CONDITION

Gastroesophageal reflux in infants

Gastroesophageal reflux is the return of stomach contents into a baby's food pipe, often causing spit-up.

WHAT IT IS
Stomach contents flowing back into the food pipe

BODY SYSTEM
Digestive system

MAIN SYMPTOMS
Spitting up, wet burps, hiccups, brief feeding discomfort

WHAT CAUSES IT
Immature reflux barrier, liquid feeds, and lying flat

HOW IT IS DIAGNOSED
Feeding history and examination; tests rarely needed

MAIN TREATMENT
Feeding adjustments, reassurance, and monitoring

CAN IT BE CURED?
Yes - usually stops as digestion matures

IS IT AN EMERGENCY?
Sometimes - green vomit, blood, breathing trouble, or severe dehydration

LONG-TERM OUTLOOK
Most infants improve during the first 18 months

Overview

Gastroesophageal reflux happens when milk and other stomach contents flow back into the esophagus, the tube connecting the mouth to the stomach. The contents may reach the mouth as spit-up or be swallowed again.

Reflux is common during infancy because babies drink liquids, spend much of their time lying down, and have an immature ring of muscle at the top of the stomach.

Most infants with reflux are comfortable, feed well, and grow as expected. They are sometimes called "happy spitters." This uncomplicated reflux is related to early development rather than disease.

Gastroesophageal reflux disease, or GERD, is different. It is considered when reflux causes

ongoing troublesome symptoms or complications, such as poor growth, feeding problems, or inflammation of the esophagus. Frequent spit-up alone does not mean a baby has GERD.

The amount of milk on clothing can look larger than it is. Comfort, feeding, growth, hydration, and the appearance of the vomit matter more than the number of spit-up episodes.

Symptoms

Reflux usually begins during the first weeks or months of life. Common features include:

A baby with uncomplicated reflux remains generally settled and alert, has regular wet diapers, and gains weight appropriately.

Crying, irritability, arching, and disturbed sleep are common in infants and do not prove reflux is painful. They may be caused by hunger, tiredness, swallowed air, feeding difficulties, or normal infant behavior.

Vomiting needs medical assessment when it is forceful, repeatedly shoots out, contains blood or green fluid, or occurs with signs of illness.

- Milk coming from the mouth after or between feeds
- Wet burps, hiccups, or frequent swallowing
- Brief coughing or spluttering during a feed
- Mild fussiness or back arching around feeds

Causes and risk factors

The lower esophageal sphincter is a ring of muscle between the esophagus and stomach. It opens to let swallowed milk enter the stomach and then closes. In young infants, it may relax often, allowing milk to move upward.

Normal contributing factors include:

Reflux may be more noticeable when a baby takes more milk than the stomach can comfortably hold. Swallowed air and pressure on the abdomen can also bring milk back up. This does not mean a parent or caregiver caused the condition.

Premature babies may have more reflux because feeding and digestive coordination are still developing. Conditions affecting the nervous system, lungs, or digestive tract can increase the likelihood of severe reflux.

Cow's milk protein allergy can cause overlapping symptoms, including vomiting, feeding

discomfort, eczema, diarrhea, or blood in the stool. It is not the same as reflux.

- An all-liquid diet
- A small stomach
- Frequent feeds
- Long periods lying down
- An immature digestive system

Diagnosis

Ordinary infant reflux is usually identified from the feeding history, symptoms, growth record, and physical examination. Uncomplicated spit-up does not require a routine test.

A healthcare professional may ask how feeds are prepared and given, how much and how often the baby eats, whether vomiting is forceful, and whether it contains blood or green material. They may check weight, hydration, breathing, the abdomen, and alertness.

Tests may be considered when symptoms are unusual, severe, persistent, or affecting growth. These can include:

A contrast study does not usually diagnose reflux itself. Other possible causes include infection, milk protein allergy, swallowing problems, and narrowing at the stomach outlet called pyloric stenosis.

- Esophageal pH-impedance monitoring to record acid and non-acid reflux
- Endoscopy to look for inflammation or another upper digestive tract problem
- A contrast X-ray study to check for blockage or abnormal anatomy

Treatment and management

Most comfortable, growing infants do not need medicine or testing. Management focuses on safe, comfortable feeding while digestion matures.

A feeding assessment can identify difficulty latching, swallowing excess air, or taking more milk than is comfortable. Breastfeeding can usually continue. Formula must be mixed exactly as directed; changing the powder-to-water ratio can be unsafe.

A healthcare professional may suggest adjusting feeding volume or frequency. Thickened feeds may help some infants with troublesome regurgitation, but the product and method

depend on the baby's age, feeding method, and medical needs. Do not add cereal to a bottle without professional guidance.

If cow's milk protein allergy is suspected, a supervised trial of an appropriate formula or changes to a breastfeeding parent's diet may be considered. Unsupervised food restriction can cause nutritional problems.

When practical, hold the baby upright during and briefly after feeding while they are awake and watched. Gentle burping may help release swallowed air.

For every sleep, place the baby flat on their back on a firm, level sleep surface. Side sleeping, stomach sleeping, wedges, positioners, and raising the head of the crib are not safe reflux treatments. Sitting devices are not recommended for routine sleep.

Acid-suppressing medicines reduce acidity but do not stop stomach contents moving upward. They are not recommended for ordinary spit-up in an otherwise healthy infant. A clinician may consider them when there is evidence of acid-related injury, such as reflux esophagitis. Their benefit and side effects should be reviewed.

Surgery is rarely required and is generally reserved for severe GERD with serious complications when other treatment has failed.

Complications

Uncomplicated infant reflux does not usually damage the esophagus or cause long-term health problems.

GERD can cause inflammation of the esophagus, feeding refusal, painful swallowing, and poor weight gain.

Milk entering the airway may be a concern when a baby has an underlying swallowing problem. Repeated coughing, choking, breathing symptoms, or chest infections need assessment rather than being assumed to result from reflux.

Reflux should not automatically be blamed for unexplained crying, apnea, or pauses in breathing. It has not been shown to cause sudden infant death syndrome. Safe-sleep guidance remains the same for babies who spit up.

Prevention

Normal infant reflux cannot always be prevented because it is largely related to digestive development.

Avoiding overfeeding may reduce spit-up. A feeding assessment can help when appropriate amounts are unclear or feeding has become stressful.

Avoid tobacco smoke exposure. It is harmful to babies and may worsen respiratory and digestive symptoms.

Do not change sleep positioning to prevent reflux. Back sleeping on a flat, firm surface is safest, including for babies who regularly spit up. Healthy babies have protective reflexes that help keep the airway clear.

Living with it and what to expect

Reflux often becomes more noticeable during the first few months. It usually improves as digestion matures, the baby spends more time upright, and solid foods are introduced at a developmentally appropriate age.

Many infants improve by about 12 months, although some have symptoms into the second year. Comfort, feeding, hydration, and growth are more useful measures than the number of spit-up episodes.

Daily care may involve extra laundry, slower feeds, and time holding the baby upright while awake. Frequent spit-up does not necessarily mean the baby has lost an entire feed or that breast milk or formula is unsuitable.

Follow-up may include weight checks and a feeding review. Contact a healthcare professional if symptoms worsen rather than repeatedly changing formula, restricting foods, or using reflux remedies without guidance.

Symptoms that begin later in infancy or continue beyond the expected age may need reassessment for another cause.

When to get medical help

Arrange a routine medical appointment if the baby:

Seek urgent medical care if vomiting becomes repeatedly forceful or projectile, particularly in a young infant. This can indicate pyloric stenosis or another blockage.

Get urgent help if there is blood in the vomit, the abdomen is swollen or tender, or the baby is unusually sleepy, difficult to wake, feverish, or unable to keep feeds down. Signs of dehydration include far fewer wet diapers, a dry mouth, no tears when crying, or a sunken soft spot on the head.

Green vomit may contain bile and can indicate an intestinal blockage. It requires immediate medical assessment.

Call emergency services if the baby has serious difficulty breathing, turns blue or grey, becomes unresponsive, or has a seizure.

- Regularly refuses feeds or seems distressed while feeding
- Is not gaining weight as expected
- Coughs, chokes, or has noisy breathing during feeds
- Has persistent diarrhea, eczema, or blood-streaked stool
- Develops reflux for the first time later in infancy
- Continues to have frequent troublesome symptoms into the second year

Common questions

Why does my baby spit up after every feed?

A small stomach, liquid feeds, and an immature muscle at the top of the stomach make reflux common. Frequent spit-up can be normal when the baby is comfortable, hydrated, feeding well, and growing appropriately.

How can I tell reflux from vomiting?

Spit-up usually flows or dribbles from the mouth without much effort. Vomiting involves stronger contractions and may travel farther. Forceful, green, bloody, or repeated vomiting needs prompt assessment.

Should I change my baby's formula?

Not automatically. Switching formulas often does not stop normal reflux. A clinician may recommend a specific change if there are signs of cow's milk protein allergy or another feeding problem.

Can my baby choke while sleeping on their back?

Back sleeping does not increase choking in healthy babies, including those with reflux. Airway anatomy and protective reflexes help fluids move away from the airway. A flat, firm sleep surface remains safest.

Do reflux medicines stop spit-up?

No. Acid-suppressing medicines reduce stomach acidity but do not prevent contents from flowing upward. They are generally reserved for selected babies with acid-related injury or

significant GERD.

When will my baby grow out of reflux?

Most babies improve during the first 12 to 18 months. Ongoing feeding difficulty, poor growth, pain, or unusual vomiting should be medically reviewed.

Sources

- Rosen R, Vandenplas Y, Singendonk M, et al. "Pediatric Gastroesophageal Reflux Clinical Practice Guidelines." Journal of Pediatric Gastroenterology and Nutrition . 2018;66(3):516-554
- National Institute for Health and Care Excellence. Gastro-oesophageal reflux disease in children and young people: diagnosis and management . NICE guideline NG1, published 2015 and updated 2019
- National Institute of Diabetes and Digestive and Kidney Diseases. Acid Reflux (GER and GERD) in Infants . Reviewed November 2020
- Canadian Paediatric Society. "Medical management of gastro-esophageal reflux in healthy infants." Paediatrics & Child Health . 2022;27(8):503-506
- Moon RY, Carlin RF, Hand I; American Academy of Pediatrics Task Force on Sudden Infant Death Syndrome. "Sleep-Related Infant Deaths: Updated 2022 Recommendations for Reducing Infant Deaths in the Sleep Environment." Pediatrics . 2022;150(1):e2022057990