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## Friends and Colleagues,



We have been in the greater East Tennessee community for more than 9 years now, and our physicians see many different gastrointestinal diseases and disorders each year. One of the most common reasons why patients are referred to our clinic is due to gastroesophageal reflux disease (GERD). These disorders affect all ages of our pediatric population from our newborn infants to our teenagers, and treating our children can be just as varied. Since each child can present with a different combination of signs and symptoms, each treatment protocol needs to be individualized to that patient. Many times a combination approach involving the patient, parent, primary care physician, our GI physicians and dietitians are required for the treatment of GERD.

This newsletter explores the clinical aspects GERD, nutritional approaches to infant GERD, and the relationship between dysphagia and GERD. While many of GERD cases do not need to be treated by our staff, we are here to help you with any patients who are not feeling better with standard treatment protocols or who are having multiple signs, symptoms, and/or extra intestinal conditions related to their GERD. Please call our office and one of our clinicians will see your patients in a timely manner.

Regards,

*Al-Tawil*

Youhanna Al-Tawil, M.D.  
Medical Director, GI for Kids, PLLC



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# Gastroesophageal Reflux: An Overview

By Youhanna Al-Tawil, MD, Kathy F. Butcher, MPH



Gastroesophageal reflux (GER) is the passage of gastric contents into the esophagus. While GER is a part of the normal physiologic process that happens throughout the day, gastroesophageal reflux disease (GERD) is the failure of the protective mechanisms to prevent damage from refluxed gastric contents causing either symptoms or mucosal damage to the esophagus and airway. It can cause esophagitis, stricture, Barrett’s esophagus, or more systemic problems. GERD is one of the most common esophageal disorders, affecting as many as 30% of Americans and 18% of children, and it is one of the most frequent reasons why infants are referred to pediatric gastroenterologists.

### Symptoms

While it can be a challenge to distinguish if GERD is the cause of the presenting signs and symptoms, the following is a list of signs, symptoms, and disorders associated with GERD in infants and children:

Recurrent regurgitation	Sandifer syndrome
Anemia	Globus sensations
Poor weight gain	Vomiting
Barrett’s esophagus	Hematemesis
Heartburn, chest pain, or abdominal pain	Acute life-threatening events, especially awake apnea
Asthma or wheezing	Recurrent otitis media or sinusitis
Esophagitis	Recurrent pneumonia or interstitial lung disease
Chronic cough	

In infants, other symptoms that may be associated with GERD include: irritability, feeding refusal, and sleep apnea. Other less documented symptoms that have been associated with GERD in children are hoarseness, sinusitis, otitis media, and dental erosions. In these symptoms GERD is not usually the main cause of the symptom, but rather a contributing factor.

### Diagnosis

Common diagnostic tests to evaluate the causes of reflux include an upper gastrointestinal series (UGI), modified barium swallow study, pH probe study, gastric emptying study, and upper gastrointestinal endoscopy. The choice of which study(s) to perform depends on a variety of factors including the patient’s age, initial presenting symptoms, and the physician’s level of concern. For example, reflux is common in infants between the ages of 2 and 12 months of age, and if the infant has normal growth and development, no invasive diagnostic tests may be necessary at first. On the other hand, a patient with extra intestinal symptoms such as asthma, otitis media, failure to thrive (FTT), or anemia, may need more aggressive diagnostic testing including endoscopy and pH probe study. Finally, a GI

physician should be consulted when ordering more invasive diagnostic testing, such as pH probes, so the appropriate interpretation and treatment can be given to the patient.

### Treatment

There are a variety of approaches in treating GERD depending on the clinical symptoms and diagnostic study results. Symptomatic treatment includes: positioning of the infant, thickening feedings, and diet modification. Reduction of acid exposure treatment includes: oral antacids, alginic acid, H2-receptor antagonists, and proton pump inhibitors (PPI). Prokinetic agents are not frequently used in children because of the reported side effect. Finally, antireflux surgical procedures such as Nissen fundoplication may be necessary in patients whose symptoms are life threatening or who medical therapies have failed. Special consideration needs to be given to patients who have GERD and are overweight or obese. Before any type of invasive surgeries should be considered, weight loss should be strongly recommended because they are highly interrelated. Successful and sustained weight loss may eliminate the need for invasive procedures to manage their GERD.

Even though GERD is one of the most common reasons why children are referred to a pediatric GI physician, primary care providers should be able to manage and treat the majority of their patients especially because many of them will outgrow their reflux. The symptoms and conditions that may warrant a referral to a pediatric GI specialist include: anemia; FTT; dysphagia; Barrett’s esophagus; acute, unexplained, extra intestinal symptoms such as asthma or chest pain, apnea, recurrent pneumonia, or recurrent otitis media or sinusitis; an apparent life-threatening event; and GERD treatment with a PPI for more than 3-6 months.

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## DYSPHAGIA Is it gastroesophageal reflux?

By Clarisa Cuevas, MD



Kids with food allergies face their own unique challenges Dysphagia is defined as the sensation that swallowed food sticks in the chest area. In the young child, the parents describe grimaces while feeding, choking sounds and drooling. Although GERD without stricture is a common cause, other causes need to be considered.

For example, a sudden episode of dysphagia is often due to a foreign body in the esophagus.

Esophageal strictures and rings often present with feeding problems. The child is noted to stretch the neck in order to help the food bolus progress from the oropharynx into the stomach. Upper esophageal strictures and tracheoesophageal fistulae can present with aspiration pneumoniae, dysphagia and choking during feedings. Radiologic contrast studies are required to identify the type of defect. In the presence of H-type fistulae, bronchoscopy can also help in the diagnosis.

Extrinsic compression of the esophagus often presents with dysphagia. Vascular defects include congenital abnormalities of the aortic arch and its branches, which result in the formation of a vascular ring around the trachea and esophagus. An esophagram or aortography can help identify the defect. Other causes of compression of the esophagus include large lymph nodes secondary to tuberculosis, histoplasmosis or lymphoma.

Many systemic, neurologic and muscular disorders often interfere with esophageal motility and give rise to esophageal symptoms. Congenital paralysis of the muscles of deglutition and swallowing is often the first manifestation of Mobius syndrome. The patient with cerebral palsy frequently presents with symptoms of gastroesophageal reflux and swallow dysfunction. Fundoplication can help prevent the aspiration of gastric contents but there is the possibility of worsened dysphagia resulting in a chronic feeding problem. Dysphagia can be due to dermatomyositis, myasthenia gravis, scleroderma and muscular dystrophy.

Rare causes of dysphagia include esophageal duplication cysts, fibromuscular esophageal stenosis and webs. Cricopharyngeal dysfunction, cricopharyngeal incoordination of infancy, paralysis of the superior laryngeal nerve all present with dysphagia. Transient pharyngeal muscle dysfunction is a palatal dysfunction due to delayed normal development. Choking of feedings and drooling of formula are the main symptoms. Children often develop hypotonia and developmental delay. They require gastrostomy tube feedings to prevent aspiration of gastric contents. They often develop chronic respiratory problems due to aspiration of oropharyngeal secretions

What is the most common cause of dysphagia in our practice? Eosinophilic esophagitis (EoE). Our youngest patient with EoE was six months old. That patient had resolution of the choking and feeding refusal from EoE with an elemental diet.

## Nutritional Approach to Infant Gastroesophageal Reflux Disease



By Sandy Altizer, RD, LDN

Gastroesophageal Reflux Disease (GERD) is common in healthy infants. More than half of all babies experience reflux in the first 3 months of life, but most stop spitting up between the

ages of 12 to 24 months. Only a small number of infants have severe symptoms. Infants and young children may demonstrate irritability or arching of the back, often during or immediately after feedings. Infants with GERD may refuse to feed and experience poor growth. An infant with GERD may experience spitting up, poor feeding, irritability, vomiting, coughing or blood in the stools. Cause for concern in babies include breathing problems, irritability or refusing to feed due to pain and poor growth due to an inability to hold down enough food and thus promote adequate weight gain.

The treatment for reflux depends on an infant’s symptoms and age. Some babies may not need treatment because GERD often resolves by itself. Overfeeding can aggravate reflux. Smaller quantities with more frequent feedings can help decrease the chances of regurgitation. If a food allergy is suspected, you may be asked to change the baby’s formula. Breastfeeding mothers may be asked to change their own diets for 1 to 2 weeks. If a child is not growing properly, higher-calorie food or tube feeding may be recommended.

Parental guidance and education is always required and is usually enough to manage thriving infants with symptoms likely to cause GERD. Milk protein sensitivity can be a cause for vomiting in infants. Therefore, formula-fed infants with recurrent vomiting may benefit from a 2- to 4-week trial of an extensively hydrolyzed protein or amino acid formula to determine if sensitivity is an issue.

### Recommendations to reduce GERD include:

- [Burp your baby after he’s consumed 1 or 2 ounces of formula. For breast-fed infants, burp after feeding on each side.](#)
- [Do not overfeed. Talk with your infant’s doctor or Registered Dietitian about the amount of formula or breast milk that your baby is consuming.](#)
- [When possible, hold your infant upright in your arms for 30 minutes after feedings.](#)
- [Infants with GERD should sleep on their backs, as is suggested for all infants.](#)
- [If formula-fed, assess if formula is being properly mixed.](#)
- [More frequent feedings of less volume per feed may be needed.](#)

Poor weight gain is of great concern with infants with GERD. An initial assessment should include a comprehensive diet history to determine if the infant is being appropriately fed and the formula is properly mixed. Increased caloric concentrations may help promote weight gain and reverse Failure to Thrive but may not necessarily reduce symptoms of GERD. Caregivers should be educated as to appropriate daily formula volume required for normal growth. Careful follow-up of interval weight change and caloric intake is essential. A referral to pediatric gastroenterologist or Registered Dietitian is recommended if management fails to improve weight gain.

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