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Introduction to Disorders that Mimic Reflux: Gastrointestinal “Zebras” by Susan Agrawal

Children with complex medical problems ranging from autism to cerebral palsy are often affected by significant gastrointestinal symptoms. It is not uncommon to see children in this population who reflux or vomit the contents of their stomachs or suffer from a variety of other gastrointestinal symptoms ranging from pain to bloating, diarrhea, and constipation.

Because reflux is exceptionally common, especially in babies and young children with immature digestive tracts or children with neurological problems, it is usually the first disorder that doctors think of when a child presents with spitting up, vomiting, pain, and irritability. A common expression used in medicine is that doctors are trained to think of horses instead of zebras when they hear hoofbeats. Most children with gastrointestinal symptoms *will* have reflux...they are horses in this metaphor. But what about the child who may just be a “zebra?”

Our edition this month focuses on these Gastrointestinal “Zebras.” We have selected a few common and uncommon conditions to be treated in individual articles, and listed a variety of disorders that may look like reflux in Table 1. Articles include a general overview of Motility Disorders that look very similar to reflux, and that often appear in tandem with reflux in children with neurological disorders and other conditions. Another article focuses on Eosinophilic Esophagitis, an immune disorder leading to increased eosinophils (a type of white blood cells), that is turning out to be more common than once thought. Our final article, on Cyclic Vomiting Syndrome, addresses a rare disorder, but doctors are finding that its cousin, the Abdominal Migraine, may actually be more common.

How do you know when your child may have something more than just reflux? In general, failure to respond to reflux medications such as Zantac or Prilosec is a reason to explore other options. It is also important to try to determine if a child is actually refluxing (passive regurgitation of stomach contents) or vomiting. After all, every human being refluxes. Air in the stomach needs to be expelled in the form of a belch, and the lower esophageal sphincter (LES) that serves as the gate between the esophagus and stomach must open up to allow air out. In some people, this sphincter opens too far, stays open too long, or opens too frequently, allowing stomach contents to be refluxed repeatedly and causing symptoms such as spitting up in babies or heartburn in older

children and adults. Other individuals may have difficulty regulating the pressure in this sphincter, causing similar symptoms. Reflux in and of itself is a normal physiological process in human beings. But when it causes additional symptoms, such as irritation of the esophagus, pain, feeding aversions, aspiration into the airway, or weight loss, it becomes a disorder or disease (GERD). While children with reflux do vomit occasionally, chronic and forceful vomiting, especially when accompanied by symptoms like paleness, sweating, salivation, or retching, is probably more than straightforward reflux.

While reflux is thought to be related to the belch reflex, in which stomach contents are expelled as if the body was going to belch, vomiting is triggered by the “vomiting center” of the brain, setting off a series of events involving muscles and nerves. Salivation in the mouth, narrowing of blood vessels, a fast heart rate, and paleness or sweating may occur. Then the muscles in the abdomen and diaphragm contract while the glottis (area where the vocal cords are) closes, creating retching. Finally, pressure inside the abdomen forces the contents of the stomach out through the mouth. Clearly, this is a much more complicated process than simple reflux, involving multiple body systems.

The number of conditions that can cause vomiting is enormous. Vomiting can be triggered by medications; GI disorders including obstruction, delayed gastric emptying, or inflammation; disorders of the central nervous system including tumors and high pressure in the brain; endocrine or hormonal issues including pregnancy and ketoacidosis; or infections in the gut. Emotional distress, bad tastes or odors, and even pain can trigger vomiting. To complicate matters, reflux can sometimes trigger the gag reflex, which sets off vomiting. Children with neurological disorders may be extra sensitive, and may vomit as a result of gut hypersensitivity, an overactive gag reflex, an extra sensitive emetic or vomiting reflex in the brain, or motility problems in the gut.

Another sign that a diagnosis of reflux may be insufficient is when there is significant uncontrolled abdominal pain that is not improved by acid-reducing medication. Additional symptoms that suggest another disorder include bloating, diarrhea or constipation, significant weight loss or failure to thrive, and repeated choking, gagging, or coughing.

Listed below are just some of the Gastrointestinal “Zebras” that may mimic reflux. If your child is not improving despite aggressive treatment for reflux, or reflux is excluded by a normal impedance probe (remember that a pH probe does not exclude non-acid reflux), it may be time to explore some of these other conditions.

Please Note: The conditions listed below are all chronic conditions with persistent symptoms. Many other disorders, some very serious, cause abrupt or acute symptoms such as vomiting or abdominal pain. Please consult your doctor immediately if your child experiences serious acute gastrointestinal symptoms.

Table 1: Disorders that Produce Chronic Gastrointestinal Symptoms Similar to Reflux

Motility Disorders (especially Esophageal Motility Disorders, Delayed Gastric Emptying (Gastroparesis) and Chronic Intestinal Pseudo-obstruction)	Conditions which affect the contractions of the gastrointestinal tract, leading to a wide range of symptoms including nausea, vomiting, retching, gagging, choking, bloating, and abdominal pain.
Food Allergies and Intolerances	Food allergies are immune responses to any food, causing varied symptoms, including tingling in the mouth, swelling of the throat, vomiting, abdominal pain, or hives. Food intolerances are non-immune related responses and usually cause nausea, vomiting, cramping, gas, or diarrhea.
Celiac Disease	An immune response to gluten or wheat that causes the immune system to attack the intestine, resulting in damaged villi. Symptoms include abdominal pain, cramping, gas, bloating, malnutrition, weight loss, anemia, diarrhea, and constipation.
Cystic Fibrosis	A genetic disease affecting the lungs and GI tract. Symptoms include coughing, upper and lower respiratory infections, wheezing and other respiratory symptoms, weight loss, failure to thrive, and greasy stools.
Mastocytosis	A condition in which too many mast cells accumulate, most often in the skin in the form of lesions, but also in the gut, leading to reflux, vomiting, abdominal pain, and other systemic symptoms.
Eosinophilic Esophagitis and other Eosinophilic Disorders	A group of disorders characterized by an increase in eosinophils in a part of the body. Common symptoms include reflux, difficulty swallowing, food stuck in the throat, vomiting, failure to thrive, abdominal pain, and food aversions.
Cyclic Vomiting Syndrome	A condition likely related to migraines and characterized by periods of intense vomiting and abdominal pain that resolve but repeat in a cyclical fashion.
Abdominal Migraines	A type of migraine common in children that involves abdominal pain with or without nausea and vomiting.
Functional Abdominal Disorders (Visceral Hyperalgesia, Dyspepsia, Irritable Bowel Syndrome, etc.)	A collection of disorders with no clear anatomical cause that typically cause abdominal pain, bloating, vomiting, and diarrhea.
Abdominal Epilepsy	A type of seizure that is characterized by abdominal pain and/or vomiting alone or with other seizure events.
Zollinger-Ellison Syndrome	A disorder that causes tumors in the pancreas and duodenum that secrete gastrin (a hormone) and cause an increase in stomach acid. Symptoms include ulcers, pain, nausea, vomiting, weakness, bleeding, weight loss, and diarrhea.
Brain Tumor	Brain tumors can lead to vomiting and other symptoms, depending on the location of the tumor.