

Gastroesophageal Reflux Disease

GERD and the Obese Patient

By Julie Janeway, Karen Sparks, MBE, and Steven R. Hendrick, MD, FACS

Gastroesophageal Reflux Disease (GERD) is a digestive disorder that affects the lower esophageal sphincter (LES), and causes injury to the esophagus from chronic exposure to stomach acid. The LES is the muscle connecting the esophagus with the stomach, allowing food to pass from the mouth into the stomach.

The term gastroesophageal refers to the combination of both the esophagus and the stomach. The term reflux means to flow back or return. Therefore, gastroesophageal reflux is the return of the stomach's contents back up into the esophagus.

In normal digestion, the LES opens to allow food to pass into the stomach, and closes to prevent food and acidic stomach juices from flowing back into the esophagus. Gastroesophageal reflux occurs when the LES is weak or relaxes inappropriately allowing the stomach's contents to flow back up into the esophagus, and sometimes all the way into the mouth.

The severity of GERD depends on the LES dysfunction as well as the type, amount and frequency of fluid brought up from the stomach and the neutralizing effect of saliva.

When stomach acid refluxes back up into the esophagus, it creates a situation we refer to as heartburn or acid indigestion. Many people suffer from heartburn or acid indigestion, most prominently those who are overweight or obese.

Heartburn or acid indigestion is the most common symptom of GERD, and usually feels like a burning chest pain behind the breastbone that moves upward to the neck and throat. Many describe the sensation or feeling of food coming back into the mouth and leaving an acid or bitter taste.

Heartburn and GERD

With non-chronic heartburn, the burning, pain and pressure from heartburn can last as long as two hours and is often worse after eating. Lying down and bending over tend to worsen the symptoms, or cause the heartburn outright.

Heartburn pain can be mistaken for the pain associated with heart attack, but there are differences. Exercise may aggravate pain resulting from heart disease, and rest may relieve the pain. Heartburn pain is less likely to be associated with physical activity other than simply lying down or bending over. Additionally, many people find relief from their occasional heartburn by standing up, and by taking an antacid that clears the acid out or neutralizes the acid in the esophagus.

More than 60 million American adults experience heartburn and GERD at least once a month, and about 25 million adults suffer daily from heartburn. Occasional heartburn *does not* indicate that GERD exists, but increasing bouts with heartburn may be a sign that you should visit your doctor for an evaluation. GERD is more than just an annoyance and an uncomfortable situation. It is a serious disease that can cause esophagitis (inflammation of the esophagus) Barrett's esophagus (lesions and ulcers that may be in a pre-cancer state) and esophageal cancer.

Hiatal Hernia and GERD

GERD can also be caused by a condition known as a *hiatal hernia*. Hiatal hernia occurs when the upper part of the stomach moves up into the chest through a small opening in the diaphragm (*esophageal hiatus*). The *diaphragm* is the muscle separating the abdomen from the chest. Recent studies indicate that the diaphragm muscle

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acts as an additional sphincter, or contracting structure, around the lower end of the esophagus to help keep food and other stomach contents from refluxing back up. When the stomach works its way out of position and the upper part gets above the diaphragm muscle, the combination of the muscle and the portion of the stomach above the opening in the muscle create retention of refluxed stomach contents above this opening. The retained or displaced stomach contents can then easily reflux back into the esophagus and the mouth.

Coughing, vomiting, straining or sudden physical exertion can cause pressure in the abdomen resulting in a hiatal hernia, as well as forcing stomach contents through the herniated opening into the upper part of the stomach if a hernia already exists. Hiatal hernia is very common in otherwise healthy people age 50 and over. Although often considered a condition of middle age, it can affect people of any age. Obese people and pregnant women, however, are most susceptible to this condition.

Hiatal hernia does not necessarily require treatment. It may become necessary if the hernia is in danger of becoming strangulated (twisted or otherwise contorted in such a way that blood supply will be cut off), or it is complicated by severe GERD or esophagitis. In cases such as these, surgery is the preferred treatment method.

Causes of GERD

Several factors contribute to the weakening of the LES. Certain foods and beverages, including chocolate, peppermint, fried or fatty foods, coffee, soda pop or alcoholic beverages, may relax the LES causing reflux and heartburn. Studies show that cigarette smoking also relaxes the LES. Pressure on the diaphragm from pregnancy is the cause for pregnant women, but one of the most common causes of GERD for both men and women is obesity.

Obesity and GERD are both highly prevalent diseases in Western societies. Recently, several research studies have begun to prove the link between obesity and GERD. A 2003 Scandinavian study, one of the largest to date on the causes of GERD, found that people who are overweight or obese may be up to six times more likely to have GERD than people who are of normal body weight. The study also concluded that the association

Symptoms of GERD

- Heartburn
- Regurgitation (food and stomach contents backing up into esophagus, throat or mouth)
- Water brash (increased saliva production in response to acid reflux into the mouth)
- Laryngitis (hoarseness or loss of voice, especially in the morning)
- Difficulty swallowing
- Aspiration (passage of gastric fluid into the esophagus and then breathed into the lungs)
- Wheezing or asthma
- Night time awakening with choking
- Belching or burping more than normal (especially if accompanied by stomach contents)
- Flatulence (gas) more than normal (normal flatulence is 14 to 23 times per day)

between obesity and GERD was strongest among heavy, pre-menopausal women, and women who have used hormone therapy (including birth control pills), suggesting that estrogen may play a role in the development of the medical condition.

The researchers found that the higher the body mass index (BMI) of the patient, the worse the reflux symptoms were for both men and women, although the association was stronger in the female group. Severely obese men (those with a BMI more than 35) were 3.3 times more likely to have reflux symptoms than men of normal weight. Severely obese women, however, were 6.3 times more likely to have these same symptoms than women of normal weight.

Severely obese *pre-menopausal* women showed the highest risk, being 6.8 times more likely to have GERD than normal women. Severely obese *post-menopausal* women were 4.2 times more likely to have reflux symptoms than their normal weight sisters. Most shocking, however, were the results for those severely obese women who had taken hormonal therapy at some time in their lives. For these women, the risk of developing

GERD is 16 times increased over those women of normal weight who had never taken hormonal therapy. Worse than that, were the findings that severely obese women who had *estrogen only therapy* were 33 times more likely to develop GERD than normal weight women who had never had any hormone treatment of any kind. Researchers speculate that estrogen may predispose heavy women to GERD because it stimulates the production of nitrous oxide which relaxes smooth muscles such as the LES.

The New England Journal of Medicine published a May 2006 article that appears to confirm the Scandinavian study's link between BMI and GERD. Researchers in this study used 10,545 women, all nurses, who completed questionnaires about their GERD related symptoms or lack thereof. The study then examined the 3,419 nurses who reported moderate symptoms of GERD, and after controlling for smoking, alcohol use and medications that can affect LES pressure, the researchers observed a relationship between increasing BMI and the frequency of reflux symptoms. The relationship carried through for all BMI levels from below normal to super morbid obesity and beyond.

Additionally, the study noted that for those who had a reduction in BMI points of 3.5 or more, there was nearly a 40 percent reduction in their risk for frequent heartburn and GERD symptoms than for women who did not lose weight during the study.

The study concluded that while obesity is linked to GERD, the more direct link is between GERD and BMI. Moderate amounts of weight gain may lead to development or exacerbation of GERD. The study also reported that the BMI link to GERD is stronger than the relationship between GERD and the waist-to-hip ratio or distribution of fat as well. Finally, the study did note that it was restricted to women, and therefore the findings may not necessarily be able to be extrapolated to men in their entirety.

Treatments for GERD

As a basic rule, doctors recommend lifestyle and dietary changes for most people with GERD. This includes stopping smoking, and avoiding foods and beverages that can weaken the LES like chocolate, peppermint, fatty foods, coffee, soda pop and alcoholic beverages. Foods and beverages that can irritate a damaged esophageal lining, such as citrus fruits and juices, tomato products and pepper, should also be avoided. Elevating the head of the bed six inches may also be helpful.

Diagram of the Gastrointestinal Tract

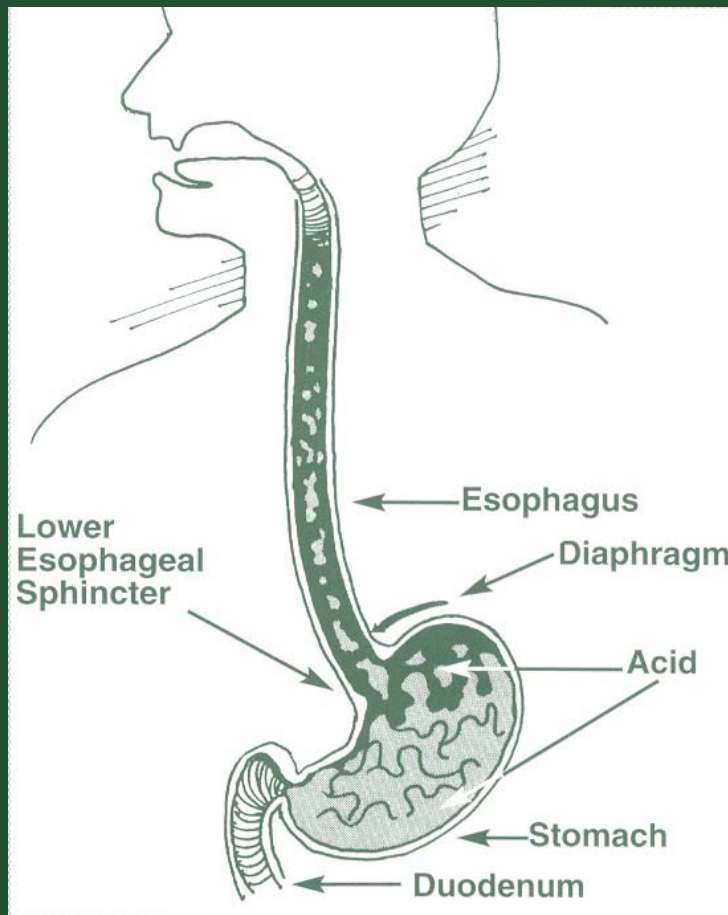


Photo from www.swgiassoc.com.

Decreasing meal portion sizes will also help control symptoms, and eating more than three hours before going to bed may lessen reflux by allowing the acid to decrease and the stomach to partially empty. Additionally, these lifestyle changes can assist in weight-loss which has been proven to reduce symptoms and incidence of GERD.

Those who suffer from occasional heartburn often benefit from the use of an antacid to neutralize the acid in the esophagus and stomach. Long-term use of antacids, however, can cause unwanted and potentially serious side effects. These side effects include diarrhea, altered calcium metabolism (a change in the way the body breaks down and uses calcium) and a build up of magnesium in the body. Having too much magnesium can be very dangerous for those with kidney disease. If antacids are needed for more than 3 weeks, a doctor should be consulted.

The general research consensus is that GERD is more of a problem for obese people because:

- Obese people are more sensitive to the presence of acid in the esophagus.
- Hiatal hernia is more common among the obese.
- Obese people have increased intra-abdominal pressure that displaces the LES and increases the gastroesophageal gradient (pressure differences).
- Vagal nerve function abnormalities associated with obesity may cause a higher output of bile and pancreatic enzymes which makes the refluxed stomach acids more toxic to the esophagus lining.

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For patients with more chronic heartburn and GERD symptoms, a doctor may prescribe medications to reduce acid in the stomach, allowing repair of any damage to the esophagus. These medicines include H2 blockers such as cimetidine, famotidine, nizatidine or ranitidine. Proton pump inhibitors (acid pump inhibitors), such as omeprazole, decrease or stop an enzyme necessary for acid secretion. Other medicines, including bethanecol and metoclopramide increase the muscle tone of the LES and quicken emptying of stomach contents by increasing the rate of movement in the gastrointestinal tract.

If symptoms persist despite these standard treatments, the patient may require a more complete diagnostic evaluation to determine if more advanced medical interventions may be necessary. In such cases, surgical treatment may become an option. Surgical treatments specifically meant for GERD issues exist, most particularly meant to repair the LES pressure. Fundoplication is such a surgical procedure that increases pressure in the lower esophagus. However, surgery should not be considered until all other measures have been tried.

Obesity Surgery and GERD

Studies are finding that among the obese and morbidly obese, however, that the surgical treatment for their obesity is proving to be a better intervention for their GERD than surgical procedures traditionally targeted at the GERD problem. Numerous studies have shown that gastric bypass procedures work very well to control, and even eliminate GERD, in both patients who have had a previous GERD surgery, and those who have not. A

University of Pittsburgh School of Medicine study found that gastric bypass is effective in controlling GERD in patients who had previous anti-reflux surgery and who have subsequently gained significant weight, as well as in obese patients who have had previous anti-reflux surgery but have continued to have problems with GERD.

This is good news for those morbidly obese patients who are choosing gastric bypass to help control their weight. “Up to 55 percent of morbidly obese patients presenting for laparoscopic Roux-en-Y gastric bypass have symptoms of chronic GERD,” said Dr. James D.

Luketich, professor of surgery, chief of the division of thoracic & foregut surgery, co-director of the Mark Ravitch/Leon C. Hirsch Center for Minimally Invasive Surgery at the University of Pittsburgh.

Other studies pre-dating the 2004 University of Pittsburgh study have come to similar conclusions, and many studies conducted since then confirm the findings. A 1999 study published in the medical journal *Obesity Surgery* concludes that the benefits of weight-loss surgery on GERD are not limited solely to gastric bypass operations. This study determined that the use of an adjustable gastric banding procedure (most commonly known by the brand name Lap-Band®) was effective in controlling the GERD symptoms and weight in the morbidly obese patients who participated in the study, even the three patients who were diagnosed with pre-surgery hiatal hernias.

But, gastric bypass surgery or adjustable gastric banding may not only be an option for the morbidly obese. According to a 1998 study performed by Dr. Ken Jones, a pioneer in gastric bypass surgery, Roux-en-Y gastric bypass performed in patients with chronic GERD, but who were less than 100 pounds over weight, or had a BMI less than 35, showed both a drastic drop in GERD symptoms and a reduction in weight into the normal weight ranges for each patient reported. This study concluded that esophagitis is truly a co-morbid condition of severe obesity and should be accepted as such, thus providing many morbidly obese with the medically necessary reason to have the surgery. It also concluded that use of Roux-en-Y gastric bypass to treat chronic esophagitis in the less than morbidly obese patient was a safe and effective treatment.

Conclusion

GERD is a common medical issue that is on the rise. For those who suffer from heartburn with one or more of the GERD symptoms, this is a wake-up call from your body to change your diet and lifestyle because your body isn't happy and it can't function properly given the current conditions. GERD can be treated and even eliminated.

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To view the references cited in this article, please visit the January 2007 issue of "OAC News" on the OAC Web site at www.obesityaction.org.

OAC membership

Membership in the Obesity Action Coalition allows the patient voice to be heard in the fight against obesity. By building a coalition of members, consisting of patients, family members and professionals, the OAC strives to educate and advocate on behalf of the millions who are affected by obesity. Membership benefits include:

- Official charter membership card/certificate
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