

# A Review of the Diagnosis and Management of Reflux Disease: Toward Creating a Clinical Protocol for the Otolaryngologist

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## ABSTRACT

**Objectives:** Reflux disease, including gastroesophageal reflux disease (GERD) and laryngopharyngeal reflux (LPR), is an extremely common condition which is diagnosed and treated routinely in an otolaryngology practice. There is great variability in the methods of both diagnosis and treatment amongst otolaryngologists. Our aim is to review current clinical practice guidelines on reflux disease, to identify areas of agreement and of controversy, and to begin to work toward a clinical protocol for reflux disease for the otolaryngologist.

**Study Design:** Literature review with discussion.

**Methods:** A PubMed search was performed looking for clinical practice guidelines on either GERD or LPR. Five hundred and seventy articles were identified and the most clinically relevant practice guidelines were selected.

**Results:** Thirteen key articles were identified. Eleven of these come from the gastroenterology literature, and none of them come from the otolaryngology literature. There appears to be a consensus on empiric medication trial as first line therapy for presumed uncomplicated GERD and on prioritizing early identification of patients with severe disease complications. Areas of controversy include the definition of GERD and LPR, which diagnostic algorithm to use in which patient, and the long term management of medical therapy.

**Conclusions:** While there are many clinical aspects of reflux disease that still remain a mystery, there is enough literature to support a rudimentary clinical protocol at this time. As further data become available from outcomes measurements, such a protocol may result in improved quality and standardization.

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## INTRODUCTION

GERD and LPR are highly prevalent and have the potential to directly cause disease complications. As we move to a more value-based healthcare system, there is renewed emphasis on practicing evidence-based medicine, and introducing standardization in our approach to diagnosis and treatment of diseases. These diseases are particularly interesting from this standpoint, as they frequently involve collaboration between otolaryngologists and gastroenterologists, and have the potential to further complicate respiratory disease.

In the United States, studies have shown the prevalence of daily heartburn to be 4-7% and that of occasional heartburn to be as high as 60% [1-2]. Occasional and mild incidental symptoms of reflux may be considered physiologic. Nevertheless, GERD and LPR account for striking growth and impact on healthcare delivery. There was a nearly threefold increase in US ambulatory care visits for GERD over the 12 year period from 1990-2001, from a rate of 1.7% to 4.7% [3]. Office visits to otolaryngologists for GERD increased from 89,000 to 421,000 over the same period.

The purpose of this paper is to review the literature on evidence-based clinical practice guidelines (CPG) for GERD and LPR, to identify areas of agreement and of controversy, and to begin to work toward a clinical protocol for reflux disease for the otolaryngologist.

## METHODS

A PubMed search was performed using the following terms: "GERD" or "reflux" or "laryngopharyngeal reflux" or "esophageal disease", and "clinical practice guideline". 570 articles were identified. The inclusion criteria were that an article must: 1. be a clinical practice guideline; 2. address the diagnosis and/or management of reflux disease; 3. be in English. This yielded 25 articles. We then excluded pediatric studies, as well as outdated versions of guidelines when the same organization had produced a more recent guideline, yielding 13 articles from 2002-2009. Eleven of these come from the gastroenterology literature, and none of them come from the otolaryngology literature.

TABLE 1	Lifestyle changes	Trial of meds	When to taper meds	EGD	Barium Swallow	pH probe/ impedance test	Manometry	Nissen fundoplication	Refer to specialist
Fennerty, 2009	-	First line	To lowest effective dose, intermittently	-	-	-	-	-	-
Kahrilas, 2008 (NEJM)	First line	First line	To lowest effective dose	Odynophagia, dysphagia, GI bleed, anemia	-	Select patients	Select patients	Failure of therapy	Failure of PPI bid
Kahrilas, 2008 (Gastroenterology)	First line	First line	To lowest effective dose	Troublesome dysphagia, failed PPI bid	-	Normal EGD and manometry	Normal EGD	Failed or can't tolerate medication	-
Hirano, 2007	-	-	-	-	-	Normal EGD/ to show causality	-	-	-
Hirota, 2006	-	-	-	Select pts with chronic GERD	-	-	-	-	-
Irwin, 2006	First line	First line	-	-	If pH probe is normal	Cough patients who fail meds	-	Failure of maximal medical therapy	-
Armstrong, 2005	Not effective	First line	To lowest effective dose	Pts with alarm symptoms	-	Patients who fail medication	-	Failed or can't tolerate medication	-
DeVault, 2005	First line, but not effective	First line	Should not usually taper	Suspicion of GERD complications	Not recommended	Patients who fail medication	To consider Nissen	Option for maintenance, or for medication failures	-
Katlaris, 2002	First line	First line	To lowest effective dose, intermittently	Alarm symptoms, failed PPI bid	Limited use	Failed meds and normal EGD	To consider Nissen	Failed or can't tolerate medication	Failure of PPI qd
Moraes-Filho, 2002	First line	First line	4-8 weeks	Age over 40, alarm symptoms	Limited use	Failed meds and normal EGD, or EES	To consider Nissen	Failed medication, young patients unable to wean off of therapy, GERD complications	-
SAGES, 1998	-	-	-	Mandatory preoperative evaluation	Some pre-operative patients	Select preoperative patients	Mandatory preop eval	Failed or can't tolerate medication, or EES, or GERD complications	-

**Table 1:** List of clinical practice guidelines on GERD, specifying indications for diagnostic tests and interventions. Two guidelines were excluded because of their narrow scope. PPI: proton pump inhibitor; EGD: esophagogastroduodenoscopy; EES: extra-esophageal symptoms.

## RESULTS

**Empiric Diagnosis and Treatment:** There was agreement throughout the guidelines that the initial diagnosis should be made on clinical grounds, and an empiric trial of therapy is the best first line test. The gold standard of medical therapy is a proton pump inhibitor (PPI); there is some controversy as to initial dosing – most guidelines recommend once a day to start, reserving the possibility of twice a day for treatment failure. Lifestyle modifications, especially for weight loss, are included in most guidelines, though their efficacy is uncertain. H2 receptor antagonists are not considered first-line for empiric therapy due to lower efficacy and tachyphylaxis. Prokinetic agents, including metoclopramide and cisapride, have both proponents [9, 11] and opponents [6, 10, 12] for use in the setting of GERD, given that they have more significant side effects.

**Patients who Respond to Medical Therapy:** Most authors agree that the medication should be tapered to the lowest effective dose if it successful. Two guidelines specifically suggest a trial of intermittent therapy [4, 12], while another recommends tapering after a therapeutic effect of 4-8 weeks [13]. The rationale is to limit the known adverse effects of long-term PPI use. It is unclear whether a diagnostic test is necessary for patients who respond to PPIs but can not be weaned off of their medications.

**Patients with "Alarm" Symptoms or who Fail Medical Therapy:** There is agreement on the concept of identifying patients who at risk for more serious disease early using "alarm" symptoms, with variable definitions. Most authors suggest esophagogastroduodenoscopy (EGD) as the initial test. However, there is significant controversy over what the next step should be for patients that fail a trial of medical therapy. Some guidelines recommend EGD as the next step for failure of twice a day therapy, followed by 24-hour pH probe, while others recommend going directly to a pH probe. While a pH probe has the best combined sensitivity and specificity for the diagnosis of reflux disease, an EGD can identify multiple types of pathology, including Barrett's esophagus, esophageal dysplasia and carcinoma, as well as esophagitis. Patients with Los Angeles grades C and D esophagitis have a greater tendency toward relapse of symptoms when taken off medication, which would affect patient counseling.

## DISCUSSION

While the CPGs reviewed come from the gastroenterology literature, meta-analyses and reviews of LPR are represented in the otolaryngology literature [15-17]. Nevertheless, CPG evidence-based recommendations are guidelines rather than rote requirements, which need to be placed into the context of the clinician's experience and qualifying patient-related issues.

In Table 2 we stratify the severity of reflux disease complications with possible alarm symptoms in terms of mild (low complexity, low risk), moderate (complications or associations with reflux that require further evaluation and monitoring), and severe (those that may result in life-threatening complications). While this stratification is not explicitly stated in the above-mentioned protocols, it is clear that identifying, evaluating and treating higher-risk disease should be integral to any clinical practice model for reflux.

Many controversies exist in the management of patients with reflux disease, including 1) whether there is a different pathophysiology of abnormal acid and pepsin exposure in patients with LPR versus GERD, 2) uncertainty of what constitutes abnormal pharyngeal acid exposure, 3) the current practice of twice daily PPI therapy in LPR is neither FDA-approved nor based on controlled studies, and 4) the role of diagnostic testing and continued role of acid/peptic reflux in those who remain symptomatic despite aggressive dose and duration of acid suppression. Should pH monitoring be performed while patients are on or off therapy? Should PPI unresponsive patients undergo fundoplication? If reflux is not the cause, what other conditions may explain the continued chronic symptoms and laryngeal signs? At this time there is no consensus among experts even within the same discipline regarding how to answer the above clinically crucial questions.

Degree of severity	Clinical examples	Possible alarm symptoms
Mild	Incidental symptoms Symptomatic nuisance (physiologic reflux) Managed with diet, lifestyle or intermittent medications	None
Moderate	Esophagitis Los Angeles grade A-B Significant hiatal hernia Esophageal/gastric motility disorders Bilious regurgitation Barrett's metaplasia (may not cause symptoms) LPR complications cricopharyngeal spasm, laryngospasm, vocal process granuloma and other lesions, disabling cough, aspiration pneumonia, others	Dysphagia Odynophagia Hematemesis Anemia Weight loss Respiratory disturbance
Severe	Esophageal carcinoma Esophagitis Los Angeles grade C-D Massive gastric outlet obstruction Mediastinal mass, esophageal compression Cardiac etiologies	Dysphagia Odynophagia Hematemesis Anemia Weight loss Hemoptysis Respiratory distress

**Table 2:** Stratification of disease complications or associations, and possible alarm symptoms.

## CONCLUSIONS

Evidence-based clinical practice guidelines exist in the literature to support the routine care of patients with GERD, and these may be considered to be applicable to patients with LPR. While there are many clinical aspects of reflux disease that still remain a mystery, there is enough literature to support a rudimentary clinical protocol at this time.

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