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LARYNGOPHARYNGEAL REFLUX (10/18)

Everyone has some degree of **Gastroesophageal Reflux (GER).** This is contrasted with **Gastroesophageal Reflux Disease** (GERD). This occurs when stomach contents regurgitate into the esophagus with enough frequency to cause symptoms due to esophageal inflammation. GERD is a common and well know problem. It is estimated that 60 million Americans complain of heartburn, indigestion or belching daily. 18 million Americans take heartburn medication more than twice a week. However, not everyone has these obvious symptoms. Some people instead complain of difficulty swallowing solid foods, a feeling of mucus or thick phlegm in the throat, sensation of a ball in the throat (globus pharyngeus), chronic sore throat, chronic irritative cough, hoarseness, chronic throat clearing, frequent gagging and post nasal drip. This is referred to as **Laryngopharyngeal reflux (LPR)**.

LPR refers to the backflow of stomach contents into the throat and differs in many ways from classic GERD. Unlike GERD symptoms, LPR symptoms do not resolve in a matter of days to weeks; often it takes several months for resolution to occur. It is important to note that although most patients with LPR do not have GERD, some patients do indeed have both LPR and GERD. **In fact, 70% of patients with documented LPR do not have indigestion or heartburn.** The throat is more fragile than the esophagus to the effects of acid reflux and results in inflammation with only minimal exposure. Unfortunately, most medication prescribed for GERD last at most 14 hours, leaving the throat unprotected for many hours each day. Therefore, in order to heal the throat and confirm the cause of these symptoms, a diagnostic trial of prescription strength (not over the counter) Proton Pump Inhibitor (PPI) medication is recommended twice daily for a short 3-month duration. These PPI medications include omeprazole (*Prilosec*), esomeprazole (*Nexium*), lansoprazole (*Prevacid*), pantoprazole (*Protonex*), rabeprozole (*Aciphex*), and dexlansoprazole (*Dexilant*).

Symptoms	**GERD**	**LPR**
Heartburn and/or regurgitation	++++	+
Hoarseness, cough, difficulty swallowing, globus sensation, sore throat, throat clearing, gagging	+	++++
Findings		
Esophageal inflammation	++++	+
Larynx (voice box) inflammation	+	++++
Pattern of Reflux		
Lying down (nocturnal) reflux	++++	+
Upright (daytime) reflux	+	++++
Both	+	++
Response to Treatment		
Effectiveness of dietary and lifestyle modifications	++	+
Effectiveness of over the counter antacids and H2 blocker medication such as cimetidine (*Tagamet*), ranitidine (*Zantac*), famotidine (*Pepcid*), etc.	++	+
Successful treatment with **once daily PPIs**	+++	+
Successful treatment with twice-daily PPIs when used for 3 months	++++	+++

Long Term Safety Concerns of Proton Pump Inhibitors (PPIs)
To date, studies have shown an association but not a causation regarding the role of PPIs in these very serious health matters. Recent studies have demonstrated use of PPIs for **more than 1 year** to be associated with:

- Increased risk of wrist and spine fractures
- 20-50% increased risk of chronic kidney damage
- 21% increased risk of stroke and heart attack
- 44% increased risk of dementia
- 25% higher death rate

PPIs have been demonstrated to be an effective and very important component of LPR management and are often crucial in establishing diagnosis and initial control of LPR. Nevertheless, we recommend optimizing management with a combination of dietary and lifestyle changes and, whenever possible, limiting use of PPIs to less than 1 year.

Lifestyle Modifications
If symptoms such as those just listed occur, a trial of the simple steps that control acid reflux is recommended.

- Avoid strenuous exercise after eating.
- Loss excess pounds if you are overweight.
- Do not over eat at mealtimes. It is preferred to eat small, more frequent meals than large meals.
- Avoid wearing tight fitting clothes.
- Use 4 to 6-inch bed blocks under the head posts of the bed. Most commonly, old books or wooden blocks work well for this purpose. This procedure puts the entire bed on a slight downward slant from head to foot. Gravity now assists in keeping stomach contents where they belong. Raising the head with pillows defeats the purpose since it kinks the abdomen puts excessive pressure on the stomach, and may results in more acid reflux.
- Use a bedtime dose of either an anti-secretory agent (H2 blockers, PPIs) or a simple antacid (*Gaviscon*, *Mylanta*, *Maalox*, *Amphogel*, etc.) in order to reduce stomach acidity.
- Left sided sleep positioning.
- Eat the last meal/snack of the day no fewer than three hours before going to sleep. In addition try to eat the heavier meal of the day at noon, and a lighter one in the evening. The purpose of these suggestions is to have the stomach relatively empty when one lies down so that there is not a lot of "back pressure" to push stomach contents up the esophagus.
- Avoid the following substances that may increase stomach acidity or loosen the valve separating the esophagus from the stomach:

Chocolate	Peppermint
Caffeinated beverages	Spearmint
Coffee	Tomato-based products
Tea	Spicy foods
Alcohol	Onions
Carbonated beverages (Cola, soft drinks)	High fat meals
Citrus juices	Acidic foods
Smoking (nicotine)	Aspirin or ibuprofen

- Some prescription and over the counter medications can cause heartburn. Always inform your doctor of all medications. The following medications may contribute to reflux pharyngitis:

Antidepressants	Estrogen
Antihistamines	Heart medicine
Theophylline	Tranquilizers
Narcotic pain medication	Blood pressure medication
Anti-inflammatory medication (aspirin, ibuprofen, naproxen, *Motrin, Advil, Aleve, Lodine, Mobic*, etc).	*Tylenol, Celebrex, Bextra,* and *Vioxx* are not a problem.

- Baking soda chewing gum.
- **Apple cider vinegar**: Drink one tablespoon twice daily diluted with water (consider adding honey) with a straw to avoid dental effects. There is plenty of anecdotal evidence (but no scientific evidence) to suggest that is provides anti-inflammatory benefits and helps control of LPR symptoms.
- **90% plant-based Mediterranean diet** that is rich in fruits, vegetables, nuts, and legumes. Fish/poultry is recommended twice per week, while red meat is restricted to no more than once per week. Olive or canola oil should replace butter while spices should be used instead of salt.
- **Alkaline water** neutralizes pepsin's acidity in the throat. It can be purchased, or prepared at home by soaking 8 slices of lemon or lime (do not squeeze) in pitcher of distilled water at room temperature overnight (8-12 hours). Drink 2 glasses per day.
- A recent study revealed that aggressive 90% plant based Mediterranean diet with lifestyle modifications plus alkaline water to be just as effective as twice daily PPIs for initial control of LPR symptoms (*Zalvan et al, JAMA Oto-HNS 9/2017*).
- It is recommended that a trial of the above measures be continued for a minimum of 2-4 months, and that none of the treatments outlined be omitted.