



Pediatric GERD (Gastro-Esophageal Reflux Disease) and Your Otolaryngologist

Everyone has gastroesophageal reflux (GER), the backward movement (reflux) of gastric contents into the esophagus. Extraesophageal Reflux (EER) is the reflux of gastric contents from the stomach into the esophagus with further extension into the throat and other upper aerodigestive regions. In infants, more than 50 percent of children three months or younger have at least one episode of regurgitation a day. This rate peaks at 67 percent at age four months. But an infant's improved neuromuscular control and the ability to sit up will lead to a spontaneous resolution of significant GER in more than half of infants by age ten months and four out of five at age 18 months.

Researchers have found that 10 percent of infants (younger than 12 months) with GER develop significant complications. The diseases associated with reflux are known collectively as Gastro-Esophageal Reflux Disease (GERD). Physically, GERD occurs when a muscular valve at the lower end of the esophagus malfunctions. Normally, this muscle closes to keep acid in the stomach and out of the esophagus. The continuous entry of acid or refluxed materials into areas outside the stomach can result in significant injury to those areas. It is estimated that some five to eight percent of adolescent children have GERD.

What symptoms are displayed by a child with GERD?

GER and EER in children often cause relatively few symptoms until a problem exists (GERD). The most common initial symptom of GERD is heartburn. Heartburn is more common in adults, whereas children have a harder time describing this sensation. They usually will complain of a stomach ache or chest discomfort, particularly after meals.

More frequent or severe GER and EER can cause other problems in the stomach, esophagus, pharynx, larynx, lungs, sinuses, ears and even the teeth. Consequently, other typical symptoms could include crying/irritability, poor appetite/feeding and swallowing difficulties, failure to thrive/weight loss, regurgitation ("wet burps" or outright vomiting), stomach aches (dyspepsia), abdominal/chest pain (heartburn), sore throat, hoarseness, apnea, laryngeal and tracheal stenoses, asthma/wheezing, chronic sinusitis, ear infections/fluid, and dental caries. Effortless regurgitation is very suggestive of GER. However recurrent vomiting (which is not the same) does not necessarily mean a child has GER.

Unlike infants, the adolescent child will not necessarily resolve GERD on his or her own. Accordingly, if your child displays the typical symptoms of GERD, a visit to a pediatrician is warranted. However, in some circumstances, the disorder may cause significant ear, nose, and throat disorders. When this occurs, an evaluation by an otolaryngologist is recommended.

How is GERD diagnosed?

Most of the time, the physician can make a diagnosis by interviewing the caregiver and examining the child. There are occasions when testing is recommended. The tests that are most commonly used to diagnose gastroesophageal reflux include:

- **pH probe:** A small wire with an acid sensor is placed through the nose down to the bottom of the esophagus. The sensor can detect when acid from the stomach is "refluxed" into the esophagus. This information is generally recorded on a computer. Usually, the sensor is left in place between 12 and 24 hours. At the conclusion of the test, the results will indicate how often the child "refluxes" acid into his or her esophagus and whether he or she has any symptoms when that occurs.
- **Barium swallow or upper GI series:** The child is fed barium, a white, chalky, liquid. A video x-ray machine follows the barium through the upper intestinal tract and lets doctors see if there are any abnormal twists, kinks or narrowings of the upper intestinal tract.
- **Technetium gastric emptying study:** The child is fed milk mixed with technetium, a very weakly radioactive chemical, and then the technetium is followed through the intestinal tract using a special camera. This test is helpful in determining whether some of the milk/technetium ends up in the lungs (aspiration). It may also be helpful in determining how long milk sits in the stomach.
- **Endoscopy with biopsies:** This most comprehensive test involves the passing down of a flexible endoscope with lights and lenses through the mouth into the esophagus, stomach, and duodenum. This allows the doctor to get a directly look at the esophagus, stomach, and duodenum and see if there is any irritation or inflammation present. In some children with gastroesophageal reflux, repeated exposure of the esophagus to stomach acid causes some inflammation (esophagitis). Endoscopy in children usually requires a general anesthetic.

Fiberoptic Laryngoscopy: A small lighted scope is placed in the nose and the pharynx to evaluate for inflammation.

What treatments for GERD are available?

Treatment of reflux in infants is intended to lessen symptoms, not to relieve the underlying problem, as this will often resolve on its own with time. A useful simple treatment is to thicken a baby's milk or formula with rice cereal, making it less likely to be refluxed.

Several steps can be taken to assist the older child with GERD:

- **Lifestyle changes:** Raise the head of the child's bed about 30 degrees while they sleep and have the child eat smaller, more frequent meals instead of large amounts of food at one sitting. Avoid having the child eat right before they go to bed or lie down; instead, let two or three hours pass. Try a walk or warm bath or even a few minutes on the toilet. Some researchers believe that certain lifestyle changes such as losing weight or dressing in loose clothing may assist in alleviating GERD. Even chewing sugarless gum may help.



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- **Dietary changes:** Avoid chocolate, carbonated drinks, caffeine, tomato products, peppermint, and other acidic foods as citrus juices. Fried foods and spicy foods are also known to aggravate symptoms. Pay attention to what your child eats and be alert for individual problems.
- **Medical Treatment:** Most of the medications prescribed to treat GERD either break down or lessen intestinal gas, decrease or neutralize stomach acid, or improve intestinal coordination. Your physician will prescribe the most appropriate medication for your child.
- **Surgical Treatment:** It is rare for children with GERD to require surgery. For the few children who do require surgery, the most commonly performed operation is called Nissen fundoplication. With this procedure, the top part of the stomach (the fundus) is wrapped around the bottom of the esophagus to create a collar. After the operation, every time the stomach contracts, the collar around the esophagus contracts preventing reflux.



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