

Endoscopic Treatment of Gastroesophageal Reflux Disease

Julia J. Liu, M.D. and John R. Saltzman, M.D., FACP
Brigham and Women's Hospital
Boston, Massachusetts

What is gastroesophageal reflux disease?

Gastroesophageal reflux disease or GERD is a condition in which stomach contents enter into the esophagus (called reflux). The most common reflux symptoms are heartburn or regurgitation. Reflux may lead to damage to the lining of the esophagus. The usual cause of GERD is a weak or incompetent valve muscle at the bottom of the esophagus (lower esophageal sphincter) that normally prevents stomach contents from entering the esophagus. GERD can lead to complications including ulcers in the lining of the esophagus, bleeding, narrowing of the esophagus that can cause difficulty swallowing (a stricture) and a condition called Barrett's esophagus, which has a risk of turning into cancer of the esophagus.

What are the common treatments for gastroesophageal reflux disease?

The most common treatments for GERD are making lifestyle changes and avoiding foods that can cause reflux. Lifestyle changes include weight loss, stopping cigarette smoking and diet changes (avoiding the foods that cause symptoms of GERD such as acidic drinks, tomato sauce, spicy foods, peppermint, and chocolate as well as avoiding eating for 2 to 3 hours before lying down). High fat foods can lead to reflux symptoms by slowing down stomach emptying. A number of medications can worsen reflux, such as theophylline. There are several prescription medications available to treat GERD. These medications can control symptoms in most people. Many of the acid reducing drugs are now available over the counter. There is a surgical procedure that can control symptoms in the appropriate patient. Please see the web page entitled...

What are the endoscopic treatments for gastroesophageal reflux disease?

There is now technology available that allows physicians to perform various procedures that can treat the symptoms of GERD with an endoscope. An endoscope is an instrument with a lighted camera attached to the end of a flexible tube. It can be passed through the mouth into the esophagus and stomach to evaluate the inside structure of the digestive tract. These therapies are not considered to be surgery in the usual sense, as there is no cutting on the outside of the body; all the changes are made on the inside the body using the endoscope. Entry is made through an existing opening (the mouth). It is an outpatient



procedure meaning patients will be able to go home the same day, though they may feel tired from the sedating medications and driving is prohibited the day of the procedure.

There are currently 2 types of endoscopic treatments for GERD: 1) Heat energy (Stretta) and 2) Sewing or suturing (EndoCinch and the Plicator). The Food and Drug Administration have approved these for clinical use. In addition, a number of other treatments are now being studied or under development that may become available in the near future.

How do the endoscopic treatments of gastroesophageal reflux disease work?

In general, it is believed that the valve muscle at the bottom of the esophagus is strengthened by endoscopic GERD treatments. Changes in the valve muscle region can reduce the number of episodes of stomach contents refluxing into the esophagus.

Who should be considered for an endoscopic treatment of gastroesophageal reflux disease?

There are no clear recommendations for which patients are best suited for an endoscopic treatment of GERD. Experience with surgery for GERD shows that patients with the typical GERD symptoms of heartburn and regurgitation and who respond to medications have the best results. Most studies on the endoscopic treatments for GERD have been performed in these types of patients. Patients who do not wish to take medications long term, and do not want to undergo surgery, should talk to their doctor about the possibility of endoscopic treatment. Patients with Barrett's esophagus, the very overweight, those with hiatal hernias greater than 2 centimeters in size, symptoms other than heartburn and regurgitation (chest pain, hoarseness, cough), or those with symptoms that do not respond completely to medications are not good candidates for endoscopic treatment as they have not been well studied.

Gastroesophageal reflux disease is a very common disorder, and medical therapy is very safe. Concerns about endoscopic treatment modalities are the limited safety data and unclear long-term effectiveness in relieving symptoms. Endoscopic treatments can result in serious complications, including death. Therefore, it is unclear at this time, who is the ideal candidate for these procedures. Many gastroenterologists have chosen not to perform these procedures so they are limited in availability.

What are the diagnostic tests done before the endoscopic anti-reflux procedure?

Patients should go through a complete evaluation for GERD with several tests prior to the endoscopic treatment procedure. This evaluation is similar to patients who are being



considered for traditional surgery for GERD. The exact evaluation will depend on your symptoms and the judgment of your physicians to determine which of the tests described below may be needed. The tests that are commonly done are:

- Upper endoscopy: a procedure in which a flexible tube with a lighted camera attached to the end is passed through the mouth into your stomach to look at the inside of the esophagus, stomach and part of the small bowel.
- Ambulatory pH study (an acid test of your esophagus a test to measure acid exposure in the esophagus): this test is available with two types of pH sensors
 - A small plastic tube is passed into the end of your esophagus through your nose and the acid in the esophagus is measured for a day (24 hours).
 - A small capsule (BRAVO capsule) is attached to the lining of the esophagus, typically during your endoscopy; the capsule transmits acid recordings of the esophagus to a beeper-like device that you wear for 2 days (48 hours). The recording device is then returned for analysis.
- Esophageal manometry: a procedure where the movement and the pressure of the esophagus is measured. This is done by passing a small plastic tube into the end of your esophagus through your nose.
- Barium swallow: an x-ray study of the esophagus in which barium is swallowed and x-ray pictures of the esophagus are taken to evaluate the esophagus.
- Gastric emptying scan: a study where solid food or a liquid sprayed with radioactive materials (that can be picked up by a special radiation counter) is swallowed and the emptying of the stomach is recorded.

These tests are designed to help your physician to evaluate your esophagus and stomach to see if you would be a suitable candidate for the endoscopic GERD treatment. Alternatively, other treatment approaches may be better for you (such as continued medical therapy or surgery) and can be discussed with your physician.

What are the success rates for the endoscopic therapies for gastroesophageal reflux disease?

Endoscopic treatment of GERD has been available for just a few years. Initial response rates for the endoscopic treatments appear to be very good. Symptom improvement and reduction or elimination of medication use has been seen in the range of 60% to 80% 6 months to a year after the procedure. The studies to date suggest that after 2-year the response rates (off medications without symptoms) of the currently available treatment options are reduced and many will require restarting medication.. For anti-reflux surgery, the 2-year success rate is 80% to 90%. Long-term follow up information for endoscopic treatments for GERD is not yet available so patients should not expect the procedure to last indefinitely. This procedure often reduces the amount of acid reflux into the esophagus, but does not completely restore it to the normal level.



How safe and tolerable are endoscopic therapies for gastroesophageal reflux disease?

The safety profiles of all approved endoscopic treatments have been in general good. However, there have been some serious complications that have been reported. For the heat energy device (Stretta), the side effects reported include fever, chest pain, bleeding, pneumonia and a few deaths. For the endoscopic suturing treatment (EndoCinch and the Plicator), the reported complications are bleeding, pneumonia, and a tear in the lining of the stomach or esophagus (perforation). These tears may require surgery to repair them.

What do these procedures involve? What happens during the procedure?

During the procedure, patients are sedated and their physicians decide on the type of sedation used. This can range from conscious sedation (patients feel drowsy but remain awake and not anesthetized) to general anesthesia. The endoscope is then passed into the stomach and for all procedures; the device will be then passed to the valve region. For the Stretta procedure, the Stretta catheter will be passed down to the flap valve area, the balloon is then inflated and the heat energy is passed through the area. For the endoscopic suturing procedure, the suturing device will be attached to the end of the endoscope and sutures will be placed at the flap valve area.

What should I expect the day of the procedure?

Immediately after the procedure, patients may experience symptoms related to the procedure such as sore throat, drowsiness, nausea, and vomiting that may be related to the sedation. If the procedure goes well you will be discharged the same day. However, if you develop any of the following symptoms you should contact your physician immediately; fever, chills, vomiting of blood, chest pain, shortness of breath, or any passage of a black bowel movement or bright red blood in the stool. In addition if you have significant light-headedness or if you faint/black-out, you need to see a physician immediately. These symptoms may be related to complications of bleeding, infection or perforation of the esophagus.

What should I expect after the endoscopic gastroesophageal reflux disease treatment procedure?

The majority of patients report improvement of their heartburn symptoms within the first month. Some patients report improvement of their heartburn symptoms gradually over the next few months. Since other symptoms of GERD have not been well studied no comment can be made on whether or not they will improve. There are no standard



recommendations for medications or diets after the treatment procedure. Each centers will have individual recommendations for their patients. Please consult your physician for instructions on diet and medication use following the endoscopy treatment.

Am I a candidate for an endoscopic gastroesophageal reflux disease treatment procedure and if I am a candidate, which treatment should I have?

Medical therapy is the most common treatment for patients with GERD, and is successful in most patients. Medical therapy is very well tolerated long term with few complications. As such a minority of patients will need to consider alternatives. Endoscopic therapy for GERD is performed only in selected centers, so please check with your physician to see if you are a candidate for an endoscopic GERD treatment procedure. If after discussion of the pros and cons of the available procedures you wish to proceed you should be aware that there is not one endoscopic GERD treatment procedure that has shown to be significantly better than other endoscopic treatment and that these treatments have not been compared to medical or surgical therapy. The best procedure for you will depend on your history, symptoms and results of your diagnostic tests.

