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Solutions for Retching

by Susan Agrawal

Retching, also commonly known as the dry heaves, is a very frequent complaint in children who have had a fundoplication surgery or who have certain neurological or gastrointestinal conditions. Children whose nervous systems are overly sensitive, as well as children with motility problems, often retch even without fundoplication surgery.

Retching can be extraordinarily debilitating for children. Some may spend hours a day retching, or have dozens of retching episodes over the course of the day. Sometimes it becomes so serious that sedation is required. What many doctors do not know is that retching often can be treated effectively if a doctor has the appropriate diagnostic tests and knowledge.

Non-Fundoplication Retching

Because retching and vomiting can be symptoms of many disorders, any child with persistent retching and vomiting should be evaluated by a doctor to rule out serious conditions like a brain tumor, cyclic vomiting syndrome, eosinophilic esophagitis and so forth.

Retching that occurs in a child with GI problems but without a fundoplication typically has one of two causes: a motility problem, or hypersensitivity of the stomach and/or other parts of the GI tract. In these children, retching is often followed by vomiting, though the two symptoms can happen separately as well.

Children who retch and have a motility problem often have abnormal motility of the esophagus, such as esophageal spasm or dysmotility, or a motility problem in their stomach or small intestine, such as a lack of contractions, spasmodic contractions, or the absence of “housekeeping” contractions in the stomach. The problem must be identified before it can be treated. Doctors typically use manometry testing of either the esophagus or the stomach/duodenum to determine the specific nature of the motility problem.

Other children may have a hypersensitive gut. The most common cause of hypersensitivity, often called visceral hyperalgesia, is reduced gastric volume capacity. In children with hypersensitivity, the stomach feels “full” and may even feel painful at a much lower volume than would be expected. This hypersensitivity may extend to other parts of the gut in some children, causing symptoms with even the smallest amount of

fluid or food in the belly. The brain perceives the gut as painful or overfull, triggering discomfort, retching, and vomiting.

In other children, the emetic or vomiting reflex in the brain may be on a hair trigger, and almost anything, from a bad smell to 5ml of formula in the belly, may cause retching.

It is very common for these problems to occur in tandem, and many children with motility problems have concurrent visceral hyperalgesia.

Post-Fundoplication Retching

In theory, retching after a fundoplication occurs because the fundoplication stops the child from vomiting, meaning that any attempt at vomiting will lead to persistent retching since the gastric contents are not able to be released upwards out of the stomach and mouth. While this may be true for a child with a fundoplication who has a stomach virus, it does not explain why some children retch continuously after a fundoplication,

Doctors have begun to realize that persistent retching after a fundoplication may instead be the result of either a preexisting hypersensitivity or changes in the gut from the fundoplication.

Children who vomit or retch before a fundoplication usually continue to retch afterwards.¹ Most of these children have a hypersensitive emetic reflex or visceral hyperalgesia, as described earlier in this article. In some cases, a motility problem or other condition like eosinophilic esophagitis was mistaken for reflux pre-operatively, and was only discovered after the fundoplication failed to eliminate symptoms. As an important study on retching post-fundoplication states, “It seems probable that the abnormalities in motility and visceral sensation existed before fundoplication, and contributed to the pathogenesis of chronic symptoms prompting surgery.”² Unfortunately, surgery not only does not improve symptoms in children with motility or hypersensitivity issues, but it also makes them worse in many cases.

Some children begin to retch after surgery even without pre-surgical vomiting. While this is not entirely understood, researchers have hypothesized that this retching may be due to sensitization of the emetic reflex from vagus nerve damage during surgery, or development of gastric dysrhythmia or uncoordinated gastric contractions as a result of surgery.

In the study mentioned earlier, 14 toddlers, 11 with cerebral palsy, and 3 with non-neurological disorders, were evaluated for post-fundoplication retching.³ All children in this study were found to have motility and/or sensory problems. Two children had esophageal motility problems, five had visceral hyperalgesia alone, seven had antroduodenal motility problems and visceral hyperalgesia, and one had esophageal and antroduodenal motility abnormalities as well as visceral hyperalgesia. It is likely that most of these children had these problems before surgery, but they were either unrecognized or they increased after surgery.

Treatments for Retching

There are treatments for retching, but they depend on a proper diagnosis, which demands a motility specialist who can perform and interpret manometry testing and recognize hypersensitivity or an overactive emetic reflex.

Initial treatments for mild retching include switching to continuous drip feedings or venting the G-tube (if available) either periodically or continuously with a Farrell bag. If neither of these options eliminates the retching, medication may be helpful. Anti-emetics such as Zofran may also be useful for some children.

Children who have spasmodic motility problems, such as esophageal spasm or duodenal spasm, respond best to anticholinergic drugs or anti-spasmodics.⁴ These include Bentyl (dicyclomine), Levsin (hyoscyamine sulfate), or Donnatal (hyoscyamine sulfate with phenobarbital, atropine, and scopolamine). Esophageal spasms may also be treated with medications like Procardia (nifedipine). Botox is beginning to be used by some physicians to relax sphincters that spasm persistently.

Children with delayed emptying or lack of “housekeeper” contractions in the gut can be treated with promotility medications such as Reglan (metoclopramide), Erythromycin, or even Sandostatin (octreotide). A GJ tube may also be helpful.

Children with a low gastric pain threshold or visceral hyperalgesia require a more nuanced approach. First of all, pain to the gut must be eliminated. This is commonly done by switching a child to GJ feeds to rest the stomach, usually for a period of approximately two months before transitioning back to oral or G-tube feeds. Behavioral intervention may also be appropriate, especially to minimize pain and the perception of pain. Most importantly, medications to reduce visceral or neuropathic pain should be used. These include Neurontin (gabapentin), Lyrica (pregabalin), Elavil (amitriptyline), Tofranil (imipramine) or other tricyclic antidepressants. Some children may also benefit from an appetite enhancer like Periactin (cyproheptadine).

Children who have an overactive emetic reflux may see improvement with the same medications as those mentioned above for a reduced gastric pain threshold, and may also have some success with sensory or oral-motor therapy to reduce their strong responses to noxious stimuli and reduce gagging. A GJ tube is also commonly needed.

In the study mentioned earlier, 13 out of the 14 patients with retching showed a dramatic improvement in symptoms.⁵ 80% were happier or more comfortable after treatment, and 43% improved their feeding, either no longer requiring tube feeds or advancing to partial G-feeds and oral feeds.

Retching can be treated, but it usually requires sophisticated testing and evaluation by a skilled motility specialist with advanced knowledge in the interaction between the brain and the gut. For children whose lives are dominated by daily retching episodes, finding a knowledgeable motility specialist is essential in regaining the child’s quality of life.

¹ Richards CA, et al. Retching and Vomiting in Neurologically Impaired Children After Fundoplication: Predictive Preoperative Factors. *Journal of Pediatric Surgery* 2001;36, no. 9:1401-4.

² Zangen T, et al. Gastrointestinal Motility and Sensory Abnormalities May Contribute to Food Refusal in Medically Fragile Toddlers. *Journal of Pediatric Gastroenterology and Nutrition* 2003;37:288.

³ Zangen.

⁴ Zangen, 289.

⁵ Zangen, 290-2.