

Review Article

Hiatal hernia: diagnostic and therapeutic approach

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ABSTRACT

Hiatal hernia is a common condition of the digestive system characterized by displacement of the stomach into the chest through the esophageal hiatus of the diaphragm. As research progresses and more scientific evidence accumulates, continued advances in the surgical approach to hiatal hernia are expected to occur. This will allow for a better understanding of the disease's pathophysiology and the development of new surgical techniques and approaches that further improve the long-term outcomes and quality of life of patients with hiatal hernia.

Keywords: Hiatal hernia, Diagnosis, Treatment

INTRODUCTION

Hiatal hernia is a common condition of the digestive system characterized by displacement of the stomach into the chest through the esophageal hiatus of the diaphragm. Although in many cases it can be asymptomatic, in others it can cause symptoms such as heartburn, acid regurgitation, chest pain and difficulty swallowing.¹

Hiatal hernia can have a significant impact on patient's quality of life and in some cases can lead to severe complications such as chronic gastroesophageal reflux, esophagitis, Barrett's esophagus, and even the development of esophageal cancer, volvulus and ischemia.²

The treatment of hiatal hernia is based on the management of symptoms and the prevention of associated complications. While conservative treatment with lifestyle changes and medications can be effective in many cases, in some patients it may be necessary to resort to the surgical approach. The surgery seeks to reduce the size of the hernia, restore normal anatomy and strengthen the esophageal hiatus to prevent gastroesophageal reflux.³

HIATAL HERNIA

Definition

Hiatal hernia is defined as the displacement of the stomach into the chest through the esophageal hiatus of the diaphragm. The esophageal hiatus is a normal opening in the diaphragm that allows passage of the esophagus from the thorax into the abdomen. However, in some cases, the esophageal hiatus may weaken or enlarge, allowing part of the stomach to move upward. Depending on the position and anatomy of the hernia, it is classified into sliding hernia and paraesophageal hernias.³

Sliding hernia is the most common form and is characterized by sliding of the esophagus and stomach into the chest. In this condition, the gastroesophageal junction shifts upward, which may predispose to gastroesophageal reflux and its complications. On the other hand, paraesophageal hernia involves the displacement of the stomach into the chest next to the esophagus, while the gastroesophageal junction remains in its normal position. This form of hernia can be more dangerous, as there is a risk of strangulation or volvulus of the stomach, which

can cause obstruction and compromise blood flow to the herniated tissue.²

In relation, hiatal hernias can be classified into four types.²

Type I are pure sliding hernias, where the gastroesophageal junction ascends above the diaphragm. It is the most common type, representing 85-95% of cases.^{1,2}

Type II are paraesophageal, where the gastroesophageal junction remains at its normal position and the fundus migrates into the thorax cavity in contact with the esophagus. It's the least common among all types.^{1,2}

Type III is a combination of type I and type II hernias. The gastroesophageal junction and the fundus migrates above the diaphragm.²

Type IV is the herniation of abdominal organs other than the stomach into the thorax.¹

Types II to IV are all considered paraesophageal hernias.^{2,3}

The etiology of hiatal hernia might be multicausal. It has been related to collagen disorders and is also associated with increased intraabdominal pressure. Elderly, obesity, esophageal and bariatric surgery are considered risk factors.^{1,4}

Diagnosis

The diagnosis of hiatal hernia is based on clinical evaluation, the patient's symptoms, and diagnostic test findings. A detailed medical history and thorough physical examination are essential to evaluate gastrointestinal symptoms and determine the presence of signs suggestive of hiatal hernia. The majority of hernias are asymptomatic and its diagnosis is performed incidentally. Sliding hernias are more related to acid reflux symptoms like heartburn, regurgitation, dysphagia and chest pain. Paraesophageal hernias can simulate these symptoms and in case of acute complications manifest as bleeding and obstruction. Since symptoms can vary and overlap with other conditions, performing tests to confirm the diagnosis is important. Contrast studies and endoscopy are the main evaluation studies when assessing hiatal hernias.^{1,2}

Endoscopy is a crucial tool in the diagnosis of hiatal hernia. It allows direct visualization of the esophagus, stomach, and esophageal hiatus, helping to identify the presence of the hernia, size and type, and assess the severity of associated complications, such as esophagitis or Barrett's esophagus. In addition, biopsies may be obtained during endoscopy to rule out precancerous changes in the esophagus.^{2,3}

In addition to endoscopy, imaging tests may be used to evaluate the presence and extent of the hiatal hernia. A chest X-ray may reveal the presence of a hiatal hernia, although its usefulness may be limited in some cases. In

radiography, hiatal hernias can be identified as an air-fluid level in the chest. Barium swallow can evaluate the hernia's size and location of the gastroesophageal junction. Proven tests, such as esophagogastroduodenal transit or computed tomography, offer a more detailed visualization of the hernia and can help evaluate the size, anatomical features, and complications such as volvulus.⁴

Esophageal manometry is relevant in assessing the level of diaphragmatic crura and the location of the lower esophageal sphincter. The separation between these two structures of 2 cm or more is a definitive finding of a hiatal hernia. Manometry is also relevant before undergoing surgical repair to rule out motor disorders.^{2,4}

Treatment

Medical treatment can be effective in those patients with reflux-related symptoms. The strategies are similar to those implemented in gastroesophageal reflux disease such as lifestyle modifications (i.e., elevation of the head of the bed and avoidance of trigger foods) and proton pump inhibitors.⁴

The main goal of surgery is to reduce the size of the hernia, correct abnormal anatomy, and prevent gastroesophageal reflux.⁵

Surgery is indicated in those patients with type I hernia and concomitant GERD. Thereby surgical repair should be associated with a fundoplication. In the absence of symptoms, surgery might not be necessary and the decision must be individualized. Although progression from asymptomatic to symptomatic paraesophageal hernias is calculated to be approximately 14% per year, elective surgical repair in asymptomatic patients is not widely indicated and patients' characteristics must be brought into consideration. When symptomatic or in case of acute complications, all paraesophageal hernias should be repaired.^{2,5}

Laparoscopic repair and fundoplication is the most commonly used surgical technique for the treatment of hiatal hernia and is currently considered the standard. It involves wrapping a portion of the stomach around the esophagus and fixing it in place to reinforce the esophageal hiatus. During this procedure, a hernia reduction can be performed and any defects in the diaphragm can be repaired. Fundoplication can be performed in different techniques, such as Nissen fundoplication, Toupet fundoplication or Dor fundoplication, depending on the patient's individual characteristics and the surgeon's preferences.⁴

In addition to fundoplication, other procedures may be performed during hiatal hernia surgery, such as repair of associated eventrations, or correction of any other anatomical abnormalities present. These additional procedures are performed with the goal of restoring normal anatomy and reducing the risk of hernia recurrence.^{5,6}

Other considerations about surgical repair in order to minimize recurrence include sac reduction, tension-free hiatal closure and ensuring 2-3 cm of intraabdominal esophageal length. Gastropasty can be performed when the length of the esophagus does not allow the mobilization of the gastroesophageal junction into its normal intraabdominal placement. Nonetheless, this procedure must be carefully considered as the risk of leak and postoperative dysphagia might increase. Gastropexy can also be considered in order to reduce recurrence in selected cases.^{2,7}

Although the use of a mesh in hiatal hernia repair when compared with suture cruroplasty has been shown to decrease short-term recurrence, its long-term benefits are not yet established and must also be considered the increased risk of infection and esophageal penetration when they are used.^{7,8}

Postoperative care should be focused on controlling intra-abdominal pressure, since its elevation could mean failure and recurrence. To achieve this, vomiting and belching should be strictly controlled and progression from liquids to solid diet must be slow.²

DISCUSSION

The surgical approach to hiatal hernia has seen significant advances in recent decades with the introduction of laparoscopic surgery. The laparoscopic technique has largely replaced open surgery due to its numerous benefits, such as smaller incisions, less postoperative pain, a shorter hospital stay, and faster recovery.⁹

Several studies have demonstrated the efficacy and safety of laparoscopic fundoplication in the treatment of hiatal hernias. Significant improvement in gastroesophageal symptoms, such as heartburn and acid regurgitation, as well as a reduction in the need for gastroesophageal reflux medications, has been observed. In addition, a high long-term success rate and a low rate of hernia recurrence have been reported.⁹

However, proper selection of patients for surgery is crucial for optimal results. Several factors should be considered, such as the severity of symptoms, response to medical treatment, the presence of complications such as esophagitis or Barrett's esophagus, the patient's age, and the presence of comorbidities. In addition, it is essential that patients are informed about the potential risks and complications of surgery, such as dysphagia, trapped intestinal gas, esophageal injury, and hernia recurrence.^{9,10}

In addition to laparoscopic repair, other surgical techniques for the treatment of hiatal hernias have been developed. These include robotic surgery, the open abdominal repair technique, and the thoracic route repair technique. However, more studies are required to evaluate the efficacy and safety of these techniques compared to laparoscopic fundoplication.^{11,12}

CONCLUSION

Hiatal hernia is a common condition of the digestive system that can lead to bothersome symptoms and serious complications. The surgical approach, especially laparoscopic fundoplication, plays a crucial role in managing this condition. Surgery effectively reduces the size of the hernia, restores normal anatomy and prevents gastroesophageal reflux.

However, it is essential to make a careful evaluation of each patient and consider factors such as the severity of symptoms, presence of complications, age, and comorbidities before opting for surgery. Detailed discussion of risks and benefits with the patient is critical to making an informed decision.

Further long-term studies and appropriate patient follow-up are required to assess the efficacy and durability of surgical outcomes and detect potential long-term complications. In addition, it is necessary to continue researching and refining existing surgical techniques and exploring new alternatives to further improve patient outcomes and experience.

In conclusion, the surgical approach to hiatal hernia has proven to be an effective option for managing this condition. Laparoscopic repair has become the standard technique due to its significant benefits and favorable long-term results. However, it is essential to comprehensively evaluate each patient and consider individual factors before deciding on surgical treatment. Shared decision-making between patient and physician is critical to achieving the best outcomes and ensuring patient satisfaction.

As research progresses and more scientific evidence accumulates, continued advances in the surgical approach to hiatal hernia are expected to occur. This will allow for a better understanding of the disease's pathophysiology and the development of new surgical techniques and approaches that further improve the long-term outcomes and quality of life of patients with hiatal hernia.

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