



LARYNGOPHARYNGEAL REFLUX AND CHILDREN

What is laryngopharyngeal reflux (LPR)?

Food or liquids that are swallowed travel through the esophagus and into the stomach where acids help digestion. Each end of the esophagus has a sphincter, a ring of muscle, that helps keep the acidic contents of the stomach *in* the stomach or out of the throat. When these rings of muscle do not work properly, you may get heartburn or gastroesophageal reflux (GER). Chronic GER is often diagnosed as gastroesophageal reflux *disease* or GERD.

Sometimes, acidic stomach contents will reflux all the way up to the esophagus, past the ring of muscle at the top (upper esophageal sphincter or UES), and into the throat. When this happens, acidic material contacts the sensitive tissue at back of the throat and even the back of the nasal airway. This is known as laryngopharyngeal reflux or LPR.

During the first year, infants frequently spit up. This is essentially LPR because the stomach contents are refluxing into the back of the throat. However, in most infants, it is a normal occurrence caused by the immaturity of both the upper and lower esophageal sphincters, the shorter distance from the stomach to the throat, and the greater amount of time infants spend in the horizontal position. Only infants who have associated airway (breathing) or feeding problems require evaluation by a specialist. This is most critical when breathing-related symptoms are present.

What are symptoms of LPR?

There are various symptoms of LPR. Adults may be able to identify LPR as a bitter taste in the back of the throat, more commonly in the morning upon awakening, and the sensation of a "lump" or something "stuck" in the throat, which does not go away despite multiple swallowing attempts to clear the "lump." Some adults may also experience a burning sensation

in the throat. A more uncommon symptom is difficulty breathing, which occurs because the acidic, refluxed material comes in contact with the voice box (larynx) and causes the vocal cords to close to prevent aspiration of the material into the windpipe (trachea). This event is known as "laryngospasm."

Infants and children are unable to describe sensations like adults can. Therefore, LPR is only successfully diagnosed if parents are suspicious and the child undergoes a full evaluation by a specialist such as an otolaryngologist. Airway or breathing-related problems are the most commonly seen symptoms of LPR in infants and children and can be serious. If your infant or child experiences any of the following symptoms, timely evaluation is critical.

- Chronic cough
- Hoarseness
- Noisy breathing (stridor)
- Croup
- Reactive airway disease (asthma)
- Sleep disordered breathing (SDB)
- Frank spit up
- Feeding difficulty
- Turning blue (cyanosis)
- Aspiration
- Pauses in breathing (apnea)
- Apparent life threatening event (ALTE)
- Failure to thrive (a severe deficiency in growth such that an infant or child is less than five percentile compared to the expected norm)

What are the complications of LPR?

In infants and children, chronic exposure of the laryngeal structures to acidic contents may cause long term airway problems such as a narrowing of the area below the vocal cords (subglottic stenosis), hoarseness, and possibly eustachian tube dysfunction causing recurrent ear infections,

or persistent middle ear fluid, and even symptoms of "sinusitis." The direct relationship between LPR and the latter mentioned problems are currently under research investigation.

How is LPR diagnosed?

Currently, there is no good standardized test to identify LPR. If parents notice any symptoms of LPR in their child, they may wish to discuss with their pediatrician a referral to see an otolaryngologist for evaluation. An otolaryngologist may perform a flexible fiberoptic nasopharyngoscopy/laryngoscopy, which involves sliding a 2 mm scope through the infant or child's nostril, to look directly at the voice box and related structures or a 24 hour pH monitoring of the esophagus. He or she may also decide to perform further evaluation of the child under general anesthesia. This would include looking directly at the voice box and related structures (direct laryngoscopy), a full endoscopic look at the trachea and bronchi (bronchoscopy), and an endoscopic look at the esophagus (esophagoscopy) with a possible biopsy of the esophagus to determine if esophagitis is present. LPR in infants and children remains a diagnosis of clinical judgment based on history given by the parents, the physical exam, and endoscopic evaluations.

How is LPR treated?

Since LPR is an extension of GER, successful treatment of LPR is based on successful treatment of GER. In infants and children, basic recommendations may include smaller and more frequent feedings and keeping an infant in a vertical position after feeding for at least 30 minutes. A trial of medications including H2 blockers or proton pump inhibitors may be necessary. Similar to adults, those who fail medical treatment, or have diagnostic evaluations demonstrating anatomical abnormalities may require surgical intervention such as a fundoplication.