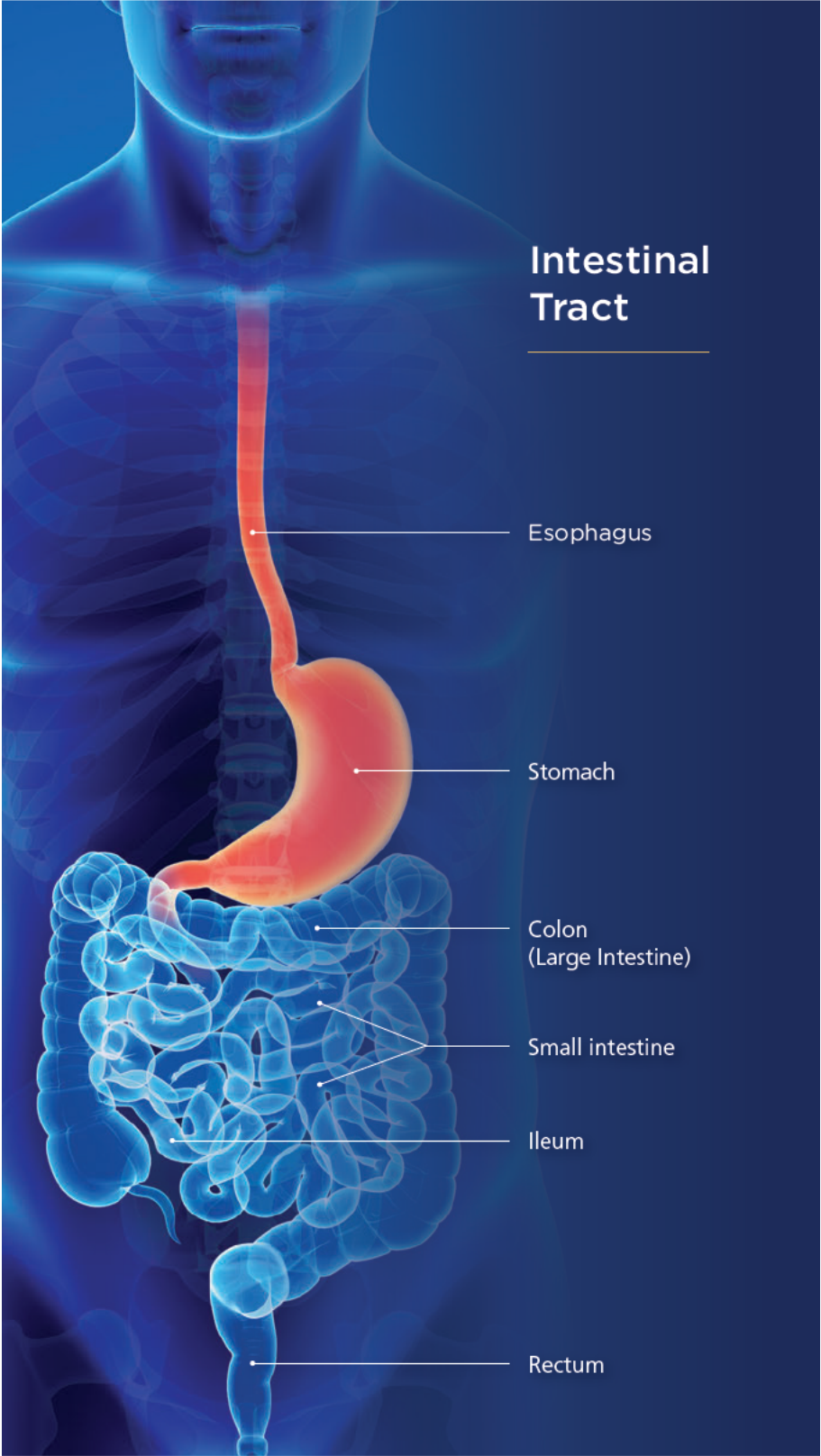
Gastroparesis

erlanger
Gastroenterology


Intestinal Tract
Esophagus
Stomach
Colon
(Large Intestine)
Small intestine
Ileum
Rectum

Gastroparesis

Gastroparesis is a weak stomach. This condition is very common and can be the cause of a number of abdominal complaints. It is usually not a serious problem and there are effective treatments available.

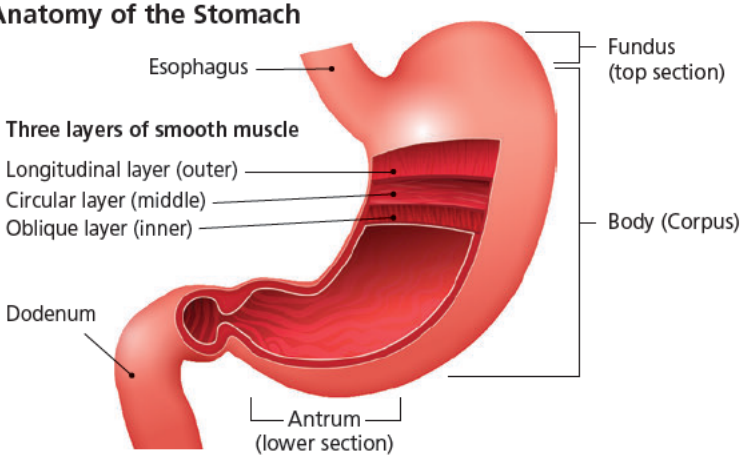
How the Stomach Works

To understand gastroparesis, you first must understand how the stomach functions. The stomach has two parts. The upper portion is called the fundus which is where swallowed food and liquid collect. The lower portion is called the antrum. This is the stomach grinder. It is where food is churned back and forth until it is broken into small fragments and then squirted out into the duodenum, the first part of the small intestine.

It may be a surprise to think of the stomach as being similar to the heart, yet this is true.

Both have an area within them called the pacemaker. This is where an electrical wave originates and then sweeps across the organ. The electrical wave causes the muscles in the heart and stomach to contract. In the stomach, the pacemaker is in the upper portion.

Anatomy of the Stomach



The wave sweeps down across the antrum causing it to contract, grind up food, and expel small amounts into the duodenum, the first part of the small bowel. The normal rate of contraction is about three times a minute, much slower than the heart, but quite adequate for the job.

Gastroparesis

This condition occurs when the rate of the electrical wave slows and the stomach contracts less frequently. Now the food just lays in the stomach relying on acid and digestive enzymes to break down the food and on gravity to empty the stomach.

Causes for Gastroparesis

- Diabetes is the most common known cause. Adrenal and thyroid gland problems can also be a cause although these are infrequent.
- Viral infections can sometimes cause gastroparesis. This type of gastroparesis usually resolves over time like most other viral infections.
- Scars and fibrous tissue from ulcers and tumors can block the stomach outlet and mimic gastroparesis.
- Certain drugs weaken the stomach (tricyclic antidepressants such as Elavil, calcium blockers such as Cardizem and Procardia, L dopa, hyoscyamine, Bentyl, Levsin, narcotics)
- Previous stomach surgery
- Anorexia and bulimia and other forms of malnutrition
- Neurologic or brain disorders such as Parkinson's disease, strokes and brain injury
- Certain diseases such as lupus, erythematosus and scleroderma
- In up to 40% of cases the cause of gastroparesis is not known

It should be noted that not all of these disorders affect the pacemaker of the stomach. Some disorders weaken the stomach muscle itself so it can't respond to the pacemaker. In either case, the result is the same gastroparesis.

Symptoms

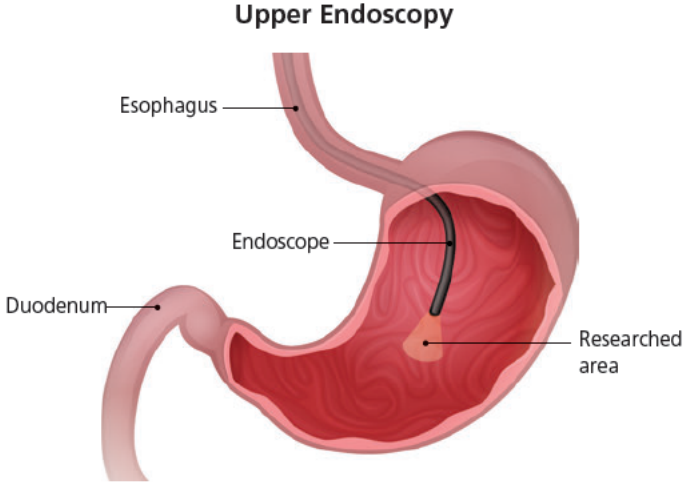
The usual symptoms of gastroparesis are a feeling of fullness after only a few bites of food, bloating, excessive belching, and nausea. At times there will be a vague, nagging ache in the upper abdomen but usually the pain is not sharp or crampy as might occur with ulcers or a gallbladder attack. There may be vomiting, heartburn, or regurgitation of stomach fluid into the mouth. Medications that reduce or eliminate stomach acid usually don't help much.

Diagnosis

The diagnosis of gastroparesis starts with the medical history where the physician may suspect the diagnosis based on the symptoms. In severe cases, the physical exam and blood tests may show evidence of malnutrition, but usually the exam is normal.

An upper GI barium x-ray measures how liquid barium leaves the stomach. Often this exam is normal.

Upper endoscopy is a visual exam of the stomach using a lighted flexible tube. Mild sedation is usually given for this procedure. This exam should always be done to be certain there is not a blockage in the stomach.



Endoscopy

X-ray with barium

A gastric or stomach emptying test is presently the best method of making the diagnosis. In this test, a food, such as scrambled eggs, is labeled with a marker which can be seen by a scanner. Following ingestion, the scanner tracks the time it takes for the food to leave the stomach. In general, half the stomach contents should leave within about 90 minutes.

A final test, which is not available everywhere, is the **electrogastrogram (EGG)**. This test, like the EKG on the heart and measures the electrical waves that normally sweep over the stomach and precede each contraction.

Treatment

First, if there is an underlying disorder, it needs to be treated effectively. Examples are good blood sugar control in the diabetic patient or thyroid medicine for someone with an underactive thyroid.

Second, there may be a need to address diet and nutrition. When gastroparesis is mild, there are usually few food problems. However, if there is marked delay in stomach emptying, then attention to the diet is necessary. Fats, including vegetable oils, normally cause delay in emptying of the stomach, so foods that are high in fat need to be avoided. High fiber foods such as broccoli and cabbage tend to stay in the stomach, so these foods should be restricted when symptoms are severe. Liquids always leave

the stomach faster than solid food so liquid type foods such as low fat milkshakes should be used. Finally, frequent small feedings, 4 6 times a day, are usually more effective than larger meals, 2 or 3 times a day. A registered dietitian can be very helpful in providing advice in severe cases.

A third treatment is medications.

Medications

Several medications are now available to stimulate the stomach to contract more normally. These drugs should be taken 20 40 minutes before eating to allow enough time for the drug to get into the blood stream where they can then act on the stomach. They all cause the stomach to contract more often and, hopefully, more vigorously thereby emptying the stomach and reducing symptoms.

Metoclopramide (trade name: Reglan)

This is an effective drug although it may have side effects such as restlessness, fatigue, agitation and depression. The dose is 5 20 mg. It is available in generic form.

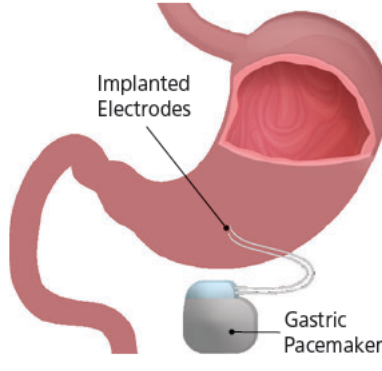
Bethanechol (trade name: Urecholine)

Bethanechol and erythromycin, an old antibiotic, are occasionally used but cannot be used long term.

Gastric Pacing

Gastric pacing can be thought of like heart pacing. Electrodes are implanted into the stomach and a current then stimulates the stomach. Gastric pacing is still limited to research institutions because it is riddled with potential problems. Still, it is an option for patients with severe and persistent gastroparesis.

Gastric Pacemaker Attached to Stomach



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