ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 8| August 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

HIATAL HERNIA, PANORAMIC REVIEW OF DIAGNOSIS AND MANAGEMENT

Ana Paula Peralta Haro[1], Paola de Los Ángeles Montero Abad[2], Esteban Eugenio Iñiguez Avila[3], David Alberto Ortiz Dumas[4], Alfredo Mickael Espinoza Suco[5], Juan Carlos Cabrera Muñoz[6], Christian Andrés Pesantez Lozada[7], Jhomira Patricia Medina Cambizaca[8], Karina Noemí Contreras García[9], Bryam Esteban Coello García[10]

[1]Postgraduate Doctor in General Surgery at Faculdade de Ciências Médicas Minas Gerais. Belo Horizonte - Brasil. ORCID https://orcid.org/0009-0008-3290-8239
[2]Postgraduate Doctor in General Surgery at Faculdade de Ciências Médicas Minas Gerais. Belo Horizonte - Brasil. ORCID https://orcid.org/0009-0009-4127-0369
[3]General Practitioner in "Centro de salud familiar Los Quillayes". Santiago- Chile ORCID https://orcid.org/0000-0001-7996-0001
[4]General Practitioner in Independent Practice, Faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0005-5029-2632
[5]General Practitioner in "Ministerio de Salud Pública",faculty of Medical Sciences, Universidad de Guayaquil. Guayas- Ecuador ORCID https://orcid.org/0009-0007-4032-0905
[6]General Practitioner in "Ministerio de Salud Pública",faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0009-5374-2327
[7]General Practitioner In Independent Practice, Faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0009-6805-2847
[8]General Practitioner in Independent Practice, Faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0000-9413-527X
[9]General Practitioner at "Hospital Básico de Gualaquiza - Misereor". Morona Santiago - Ecuador ORCID: https://orcid.org/0000-0001-5899-1618
[10]Postgraduate Doctor in Orthopedics and Traumatology at Faculdade de Ciências Médicas Minas Gerais. Belo Horizonte - Brasil. ORCID https://orcid.org/0000-0003-2497-0274
Corresponding Author: *Bryam Esteban Coello García Address: Rua Tiradentes 266.Campo Belo. Minas Gerais. Brasil Postal Code: 37270-000*

Article DOI: https://doi.org/10.36713/epra14125
DOI No: 10.36713/epra14125

SUMMARY

Introduction: *Hiatal hernia (HH) occurs frequently in the population, characterized by various non-specific symptoms, however most of these symptoms are found to be related to gastroesophageal reflux disease. A hiatal hernia is said to be a medical condition in which the upper portion of the stomach or other internal organ protrudes through an opening in the diaphragm.*
Objective: *to detail current information related to hiatal hernia, description, etiology, classification, diagnosis, differential, prognosis, management and complications.*
Methodology: *a total of 38 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 27 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: hiatal hernia, hiatal repair, diagnosis, management.*
Results: *The incidence of symptomatic cases of hiatal hernia is related to the diagnosis of gastroesophageal reflux disease (GERD). The incidence of hiatal hernias increases with age. About 55%-60% of individuals over 50 years of age have a hiatal hernia. However, approximately 9% have symptoms and it depends on the type and competence of the lower esophageal sphincter (LES). The largest percentage of these hernias are type I sliding hiatal hernias. Type II, paraesophageal hernias, represent approximately 5% of hiatal hernias in which the LES remains stationary, with the stomach*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 8| August 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

protruding superiorly to the diaphragm. There is also a high prevalence in women, attributable to increased intra-abdominal pressure during pregnancy. The estimated overall 30-day mortality rate in relation to antireflux surgery is approximately 0.19%.

Conclusions: *Hiatal hernia (HH) is relatively common in the general population. It is caused by increased intra-abdominal pressure, leading to protrusion of the stomach and other abdominal viscera into the mediastinum. Hiatal hernias can be congenital or acquired. The current anatomical classification of hiatal hernias consists of four types or categories, each with its different characteristics. Diagnosis of hiatal hernia can be challenging because of the change in the anatomy of the esophagogastric junction on swallowing, breathing and movement. The pre-surgical study of the individual supports the diagnosis and the exclusion of other pathologic entities to properly direct the surgical intervention. The success of hiatal hernia surgery can be measured by the improvement of symptoms, such as esophageal acid exposure, complications and the requirement for reoperation. Complications of surgery are usually mild and are not directly linked to the surgery itself.*

KEY WORDS*: surgery, hernia, hiatus, diagnosis, management.*

INTRODUCTION

Hiatal hernia (HH) is common in the general population and is characterized by a variety of nonspecific symptoms, most of them linked to gastroesophageal reflux disease. Treatment sometimes becomes challenging and depends on the presence of complications(1).

A hiatal hernia is a disorder in which the upper part of the stomach or other internal organ protrudes through an opening in the diaphragm. The diaphragm is a muscle involved in breathing and has a small opening, a hiatus, through which it crosses the esophagus before joining the stomach; this connection is known as the gastroesophageal junction (GEJ). In a hiatal hernia, the stomach propels through this opening into the chest and involves the lower esophageal sphincter (LES). This laxity of the LES can allow matter inside the stomach as well as acid to back up into the esophagus and lead to gastroesophageal reflux disease (GERD). Smaller hiatal hernias usually do not present symptoms, or if they do, they can be treated medically; larger hiatal hernias usually require surgical treatment(2,3).

In recent years, there have been advances in the area of hiatal hernia treatment, primarily in surgical treatment. However, there are many uncertainties for which no clear guideline updates have been made(1).

METHODOLOGY

A total of 38 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 27 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: hiatal hernia, hiatal repair, diagnosis, management.

The choice of the bibliography exposes elements related to hiatal hernia; in addition to this factor, a description, etiology, classification, diagnosis, differential, prognosis, management and complications of the disease are presented.

DEVELOPMENT

Description

Hiatal hernia (HH) is common in the general population. It is caused by increased intra-abdominal pressure, leading to protrusion of the stomach and other abdominal viscera into the mediastinum. Overweight and advanced age are essential risk factors in its formation. Other associated risk factors:

- History of esophageal surgery.
- Partial or total gastrectomy.
- Multiple pregnancies.
- Some disorders of the skeletal system are related to decalcification and bone degeneration.

The incidence of symptomatic cases of hiatal hernia is closely linked to the diagnosis of gastroesophageal reflux disease (GERD). The most typical manifestation shown in hiatal hernia is gastroesophageal reflux, noted by regurgitation and heartburn, more infrequent symptoms are epigastric or thoracic pain, dysphagia and sometimes chronic iron deficiency anemia. Major hernias may show with dysphagia, early satiety or regurgitation(4,5).

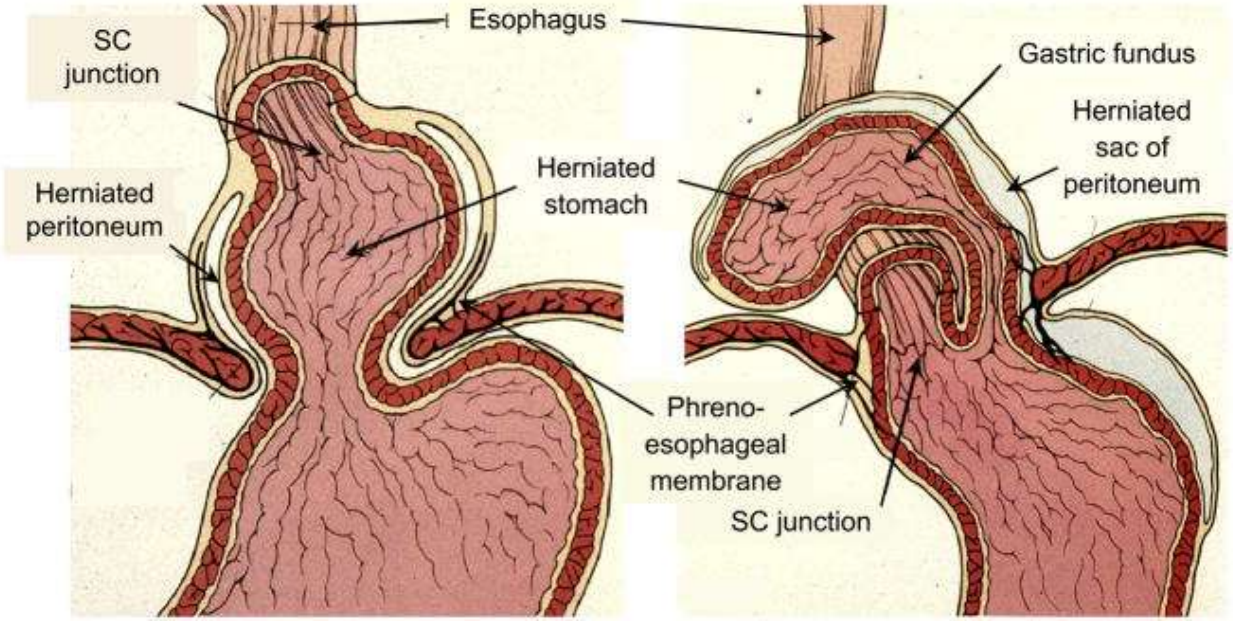
The esophageal hiatal orifice is an elliptical shaped opening through the diaphragm with its major axis in the sagittal plane where the esophagus and vagus nerves enter the abdomen. Of the openings through the diaphragm, only the esophageal hiatus is vulnerable to visceral herniation because it runs directly into the abdominal cavity, thus it is directly subjected to the pressure stresses between the two cavities. Uniquely, the esophagus does not hermetically saturate the hiatus as it requires expansion to accommodate the luminal contents.

Although there is some anatomical diversity, the most common anatomical pattern is that the hiatus is formed by elements of the right diaphragmatic pillar. The abutments arise from the tendinous fibers that arise from the anterior longitudinal ligament over the upper lumbar vertebrae. The pillars are directed upward in strong relation to the vertebral bodies throughout most of their course and are directed forward as they arch near the esophagus. Leaving the tendinous origin of the right pillar, the muscle fibers divide into 2 ribbon-like bundles divided by connective tissue. The dorsal bundle forms the left arm of the right pillar, while the ventral bundle becomes the right arm of the right pillar. As they approach the hiatus, the muscle fibers diverge and intertwine with each other in a scissor-like fashion, with the ventral bundle passing to the upper right and the dorsal bundle to the upper left. The lateral fibers of the hiatal branches insert into the central tendon of the diaphragm, the medial fibers bend toward the midline and separate in front of the esophagus.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 8| August 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

Usually, the esophagus is rooted to the diaphragm so that the stomach cannot be directed through the hiatus in the direction of the mediastinum. The fundamental structures in the restriction are the esophageal-paraesophageal ligaments, also known as the esophageal-paraesophageal membrane, as well as an aggregation of posterior elements where the vagus nerve and the roots of the left gastric vein and the left gastric artery are located. The esophageal brake membrane is created from the transversalis fascia in the lower area of the diaphragm and from the fused structures of the endothoracic fascia. This elastic membrane is introduced circumferentially into the esophageal musculature, one step away from the squamocolumnar junction, and is directed about 1 centimeter above the gastroesophageal connection. Thus, the axial location of the squamocolumnar junction is usually within or slightly distal to the diaphragmatic hiatus and circumferential to the crural diaphragm. The esophageal paraesophageal membrane also closes the potential space between the esophagus and the diaphragm. With age, the amount of elastic tissue in the esophageal diaphragm gradually decreases, increasing its laxity, as well as the risk of developing hiatal hernias(3,6,7).

Figure 1. Distinction between a sliding hiatal hernia (type I) and paraesophageal hernia (type II). With type I hernia the leading edge is the gastric cardia while with type two it is the gastric fundus. The SCJ maintains its native position in the paraesophageal hernia while it is displaced upward with the sliding hernia. Modified from Jaffee BM, Surgery of the esophagus. In Orlando RC Ed. Atlas of Esophageal Diseases, Second Edition. pp 223–242



Source: Kahrilas PJ, Kim HC, Pandolfino JE. Approaches to the diagnosis and grading of hiatal hernia(3).

Etiology and Epidemiology

Hiatal hernias can be congenital or acquired. They are more frequent in the elderly. Muscle weakness with loss of flexibility and elasticity with age is thought to influence the development of a hiatal hernia. This may cause the upper portion of the stomach not to return to its natural place under the diaphragm during swallowing. There are also other predisposing factors, such as high intra-abdominal pressure. This is often due to pregnancy, chronic constipation, obesity and chronic obstructive pulmonary disease (COPD). Trauma, age, previous surgeries and genetics often also play a role in the formation of hiatal hernia(2,8).

The incidence of hiatal hernias increases with age. About 55% to 60% of individuals over 50 years of age have a hiatal hernia. However, about 9% have symptoms, and it will depend on the type, as well as the competence of the lower esophageal sphincter. Most of these hernias are type I sliding hiatal hernias. Type II, paraesophageal hernias, only make up about 5% of hiatal hernias in which the LES remains stationary, but the stomach protrudes superior to the diaphragm. There is a higher prevalence in females, which could be due to the increased intra-abdominal pressure in pregnancy. Hiatal hernias are more common in Western Europe and North America and uncommon in rural Africa(2,9).

Classification

Traditionally, hiatal hernia was divided into sliding or paraesophageal. The current anatomical classification of hiatal hernias is divided into 4.

Type I hernias or sliding hernias: related to the symmetrical ascent of the stomach through the diaphragmatic pillar. They make up more than 90% of all cases of hiatal hernia and are associated with GERD, more severe degrees of esophagitis and Barrett's esophagus.

Type II hernias or pure paraesophageal hernias (PEH): a part of the gastric fundus is herniated through the diaphragmatic hiatus

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 8| August 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

next to the esophagus, while the gastroesophageal junction remains in its usual anatomical situation.

Type III hernias: a mixture between types I and II, both the fundus and the gastroesophageal junction are herniated through the hiatus. The fundus is superior to the gastroesophageal junction.

Type IV hernias consist of a distinct form of the stomach protruding through the thoracic cavity either colon, omentum, small intestine, peritoneum or spleen.

Types II-IV are called paraesophageal hernias (PEH); they are notable because of their likelihood of ischemia, obstruction or volvulus. The anatomical classification of hiatal hernia is primarily useful in approach, since the indications for surgical treatment are very different between sliding and paraesophageal hernias(1,5,10-12).

Diagnosis

Sometimes it can be challenging, since there are changes in the anatomy of the esophagogastric junction at the time of breathing, movement and swallowing. A well-done anamnesis and physical examination are imperative. The typical presentation leading to an assessment of hiatal hernia is gastroesophageal reflux disease (GERD). Affected individuals usually report heartburn and, on occasion, regurgitation. Some individuals present with extraesophageal symptoms, such as chronic cough or asthma. The presentation of regurgitation or these extraesophageal symptoms is usually a sign of progression of the disease. However, not all individuals with regurgitation present with GERD, so it is important to keep in mind whether the regurgitated food is digested or not(1,2).

Undigested food may represent another pathology such as achalasia or a diverticulum. Dysphagia is another drawback that occurs in advanced disease. It is usually secondary to mechanical obstruction. When present, it could be due to additional pathology, such as a tumor, diverticula, peptic stricture or a primary motor disorder. Physical examination in individuals with hiatal hernia and GERD infrequently supports the diagnosis. The presence of abnormal supraclavicular lymph nodes in individuals with heartburn and dysphasia may be suggestive of esophageal or gastric cancer, so evaluation is crucial(1,2,13).

The correct pre-surgical evaluation with appropriate complementary examinations in an individual with suspicion will allow confirming the diagnosis, as well as distinguishing from other pathological agents.

Endoscopy: it is essential for the evaluation of individuals with GERD and possible hiatal hernia who could benefit from surgery. It serves to differentiate from other pathological entities such as tumors, in addition to showing the presence of esophageal alterations. Esophagogastroduodenoscopy (EGD) has the advantage of real-time examination of the esophageal mucosa, stomach mucosa and duodenum, compared to barium radiography. It can detect Barrett's esophagus, Cameron's ulcer, erosive esophagitis and even lesions suspicious of malignancy. However, it often does not allow observation of a large hiatal hernia, especially when talking about organo-axial rotation of the stomach. Some authors say that it is a challenge to provide an accurate endoscopic description of massive hernias, so they consider that it should also be accompanied by an X-ray with barium swallow to better report the hernia. The literature also indicates that when performing endoscopy, it should be kept in mind that too much insufflation of air from the stomach can increase the size of the hernia.

Manometry: used to differentiate from primary motility disorders such as achalasia, which causes reflux symptoms. Individuals with primary motility disorders sometimes need a partial fundoplication rather than a Nissen fundoplication. Esophageal manometry provides important information about esophageal motility. A division between the crural diaphragm and the lower esophageal sphincter of 2 centimeters or greater is thought to be diagnostic of hiatal hernia. The literature states that esophageal manometry should be done primarily prior to surgery, because it can rule out achalasia or other motility disorders. Prior to fundoplication surgery, it is also essential to check the integrity of esophageal peristalsis, and this can be done by means of high-resolution manometry (HRM), since it provides a real-time pressure recording. However, placing the manometry catheter is complex; some authors show that the method is completed less than 50% of the time.

pH monitoring: The 24-hour pH test is the gold standard for the diagnosis of acid reflux. A probe is placed 5 centimeters above the gastroesophageal junction and the amount of acid involved is measured. A number named DeMeesterm score 14.7 or higher indicates significant gastroesophageal reflux. This test is not essential in diagnosis however it is useful in giving a quantitative analysis of reflux episodes, because it correlates the pH level with the individual's reflux afflictions; furthermore studies consider it a gold standard against exposure to acid reflux in the esophageal lumen.

Esophagography: provides important information in terms of the anatomy of the esophagus and proximal stomach. With this, anatomical abnormalities such as tumors or strictures can be appreciated. Barium radiography gives important information on the size of the herniated stomach and the location of the gastroesophageal junction. Most of the reviews agree that the barium swallow is still fundamental for the diagnosis of hiatal hernia, hiatal hernias can be diagnosed through this method if the axial hernia is larger than 2 centimeters. Video esophagram is also often recommended because it examines the transit of the bolus. It also supports the diagnosis of short esophagus. The main disadvantage is radiation exposure. The risks related to radiation exposure add up over time and are directly associated with the number of X-rays undergone.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 8| August 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

CT scanning is not routinely indicated, however it is used to obtain more information about the location and specific type of hiatal hernia. It is usually discovered incidentally while a CT scan is being performed for other purposes. Some authors recommend the use of CT to rule out perforation, pneumoperitoneum or pneumomediastinum. If a paraesophageal hernia is present, it is a method used to evaluate gastric volvulus(1,4,10,12,14-17).

Management

Treatment of hiatal hernias varies according to the type of hernia and the significance of the symptoms. The first management of an individual with typical GERD symptoms on an outpatient basis includes double doses of a proton pump inhibitor (PPI), which can be both therapeutic and diagnostic, because sustained symptoms usually require further evaluation. Since the advent of PPIs, the recommendation for surgical management has been transformed. Those individuals with evidence of severe esophageal alteration, either stricture, ulcer or Barrett's mucosa, should be considered as candidates for surgery. Also, those individuals with a long symptomatic evolution or those who present a non-complete resolution of symptoms during medical treatment should be evaluated for a surgical procedure. In recent years it has been seen that the value of surgery has decreased with minimally invasive techniques in the treatment of GERD. Patients with more than 8 years of life expectancy and require lifelong therapy because of a mechanically deficient SLE, surgical management can be considered as the treatment of choice(2,18-20).

When we are faced with a case of symptomatic hiatal hernia, it is usually due to acid reflux, so we should try to alleviate the symptoms of gastroesophageal reflux disease (GERD) by managing gastric acid secretion. Lifestyle change is the first-line treatment encompassing:

- Restricting triggers foods such as chocolate, caffeine, alcohol, spicy, citrus, carbonated beverages.
- Raise the head of the bed 8 inches during sleep.
- Avoid meals 2 to 3 hours before bedtime.
- Weight loss.

The American College of Gastroenterology reports that using a proton pump inhibitor (PPI) 8 weeks at a time is the therapy of choice for symptom improvement in GERD, without much variation in efficacy among the various types of PPIs. The use of twice-daily PPIs may be indicated in individuals with a poor response to the once-daily dose. At this time it is recommended to use the minimum dose of PPIs capable enough to maintain symptom-free. Some other medications that may be used are histamine 2 receptor antagonists and antacids. Individuals with moderate symptoms can use these treatments on demand, however, patients who continue with symptoms despite PPI treatment should use them as adjunctive treatment(1,3,12,21).

In paraesophageal hernias, the gastric fundus has migrated superiorly to the diaphragm, thus presenting a higher risk of obstruction. Generally individuals showing symptoms of paraesophageal hernia experience mild or no relief with medications such as histamine receptor antagonists, antacids or proton pump inhibitors; management with these medications is helpful however the definitive treatment for paraesophageal hernia remains surgical.

Prokinetic drugs are not indicated in clinical practice guidelines either as monotherapy or as adjunctive treatment, because there is insufficient evidence to support their efficacy in the management of GERD-related hiatal hernia(1).

Paraesophageal hernias may present with gastric volvulus due to the laxity of the peritoneal connections of the stomach and the consequent rotation of the gastric fundus, being a surgical emergency. Surgical repair of any symptomatic paraesophageal hernia is currently indicated, as well as totally asymptomatic major hernias in individuals under 60 years of age and without other pathology(2,22).

Nissen fundoplication (360-degree wrap): is based on totally wrapping the EUS using the fundus of the stomach. It is usually performed with a 52 French tube in place to ensure a correct approach without the wrap remaining too tight. It starts with dissection of the short gastric vessels of the greater curvature of the stomach to mobilize the fundus. The esophageal paraspinal membrane over the left abutment is completely dissected and the crural fibers are shown. In the right crural dissection, the lesser omentum should be separated and the right phrenoesophageal membrane mobilized. The anterior and posterior vagus should be maintained in this dissection. Frequently, a Penrose drain is used around the esophagus to enhance mobilization and sheath formation. The wrap is formed over a length of 2.5 to 3 cm using 3 to 4 interrupted permanent sutures. Subsequent to the wrap, the 52 French tube is removed and the wrap is anchored to the esophagus and hiatus. This prevents hernia and slippage(2,23).

Partial fundoplication (Dor and Toupet): when esophageal motility is incompetent, a partial fundoplication is usually the treatment of choice. The two most common partial fundoplications are the Dor procedure, which is an anterior wrap, and the Toupet procedure, which is a posterior wrap. In discrepancy to the 360-degree total wrap done with a Nissen, these two techniques entail the formation of a 180- to 250-degree wrap. The concept is that a partial wrap will help prevent plugging in the esophagus when motility is a concern.

Dor's procedure: is performed by folding the fundus over the anterior aspect of the esophagus and subsequently anchoring to the hiatus and esophagus as performed in the 360-degree wrap. This has been used sparingly for the management of GERD and is frequently used to treat individuals with achalasia who have had an anterior myotomy.

Toupet procedure: the entire esophageal dissection for this procedure is identical to the Nissen procedure, with mobilization of the esophagus, differing from the anterior procedure in that it forms a 220 to 250 degree wrap around the posterior aspect of the esophagus, and is the treatment of choice if motility is the primary concern(2,24).

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 8| August 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

Table I. Current therapeutic approaches of hiatal hernia.

Type of hiatal hernia	First line	Second line
Type I (sliding) hernia	PPI – once daily, 8 week course treatment Inadequate symptom control: PPI – twice daily, 8 week course treatment	Laparoscopic fundoplication (Nissen or Toupet) – especially in case of symptom persistence
Types II, III, IV (paraesophageal) hernias	Laparoscopic fundoplication (Nissen or Toupet) – definitive treatment	PPI, histamine receptor antagonists, antacids – for symptom relief

Source: Sfara A, Dumitrașcu DL. The management of hiatal hernia: an update on diagnosis and treatment(1).

Differential Diagnosis

The differential diagnosis of an individual presenting with GERD can be very broad, so a complete workup should be performed prior to surgery. Typical heartburn shows up as a burning or caustic epigastric sensation. Usually, without irradiation to the back or pressure sensation. This allows differentiation from other pathologies such as pancreatitis or acute coronary syndrome. Extraesophageal symptoms of GERD come from the respiratory tract and present as laryngeal or pulmonary symptoms. The etiology of these symptoms can become complicated; primary esophageal motility disorders, gastric or esophageal cancer, and primary lung disease should also be suspected. If an individual shows these symptoms and the primary study is negative, other etiological alternatives should be evaluated(2,25,26).

Prognosis

The success of hiatal hernia surgery can be measured by symptom relief, improvement in esophageal acid exposure, complications and the requirement for reoperation. In research that evaluated 100 individuals who underwent antireflux surgery for 10 years, they found a 90% decrease in symptoms at 10 years. In recent years, due to greater experience, symptom improvement has increased and perioperative complications have decreased(2,16).

Complications

Complications of surgery are usually mild and are generally not related to the surgery itself. The global one-month mortality rate related to antireflux surgery is 0.19%. Specific complications of antireflux surgery are:

Gastroesophageal injuries: occur in about 1% of individuals who undergo Nissen fundoplication.

- Pneumothorax: it is the most frequent, however it is observed in less than 2% of patients.
- Hepatic and splenic lesions: they may generate hemorrhage and occur in about 2.3% of patients. Severe alterations are rare.
- Dysphasia: usually resolves without any intervention and is frequently generated by postoperative edema(2,27).

CONCLUSIONS

Hiatal hernia (HH) is relatively common in the general population. It is caused by increased intra-abdominal pressure, leading to protrusion of the stomach and other abdominal viscera into the mediastinum. Hiatal hernias can be congenital or acquired. The current anatomical classification of hiatal hernias consists of four types or categories, each with its different characteristics. Diagnosis of hiatal hernia can be challenging because of the change in the anatomy of the esophagogastric junction on swallowing, breathing and movement. The pre-surgical study of the individual supports the diagnosis and the exclusion of other pathologic entities to properly direct the surgical intervention. The success of hiatal hernia surgery can be measured by the improvement of symptoms, such as esophageal acid exposure, complications and the requirement for reoperation. Complications of surgery are usually minor and are not directly related to the surgery itself.

BIBLIOGRAPHY

1. *Sfara A, Dumitrașcu DL. The management of hiatal hernia: an update on diagnosis and treatment. Med Pharm Rep [Internet]. 2019 Sep 12 [cited 2023 Jul 31]; Available from: https://medpharmareports.com/index.php/mpr/article/view/1323*
2. *Smith RE, Shahjehan RD. Hiatal Hernia. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jul 31]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK562200/*
3. *Kahrilas PJ, Kim HC, Pandolfino JE. Approaches to the diagnosis and grading of hiatal hernia. Best Pract Res Clin Gastroenterol. 2008 Aug;22(4):601–16.*
4. *Siegal SR, Dolan JP, Hunter JG. Modern diagnosis and treatment of hiatal hernias. Langenbecks Arch Surg. 2017 Dec;402(8):1145–51.*
5. *Sugimoto M, Uotani T, Ichikawa H, Andoh A, Furuta T. Gastroesophageal Reflux Disease in Time Covering Eradication for All Patients Infected with Helicobacter pylori in Japan. Digestion. 2016;93(1):24–31.*
6. *Wolf BS. Sliding hiatal hernia: the need for redefinition. Am J Roentgenol Radium Ther Nucl Med. 1973 Feb;117(2):231–47.*
7. *Marchand P. The anatomy of esophageal hiatus of the diaphragm and the pathogenesis of hiatus herniation. J Thorac Surg. 1959 Jan;37(1):81–92.*
8. *Hyun JJ, Bak YT. Clinical Significance of Hiatal Hernia. Gut Liver. 2011 Sep 30;5(3):267–77.*
9. *Richter JE, Rubenstein JH. Presentation and Epidemiology of Gastroesophageal Reflux Disease. Gastroenterology. 2018 Jan;154(2):267–76.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 8| August 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

10. *Philpott H, Sweis R. Hiatus Hernia as a Cause of Dysphagia. Curr Gastroenterol Rep. 2017 Aug;19(8):40.*
11. *Menezes MA, Herbella FAM. Pathophysiology of Gastroesophageal Reflux Disease. World J Surg. 2017 Jul;41(7):1666–71.*
12. *Roman S, Kahrilas PJ. The diagnosis and management of hiatus hernia. BMJ. 2014 Oct 23;349(oct23 1):g6154–g6154.*
13. *Gadenstätter M, Wykypiel H, Schwab GP, Profanter C, Wetscher GJ. Respiratory symptoms and dysphagia in patients with gastroesophageal reflux disease: a comparison of medical and surgical therapy. Langenbecks Arch Surg. 1999 Dec 16;384(6):563–7.*
14. *Duranceau A. Massive hiatal hernia: a review: Massive hiatal hernia. Dis Esophagus. 2016 May;29(4):350–66.*
15. *Andolfi C, Jalilvand A, Plana A, Fisichella PM. Surgical Treatment of Paraesophageal Hernias: A Review. J Laparoendosc Adv Surg Tech A. 2016 Oct;26(10):778–83.*
16. *Dallemagne B, Quero G, Lapergola A, Guerriero L, Fiorillo C, Perretta S. Treatment of giant paraesophageal hernia: pro laparoscopic approach. Hernia. 2018 Dec;22(6):909–19.*
17. *Lebenthal A, Waterford SD, Fisichella PM. Treatment and Controversies in Paraesophageal Hernia Repair. Front Surg [Internet]. 2015 Apr 20 [cited 2023 Jul 31];2. Available from: http://journal.frontiersin.org/article/10.3389/fsurg.2015.00013/abstract*
18. *Abbas AE, Deschamps C, Cassivi SD, Allen MS, Nichols FC, Miller DL, et al. Barrett's esophagus: the role of laparoscopic fundoplication. Ann Thorac Surg. 2004 Feb;77(2):393–6.*
19. *Hart AM. Evidence-based recommendations for GERD treatment. Nurse Pract. 2013 Aug 10;38(8):26–34.*
20. *Epstein D, Bojke L, Sculpher MJ, The REFLUX trial group. Laparoscopic fundoplication compared with medical management for gastro-oesophageal reflux disease: cost effectiveness study. BMJ. 2009 Jul 14;339(jul14 2):b2576–b2576.*
21. *Katz PO, Gerson LB, Vela MF. Guidelines for the Diagnosis and Management of Gastroesophageal Reflux Disease. Am J Gastroenterol. 2013 Mar;108(3):308–28.*
22. *Baiu I, Lau J. Paraesophageal Hernia Repair and Fundoplication. JAMA. 2019 Dec 24;322(24):2450.*
23. *DeMeester SR. Laparoscopic Hernia Repair and Fundoplication for Gastroesophageal Reflux Disease. Gastrointest Endosc Clin N Am. 2020 Apr;30(2):309–24.*
24. *Danilova DA, Bazaev AV, Gorbunova LI. Current aspects of surgical treatment of gastro-esophageal reflux disease. Khirurgiya Zhurnal Im NI Pirogova. 2020;(2):89.*
25. *Yadlapati R, Pandolfino JE. Personalized Approach in the Work-up and Management of Gastroesophageal Reflux Disease. Gastrointest Endosc Clin N Am. 2020 Apr;30(2):227–38.*
26. *Vaezi MF, Katzka D, Zerbib F. Extraesophageal Symptoms and Diseases Attributed to GERD: Where is the Pendulum Swinging Now? Clin Gastroenterol Hepatol. 2018 Jul;16(7):1018–29.*
27. *Niebisch S, Fleming FJ, Galey KM, Wilshire CL, Jones CE, Litle VR, et al. Perioperative Risk of Laparoscopic Fundoplication: Safer than Previously Reported—Analysis of the American College of Surgeons National Surgical Quality Improvement Program 2005 to 2009. J Am Coll Surg. 2012 Jul;215(1):61–8.*

Conflict of Interest Statement

The authors report no conflicts of interest.

Funding

The authors report no funding by any organization or company.