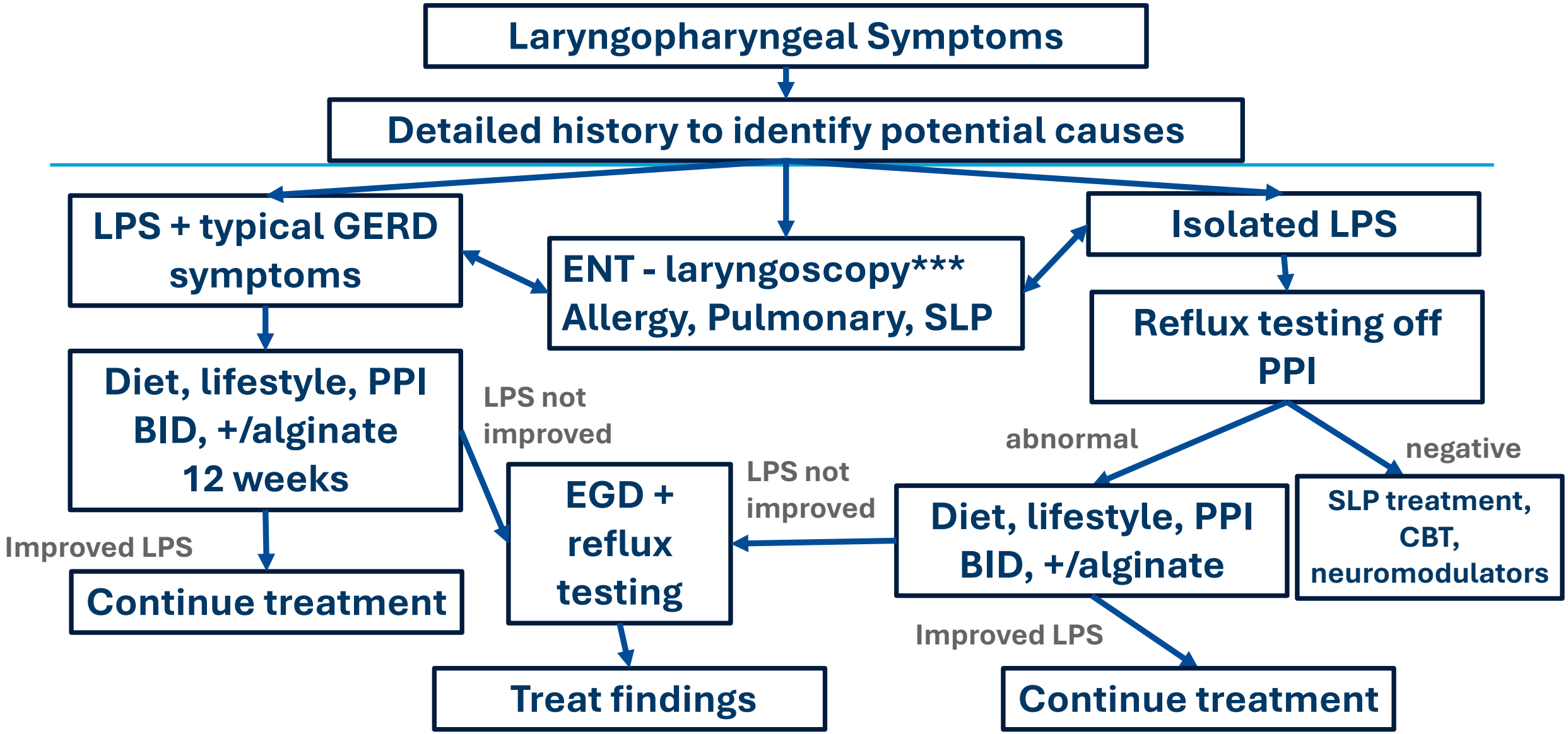
Laryngeal Hyper-response, Hypervigilance, and Anxiety

- Can assess for anxiety and hypervigilance with the Laryngeal Cognitive Assessment Tool



- Additional options for treatment of distressing LPS, LPRD, and GERD
  - Neuromodulators to decrease laryngeal hyper-response and hypersensitivity
    - pregabalin, gabapentin, tricyclics
  - Cognitive behavioral therapy
  - Laryngeal recalibration therapy by a speech language pathologist

Helou, J speech lang hear res 2023. Krause, CGH 2023. Krause, CGH 2024.Guadagnoli, Yadlapati….Dunbar… Taft, CGH 2024



- Consider testing if long-term treatment is needed and before any invasive therapy