

Elevation of the Head of Bed to Treat Supraesophageal Reflux: Controlling the Trigger and Reducing the “Drip”

John R. Cohn, MD Philadelphia, Pa

Management of reflux of gastric contents into the esophagus, larynx, and upper airway is a topic that is of growing importance. For the general public, there has been an explosion of attention toward the diagnosis of reflux, from the pages of the *New York Times*¹ to the White House, where in 2014 President Barack Obama was diagnosed with gastroesophageal reflux disease (GERD).² It can credibly be argued that the president of the United States has good reason for heartburn, but statistics show that gastric reflux and its cousins supraesophageal reflux disease (SERD) and eosinophilic esophagitis (EoE) are far more widespread than affecting just the current occupant of the Oval Office, who presented with a chronic sore throat, a common complaint in allergy practices.

Reflecting on the public's view of this topic, Koufman wrote (with appropriate hyperlinks to the medical literature online) in the *Washington Post*,³ “President Obama reportedly had a mysterious sore throat for weeks, but now the diagnosis is in: acid reflux into the throat, also called airway reflux or LPR (laryngopharyngeal reflux). This puts the president in good company. Since 1975, the occurrence of reflux has increased 400 percent (almost one in five Americans now suffers from airway reflux), and reflux-related esophageal cancer has increased more than 500 percent to become the most rapidly increasing cancer in the United States.”

To referring primary care practitioners, gastroenterologists, and patients alike, reflux is heartburn, but factors other than acid may be at work with the development of laryngeal symptoms, such as President Obama exhibited. The varied presentation of GERD is reflected clinically in who gets referred where or who brings himself or herself to the gastroenterologist or the otolaryngologist, and who finds himself or herself sitting with an allergist.

Anyone who has had some fluid go down the “wrong pipe” knows that the duration and volume of liquid in the wrong place required to provoke a cough is not much. But it takes more than a sip of hot soup to get the “burn.” It seems likely that the phenotypes vary among patients with GERD and how they present with acid reflux. And we are only beginning to understand nonacid reflux of gastric enzymes such as pepsin as a cause of symptoms.⁴

Recent guidelines define GERD as “symptoms or complications resulting from the reflux of gastric contents into the esophagus or beyond, into the oral cavity (including larynx) or lung,” apparently making no distinction between acid and nonacid gastric contents.⁵ They go on to state that “estimates of the prevalence of GERD are based primarily on the typical symptoms of heartburn and regurgitation,” describing as much as 10% to 20% of the Western world with evidence of reflux.

Uncertainty also exists about the pathophysiology of EoE as a distinctly different entity or part of the GERD spectrum. Increased eosinophils may be found in the esophageal biopsies of patients with gastric acid-based GERD, and consensus guidelines state that GERD should be ruled out by a trial of acid suppression therapy before diagnosing EoE.⁶ A recent review in *JACI: In Practice* “strongly recommended” 8 weeks of proton pump inhibitor (PPI) therapy before even undertaking diagnostic biopsy for EoE.⁷ The authors observed that the syndrome of esophageal eosinophilia was not described until late in the 1970s, and was “poorly recognized” until the 1990s. All this occurred in conjunction with the development of PPIs and the widespread availability and use of flexible laryngeal and gastrointestinal endoscopy, further clouding the picture as to what is cause and what is effect. Understanding the distinctions may be further confounded by the widespread common use of potent antacid medications, including histamine blockers and PPIs. As the *JACI: In Practice* review noted in discussing EoE treatment, “All (treatment) options should include consideration of adjunctive use of PPIs.”

A 2012 review of PPI usage described \$11 billion in annual US sales of PPIs, placing them second worldwide only to statins in annual use.⁸ The authors contended that there was “significant overprescription” of these widely used drugs, citing a host of adverse effects and potential adverse reactions including “hypergastrinemia, enterochromaffin-like cell hyperplasia, and parietal cell hypertrophy, leading to rebound acid hypersecretion ... increased risk of enteric infections including *Clostridium difficile*-associated diarrhea, community-acquired pneumonia, bone fracture, nutritional deficiencies, and interference with metabolism of antiplatelet agents.”

In one 4-year period in the United Kingdom, there was a 10-fold increase in the use of PPIs.⁹ Heidelbaugh et al¹⁰ evaluated 946 ambulatory practice patients who were prescribed PPI therapy at a Veterans Administration Hospital. By their criteria, only 35% had appropriate indications. Now many of these drugs are over-the-counter drugs, a change likely to increase their use.

Most patients with GERD are presumably sent to gastroenterologists for the typical symptoms of regurgitation and heartburn, and there are reports in the gastroenterology

Sidney Kimmel Medical College at Thomas Jefferson University, Philadelphia, Pa
Conflicts of interest: J. R. Cohn has received research support from Bayer Healthcare, Forest, Genentech, Merck, Sanofi, Teva, and Topstone.

Corresponding author: John R. Cohn, MD, Sidney Kimmel Medical College at Thomas Jefferson University, 1015 Chestnut St, Ste 1300, Philadelphia, PA 19107. E-mail: john.cohn@jefferson.edu.

J Allergy Clin Immunol Pract 2015;3:362-4.
2213-2198

© 2015 American Academy of Allergy, Asthma & Immunology
<http://dx.doi.org/10.1016/j.jaip.2015.03.009>

literature, such as that of Khan et al,¹¹ establishing the benefits of head-of-bed (HOB) elevation in patients with heartburn-associated GERD. But as the medical aphorism goes, “Uncommon presentations (SERD) of common diseases (GERD) are more common than common presentations (e.g. angioedema) of uncommon diseases (ACE inhibitor induced¹²).” In other words, the subset of patients with SERD will be a far more common problem in the allergist’s office than those with typical angiotensin-converting enzyme inhibitor-induced angioedema, even if only a minority of patients with SERD make it to the allergist’s examination room.

In 2014, Scott and Simon¹³ reviewed the topic of supraesophageal reflux. They defined *SERD* as “the pathological state induced by the retrograde flow of gastric contents proximal to the upper esophageal sphincter (UES) and into the upper aerodigestive tract. SERD is distinct from laryngopharyngeal reflux (LPR), because LPR implies affliction of only the throat and larynx, whereas anatomic structures affected in SERD may include the larynx, oropharynx, oral mucosa, nasal mucosa, sinuses, bronchi, and lungs.”

They went on to describe common symptoms, including “throat clearing, cough, and asthma,” adding, “More localized symptoms may develop reflecting inflammation of specific anatomic regions such as sinusitis, rhinitis, laryngitis, pharyngitis, eustachian tube dysfunction, and tooth decay.” And they went on to suggest, “The diagnosis of SERD is based on clinical suspicion and can be confirmed by either a response to proton pump inhibitor (PPI) or positive supraesophageal pH study.”

Despite their description of symptoms common to an allergy practice, and a disorder with a high prevalence in the general population, published studies by allergists have been at best rare. Scott and Simon’s review had 72 references, of which only 1, an abstract of Scott’s from 2011, was from an allergy publication.

That alone might be enough to justify the inclusion of their retrospective study of SERD treatment that appears elsewhere in this journal.¹⁴

As the authors note, this report has considerable limitations. It is a retrospective study, with a small group size, and it lacks randomization and longitudinal follow-up. There is no well-accepted definition for interpreting a laryngeal pH probe, nor is there a uniformly accepted definition of SERD. Others have shown the unreliability of laryngoscopy in establishing a diagnosis of SERD, while also demonstrating the benefits of PPI therapy in relieving symptoms in patients with complaints of “postnasal drip” treated with a PPI.¹⁵ There was no placebo control, which would be impossible with HOB elevation. As they note, there is potential selection bias because patients with PPI-responsive disease were less often referred to their tertiary care allergy practice for evaluation. Unfortunately, there is also limited discussion of the practical aspects of obtaining compliance with HOB elevation, undoubtedly a topic of discussion for those asking another to share a tilted bed.

But their article addresses what surely must be a common presentation in the allergist’s practice. It also raises issues about the growing use of PPIs as long-term medication in place of what is in essence an environmental control measure. For allergists the use of HOB elevation should have inherent appeal. Allergists are specialists in a field based on identifying triggers of

disease and modifying or eliminating behavior to improve quality of life.¹⁶

The authors also devoted considerable attention to the pathophysiology of SERD, as well as technology developed in the past decade that provides objective evidence of SERD.¹⁷ As they noted, there is currently no universal agreement on how to interpret results,¹⁸ nor is there compelling evidence of better outcomes in appropriately randomized and blinded trials in which treatment was guided by probe results. But, this is an area worth watching. Although there is significant upfront cost for the equipment, and the disposable probes are priced at roughly \$100, the probe is designed to be placed in an office setting (Restech, personal communication; 2015). If oral pharyngeal pH measurement enables a meaningful decrease in empiric long-term PPI use, it is not hard to project a scenario in which this both becomes cost-effective and provides better care.

What could be more appealing than elevating the HOB to eliminate the need for pharmacologic treatment of the symptoms of a common disorder, demonstrated by a relatively inexpensive test, avoiding long-term therapy with drugs of uncertain safety? Much more work needs to be done to understand the spectrum of SERD, its diagnosis, and its optimal management, but HOB elevation should be more readily welcomed by patients and their allergy physicians than years of empiric antacid therapy—and an easier “sell” than eliminating the family pet.

REFERENCES

1. Rabin RC. Combating acid reflux may bring host of ills. June 25, 2012. Available from: <http://well.blogs.nytimes.com/2012/06/25/combating-acid-reflux-may-bring-a-host-of-ills>. April 9, 2015.
2. Glatzer R. Obama visits hospital for sore throat: diagnosed with acid reflux. 2014. Available from: <http://www.forbes.com/sites/robertglatzer/2014/12/06/obama-visits-hospital-for-sore-throat-diagnosed-with-acid-reflux/>. April 9, 2015.
3. Koufman J. Obama’s acid reflux may help others receive proper diagnosis and treatment. 2014. Available from: http://www.washingtonpost.com/opinions/obamas-acid-reflux-may-help-others-receive-proper-diagnosis-and-treatment/2014/12/08/e7cf1c3a-7f0f-11e4-8882-03cf08410beb_story.html. April 9, 2015.
4. Koufman JA. Low-acid diet for recalcitrant laryngopharyngeal reflux: therapeutic benefits and their implications. *Ann Otol Rhinol Laryngol* 2011;120:281-7.
5. Katz PO, Gerson LB, Vela MF. Guidelines for the diagnosis and management of gastroesophageal reflux disease. *Am J Gastroenterol* 2013;108:308-28.
6. Liacouras CA, Furuta GT, Hirano I, Atkins D, Attwood SE, Bonis PA, et al. Eosinophilic esophagitis: updated consensus recommendations for children and adults. *J Allergy Clin Immunol* 2011;128:3-20.
7. Greenhawt M, Aceves SS, Spergel JM, Rothenberg ME. The management of eosinophilic esophagitis. *J Allergy Clin Immunol Pract* 2013;1:332-40.
8. Heidelbaugh JJ, Kim AH, Chang R, Walker PC. Overutilization of proton-pump inhibitors: what the clinician needs to know. *Ther Adv Gastroenterol* 2012;5:219-32.
9. Bashford JN, Norwood J, Chapman SR. Why are patients prescribed proton pump inhibitors? Retrospective analysis of link between morbidity and prescribing in the General Practice Research Database. *BMJ* 1998;317:452-6.
10. Heidelbaugh JJ, Goldberg KL, Inadomi JM. Magnitude and economic impact of overutilization of antisecretory therapy in the ambulatory care setting. *Am J Manag Care* 2010;16:e228-34.
11. Khan BA, Sodhi JS, Zargar SA, Javid G, Yattoo GN, Shah A, et al. Effect of bed head elevation during sleep in symptomatic patients of nocturnal gastroesophageal reflux. *J Gastroenterol Hepatol* 2012;27:1078-82.
12. Baram M, Kommuri A, Sellers SA, Cohn JR. ACE inhibitor-induced angioedema. *J Allergy Clin Immunol Pract* 2013;1:442-5.
13. Scott DR, Simon RA. Supraesophageal reflux disease: a review of the literature. *Allergy Asthma Proc* 2014;35:104-10.
14. Scott DR, Simon RA. Supraesophageal reflux: correlation of position and occurrence of acid reflux: effect of head-of-bed elevation on supine reflux. *J Allergy Clin Immunol Pract* 2015;3:356-61.

15. Pawar S, Hyun HJ, Gill M, Smith TL, Merati A, Toohill RJ, et al. Treatment of postnasal drip with proton pump inhibitors: a prospective, randomized, placebo controlled study. *Am J Rhinol* 2007;21:695-701.
16. Luskin AT, Chipps BE, Rasouliyan L, Miller DP, Haselkorn T, Dorenbaum A. Impact of asthma exacerbations and asthma triggers on asthma-related quality of life in patients with severe or difficult-to-treat asthma. *J Allergy Clin Immunol Pract* 2014;2:544-52.
17. Ayazi S, Lipham JC, Hagen JA, Tang AL, Zehetner J, Leers JM, et al. A new technique for measurement of pharyngeal pH: normal values and discriminating pH threshold. *J Gastrointest Surg* 2009;13:1422-9.
18. Becker V, Graf S, Schlag C, Schuster T, Feussner H, Schmid RM, et al. First agreement analysis and day-to-day comparison of pharyngeal pH monitoring with pH/impedance monitoring in patients with suspected laryngopharyngeal reflux. *J Gastrointest Surg* 2012;16:1096-101.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.