# ADVANCES IN GERD

Current Developments in the Management of Acid-Related GI Disorders

Section Editor: Joel E. Richter, MD

## Surgical Therapy in Patients With Large Type 3 Hiatal Hernia

Jeffrey L. Ponsky, MD
Oliver H. Payne Professor and
Chairman, Department of Surgery
Case Western Reserve University
Surgeon-in-Chief, University Hospitals
Case Medical Center
Cleveland, Ohio

**G&H** How do the various manifestations of hiatal hernia differ?

**JP** Type 1 hiatal hernia is also known as a small sliding hiatal hernia, in which just a small portion of the cardia of the stomach slides upward above the diaphragm into the chest. This type of hernia is occasionally associated with a weakening of the lower esophageal sphincter and some gastroesophageal reflux, but it is usually asymptomatic.

Type 2 hiatal hernia is a true paraesophageal hernia. It involves the normal length of the esophagus entering the abdomen, with a portion of the stomach, usually the fundus, rolling or sliding up alongside the esophagus through the esophageal hiatus into the chest. This type of hernia is not as common. It is very likely to incarcerate and cause symptoms of strangulation, chest pain, and so on. However, in this hernia, the esophageal length is maintained, and only the stomach fundus rolls up into the chest.

The type 3 hiatal hernia can be of variable size. In this hernia, the esophagogastric junction, the fundus of the stomach, and, in many cases, most of the stomach migrates into the chest. In this situation, the stomach may actually twist on itself, or volvulize, in either an organoaxial or mesenteroaxial fashion. Regardless of the two methods, the point is that the organ twists on itself and can become not only obstructed, but it can undergo strangulation, develop gangrene, and die.

Finally, the type 4 hiatal hernia is the same as the type 3 hiatal hernia, except that another organ (such as the spleen, colon, or pancreas) may migrate to the chest along with the stomach.

**G&H** What are the proposed causes of type 3 hiatal hernia and the usual presenting symptoms?

**JP** Type 3 hiatal hernias are an intriguing condition. They often occur, though not always, in more elderly patients (ie, in the sixth and seventh decades of life) compared to other types of hiatal hernias. Type 3 hiatal hernias are often associated with kyphosis or the barrel-chested nature of a patient. These hernias are often caused by the bellow's effect of the negative intrathoracic pressure, which can pull the stomach up into the chest.

The symptoms that type 3 hernia patients often complain of differ from the symptoms of hiatal hernias that cause reflux. In most cases, the former group of patients complain of difficulties swallowing, regurgitation of undigested food, pain in the chest, and shortness of breath after eating. These patients may present with anemia that has no other potential cause (other than a hernia that develops small ulcerations).

**G&H** At what point is surgery considered for treatment of type 3 hiatal hernia?

**JP** The most important treatment question for these patients is, "When should you operate?" In the past, we used to believe that the mere presence of a type 3 hiatal hernia was an indication for operation because of the

serious and life-threatening effects of gangrene. However, more recent studies have suggested otherwise; for example, in 2002, a study by Rattner and associates at Massachusetts General Hospital demonstrated that, in most cases, patients with type 3 hiatal hernia who were completely asymptomatic (ie, who had no pain, no shortness of breath, no anemia, no regurgitation, no weight loss, and so on) could be followed and left untreated until they developed symptoms, at which point they required repair of their hernia. In other words, the patients developed symptoms before they developed severe complications.

On the other hand, surgical treatment should be considered if a patient presents with any of the following symptoms: shortness of breath, pain, weight loss despite eating, or regurgitation. These symptoms may indicate volvulus of the stomach and should prompt consideration of surgery to avoid the consequences of strangulation.

**G&H** What are the various surgical options in these patients?

**JP** Surgical therapy is the most common treatment for type 3 hiatal hernia. Although there are many surgical options for these patients, nowadays the procedure is usually performed laparoscopically, rather than via open surgery (though open surgery is still a feasible option). In surgery, the goal is to pull the stomach down into the abdomen and close the defect in the chest and diaphragm to stop the herniation. Although the operation is not perfect and there may be a significant recurrence rate (as high as 40% in one study), most patients report almost no symptoms after surgery, even if they experience a small recurrence. Thus, in most cases, surgical treatment is fairly effective.

**G&H** How is recurrence treated in these patients?

**JP** Most of the recurrences that do occur are caused by the same forces that created the initial hernia and often need no treatment.

**G&H** Do any of the following factors affect patient selection for surgery or effectiveness of the operation: age of the patient, severity of the hiatal hernia, or presence of gastroesophageal reflux disease?

**JP** It is important to note, first of all, that the most imperative indication for surgery is evidence of strangulation of the stomach. Most of these patients are elderly, but they appear to do very well with the surgery. My colleagues and I have conducted a study evaluating a group of patients over the age of 80 and found that these patients appeared to do as well as patients under the age of 80. Many gastroenterologists and internists mistakenly think that these patients are too old to undergo surgery and that the operation is too risky to be performed because of their age. However, since the advent of the laparoscopic approach of hernia repair, these patients do very well and the risk of surgery is much lower than the risk of keeping a symptomatic hernia.

Other studies have shown that the severity of the hernia does not appear to have much effect. Likewise, gastroesophageal reflux disease does not have an impact in this setting. Some of these patients may have gastroesophageal reflux disease, but it is not an issue in terms of outcome.

**G&H** Are there any significant complications or concerns associated with these operations?

**JP** The most significant problems with this surgery may be cardiopulmonary, as many of the patients are elderly. Bleeding and esophageal injury are rare problems as well. Most patients go home within 2 days of the operation. Because these are generally older patients, they may be weak and fatigued for several weeks (sometimes up to 6 weeks) following the operation. Eating after the operation may be difficult for some time; patients may experience some hesitancy in swallowing foods, but this is usually only temporary. Nevertheless, this is a major operation, and physicians always have to be aware of the possible need for conversion from a laparoscopic procedure to an open operation, as well as the occasional need to give blood. There is also a constant possibility of injury to the esophagus during the operation, though this is fairly rare.

**G&H** Are there any alternatives to surgical treatment?

**JP** Surgery is the most effective treatment for symptomatic patients, unless they are so unfit for surgery that they would likely do poorly. For example, some contraindications to this surgery include a weak heart or blood clotting abnormalities. In these situations, there are several alternative treatments, though not as effective as surgery, such as placing a gastrostomy tube into the stomach, which can sometimes be performed endoscopically. These treatments are not as durable or effective in the long term as surgery.

## G&H What research needs still exist in this area?

**JP** We are now examining methods for reducing the recurrence rate by supporting the closure of the hernia defect with biological materials such as mesh derived from porcine intestine. The question is whether the biological material would help reinforce the hernia repair by strengthening the collagen at the hiatus.

## Suggested Reading

Stylopoulos N, Gazelle GS, Rattner DW. Paraesophageal hernias: operation or observation. *Ann Surg.* 2002;236:492-500; discussion 500-501.

Poulose BK, Gosen C, Marks JM, et al. Inpatient mortality analysis of paraesophageal hernia repair in octogenaria. *J Gastrointest Surg.* 2008;12:1888-1892.

Rosen M, Ponsky J. Laparoscopic repair of giant paraesophageal hernias: an update for internists. *Cleve Clin J Med.* 2003;70:511-514.

Stylopoulos N, Rattner DW. The history of hiatal hernia surgery: from Bowditch to laparoscopy. *Ann Surg.* 2005;241:185-193.

Ponsky J, Rosen M, Fanning A, Malm J. Anterior gastropexy may reduce the recurrence rate after laparoscopic paraesophageal hernia repair. *Surg Endosc.* 2003;17:1036-1041.

Kercher KW, Matthews BD, Ponsky JL, et al. Minimally invasive management of paraesophageal herniation in the high-risk surgical patient. *Am J Surg.* 2001;182:510-514.