



Silent Extra-esophageal Reflux Can Cause Nasal & Sinus Symptoms

What is GERD/LPR?

When you eat, food passes from your mouth, down your throat into your “food pipe” called the esophagus. The **esophagus** empties into the stomach. A muscle called the **lower esophageal sphincter** is present at the junction of the esophagus and stomach and tightens closed after food enters the stomach. This helps prevent stomach contents from returning to the esophagus. Backward motion of stomach contents is called **reflux**. When stomach contents are returned to the esophagus causing symptoms like heartburn it is called **Gastro-esophageal reflux (GERD)** but when the contents find themselves up in the throat it is referred to as **Laryngopharyngeal Reflux (LPR) or extra-esophageal reflux**. Some people with reflux are unaware it is occurring, this is so-called **silent reflux**. **Silent extra esophageal reflux (sEER)**, that can be acidic or even non-acidic reflux, has been shown to occur all the way to the back of the nose without causing any usual acid reflux symptoms.

Interestingly, research has found the presence of pepsin (a stomach enzyme) in the middle ear of children with otitis media (middle ear infections). Also, H. pylori, the bacteria that is associated with stomach ulcers has been identified in the nasal passages of some individuals with rhinosinusitis. At SNI, one of our prior patients, now a young physician, was discovered to have partly digested food found in her sinuses. This was ultimately proven to be caused by silent reflux. Studies have shown that many patients with asthma have abnormal acid reflux, and about half of patients with asthma who have reflux have no symptoms. Surprisingly, Dr Lanza’s research has proven that post-nasal drip improves with anti-reflux medication (1). This information is proof that silent reflux can be hard to detect and can be related to many ENT disorders. Interestingly, chronic rhinosinusitis is more common in patients with GERD than those without it (2).

Signs & Symptoms that have been attributed to GERD or LPR include:

- Heartburn, Indigestion, Belching
- Hoarse voice
- Throat clearing
- Sensation of a lump or tightness in throat
- Mucus/ phlegm in your throat
- Acid, metallic or sour taste
- Halitosis (bad breath problems)
- Sores in the mouth or at corners of mouth
- Ear fullness, popping, pressure
- Post-nasal drip

LPR & GERD can cause serious health problems which include:

- Asthma
- Bronchitis
- Choking
- Chronic Tonsillitis & Rhinosinusitis
- Middle ear infections
- Swallowing problems
- Chronic cough
- Cancer of the esophagus

Test to determine if you have reflux can be unreliable. A 48 hour BRAVO pH-probe is the standard test to determine the presence of GERD/LPR but it is not fully accurate. Restech® pH probe testing is useful to determine the presence of acid reflux to the back of your nose. A barium swallow of your esophagus and stomach is an X-ray test that can document GERD/LPR only if reflux occurs at the time this test is performed. An upper endoscopy of your GI tract can be important to prove that there is no pre-malignant or malignant conditions in the stomach but cannot to prove the absences of reflux.

Several factors are associated with why reflux occurs:

- Obstructive sleep apnea
- Obesity
- Position of the body – upright posture helps
- Size of your meals (smaller meals help)
- Food eaten can irritate or weaken the esophagus

Lifestyle changes you can make to treat reflux include:

- Stop smoking -nicotine
- Low fat diet
- Eat smaller meals more often
- Do not lie down within 3 hours of eating
- Avoid bedtime snacks
- Raise the head of your bed by 6”
- Drink 8 ounces alkaline water (pH 8.8 -10) with meals. Can be purchased at most are food markets

Avoid:

- Chocolate, peppermint, cheese
- Onions, some spices, tomato
- Acidic juices – Tomato, Grapefruit, Orange
- Caffeinated beverages – coffee, tea
- Soda pop
- Alcoholic beverages, fatty foods, fried foods

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Medications that can worsen LPR.

- Decongestant pseudoephedrine (Sudafed®)
- Expectorant/ Mucous thinner (Guaifenesin, Mucinex®)
- Asthma inhalers with β -2 adrenergic agonists (Albuterol, Serevent, Advair®, Breo Elipta®)
- Asthma reliever - Theophylline
- Anti-inflammatory agents – (Aspirin, Ibuprofen, naproxen)
- Prostate enlargement meds that are α AB – (Doxazosin)
- Erectile dysfunction - Sildenafil (Viagra®)
- Sedatives such as diazepam (Valium®)
- Progesterone
- Anticholinergics, e.g. oxybutynin prescribed for overactive bladder and irritable bowel syndrome
- Tricyclic antidepressants (amitriptyline, doxepin, others)
- Narcotics (opioids), e.g. - codeine, hydrocodone
- Osteoporosis medications (Bisphosphonates e.g. Fosamax® - alendronate)
- Vitamins, mineral, dietary supplements (especially high dose of vitamin E, A, D, C, Fish oil, Potassium &/or iron)
- Stimulants (Adderal®, Vyvanse®)
- Four types of cardiac/ blood pressure medications can be associated with some reflux BUT these should never be changed or stopped without consulting with the physician who prescribed those medications first. These include 1. α Adrenergic Blocker (α AB), 2. Quinidine, 3. Nitrates and/or 4. Calcium channel blockers (CB).

Diet Modifications & Medications can also bring about relief these include:

- **Dietary changes** – see above & consider purchasing the self-help book “Dropping Acid “ by Dr. Jamie Koufman
- **Antacids** - Maalox, Mylanta, Gelusil, Gaviscon, Roloids, Tums. These can treat symptoms but do not reduce reflux adequately. Some are a good source of calcium. Some contain aluminum and are not advised long term.
- **H2 blockers** – ranitidine/Zantac®, famotidine/Pepcid AC®, cimetidine/Tagamet®, nizatidine/Axid®. These can be very helpful temporarily but can lose their effectiveness if used on a regular basis.
- **Proton Pump Inhibitors (PPIs)** – (omeprazole/Prilosec®, lansoprazole/Prevacid®, esomeprazole/Nexium®) These are the most effective in decreasing acid production from the stomach and can be used for longer periods of time effectively and **generally very safely**. They can decrease your ability to absorb calcium, magnesium and vitamin B12. All of these minerals and vitamin need an acidic environment for absorption. Supplementing daily with Calcium citrate (1000-1200 mg), Vitamin D (400-800 i.u.), Magnesium oxide (400 -500 mg), and Vitamin B12 daily is generally advised while on these medications unless they are otherwise contraindicated.

PPI Side Effects: These medicines are generally speaking very safe and are available over-the-counter. Common side effects are diarrhea and headache. Occasionally, these medicines are associated with abdominal pains and cramps. Some patients tolerate one medication better than another within this family of medications. There can be long term adverse effects (>1 year use) like osteoporosis and serious bowel infection leading to severe diarrhea. There are also reports questioning if PPIs can be associated with cardiovascular disease, kidney disease and memory loss. These association have not proven however and they are undergoing additional research. Any concerning side effect or symptom should be brought to the attention of your prescribing physician. Typically, you should NOT suddenly stop PPIs as it can result in a **rebound effect** giving you more severe signs or symptoms of heartburn. PPIs (Prilosec®, Prevacid®, and Nexium®) may alter absorption of pH dependent drugs such as ketoconazole/Nizoral® and itraconazole/Sporonox®.

How long will I need treatment for? GERD/LPR is a chronic and occasionally intermittent problem. It may take 2 – 6 months of continuous twice a day therapy in combination with dietary change before it is controlled. Rarely surgery is necessary when the problem is severe or medications cannot be tolerated. Once the initial problem is controlled some patients can switch from continuous medication to therapy on an as needed basis. The medicines used to treat GERD/LPR are generally deemed to be safe and well tolerated.

Do I need to be seen by a stomach specialist for reflux? We typically advise referral to a gastroenterologist for testing like an EGD (esophagogastroduodenoscopy) with or without a BRAVO pH probe if PPI therapy is used for more than 4-6 without benefit, if PPI therapy is needed long term, if the patient desires reassurance of appropriateness of care for silent reflux before a trial of medications is initiated, or if there are concerns detected in your family history or with your presenting symptoms.

References:

- 1) Vaezi MF et al. Proton Pump Inhibitor therapy improves symptoms in postnasal drainage. Gastroenterology 2010.
- 2) Leason SR et al. Association of gastro-oesophageal reflux and chronic rhinosinusitis: systematic review and meta-analysis. Rhinology 2017.

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