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Achalasia Surgical Approach

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ABSTRACT

Achalasia is a rare chronic esophageal disease that affects the relaxation function of the lower esophageal sphincter (LES) and peristaltic motility of the esophagus. Surgical treatment, especially laparoscopic esophageal myotomy, has been shown to be highly effective in relieving symptoms and improving esophageal function. Although there are different surgical approaches, the choice of treatment should be based on the experience of the surgeon and the individual characteristics of the patient. Long-term follow-up and consideration of complementary measures are crucial to achieve optimal results in the management of achalasia.

KEYWORDS: Achalasia, diagnosis, treatment

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INTRODUCTION

Achalasia is a rare chronic esophageal disease that affects the relaxation function of the lower esophageal sphincter (LES) and peristaltic motility of the esophagus. The incidence of achalasia is estimated to be approximately 1 case per 100,000 people per year with variation among specific populations. Although it is a rare condition, its impact on patients' quality of life is significant. Achalasia can affect people of any age, but is most often diagnosed as a bimodal pattern with peaks at ages of 30 and 60 years. No clear predilection for gender has been found, as it affects both men and women equally. [1]

Achalasia is characterized by difficulty swallowing (dysphagia), regurgitation of undigested food, heartburn, chest pain, and weight loss. These symptoms can have a significant impact on patients' quality of life, limiting their ability to eat and drink normally. Progressive dysphagia can lead to malnutrition and weight loss, which further worsens the overall health status of the patient. [2]

Early diagnosis and appropriate treatment of achalasia are essential to improve the quality of life of patients and prevent the progression of associated complications. Among treatment options, the surgical approach has been shown to be highly effective in relieving symptoms and improving esophageal function in patients with achalasia. [3]

The aim of this literature review article is to provide an overview of the surgical approach in the treatment of achalasia. Key aspects such as the pathophysiology of the disease, diagnostic methods, available surgical options, possible complications and long-term outcomes will be discussed. Knowledge and understanding of these aspects are essential for physicians and specialists involved in the management of patients with achalasia, which will enable them to make informed decisions and provide the best possible care to their patients.

ACHALASIA

Achalasia is a chronic esophageal disease characterized by impaired motility of the esophagus, resulting in lack of relaxation of the lower esophageal sphincter (LES) and loss of peristaltic contractions. This leads to a functional obstruction of the passage of food from the esophagus into the stomach. The word "achalasia" comes from the Greek "a" (without) and "chalasis" (relaxation), reflecting the lack of relaxation of the LES characteristic of this disease. [3,4]

PHYSIOPATHOLOGY

The exact pathophysiology of achalasia is not yet fully understood, but it is thought to be related to the degeneration of ganglion cells of the myenteric plexus of the esophagus, known as Auerbach's plexus. This plexus is responsible for the coordination of peristaltic contractions and the relaxation of the LES during swallowing. In achalasia, a decrease in the production of nitric oxide, an essential neurotransmitter for LES relaxation, is observed. In addition, an increase in the production of acetylcholine, a neurotransmitter that

stimulates muscle contraction, has been observed, which contributes to hyperactivity of the esophageal muscle.[5]

Myenteric plexus dysfunction and neurotransmitter disturbance lead to a lack of relaxation of the LES and a decrease in peristaltic contractions in the esophagus. As a result, functional obstruction occurs at the esophagogastric junction, making it difficult for food to properly pass into the stomach.[6]

DIAGNOSIS

The diagnosis of achalasia is based on a combination of clinical, endoscopic and manometric findings. The most common symptoms include progressive dysphagia to liquids and solids, regurgitation of undigested food, heartburn, chest pain, and weight loss. Due to similarity of this symptoms to other esophageal diseases such as GERD, strictures and malignancy, esophagogastroduodenal endoscopy should be done to rule out other causes of esophageal obstruction. However, in achalasia, endoscopy is usually normal or may show esophageal dilation.[2]

High-Resolution Esophageal manometry is the gold standard for diagnosing achalasia. This procedure measures muscle pressure and contractions in the esophagus and LES. In achalasia, a lack of relaxation of the LES and the absence or decrease of efficient peristaltic contractions are observed. Based on the results of manometry, achalasia can be classified in three subtypes according to Chicago classification: Type I: Impaired LES relaxation with total absence of peristaltic contractions. Type II: Increased and simultaneous panesophageal pressure. Type III: Spastic, non-peristaltic contractions of distal esophagus. [7]

Barium esophagography may also be useful in diagnosing achalasia, showing "bird's beak" esophageal dilation and narrowing of the LES.[8]

TREATMENT

Surgical treatment of achalasia aims to relieve esophageal obstruction and improve esophageal emptying. Laparoscopic esophageal myotomy, pneumatic esophageal dilation and per-oral endoscopic myotomy are the main approaches used for treatment of achalasia.[9]

Laparoscopic esophageal myotomy (Heller Myotomy) is a procedure in which an incision is made in the lower esophageal sphincter muscle to allow proper relaxation of the sphincter and improve the passage of food into the stomach. During laparoscopic esophageal myotomy, the muscular layer of the lower esophageal sphincter is cut lengthwise. This approach has proven to be highly effective and safe in relieving the symptoms of achalasia, with success rates ranging from 88% to 95% in the long term.[2] In addition, laparoscopic myotomy is associated with a lower complication rate and faster recovery compared to open surgery. Despite its efficacy in relieving dysphagia, myotomy has shown a predisposition to develop postoperative reflux symptoms. In order to prevent this effect, fundoplication is added following myotomy. Although there is no consensus on what type of fundoplication is more accurate, the Dor anterior and Toupet posterior techniques are extensively used in order to prevent Nissen's 360° fundoplication associated postoperative dysphagia. [7]

Pneumatic esophageal dilation is another invasive approach used in the treatment of achalasia. It involves the insertion of an inflatable balloon through the esophagus and its gradual inflation to stretch and break the muscle fibers of the lower esophageal sphincter. This procedure aims to reduce resistance in the LES and improve food flow. Although esophageal dilation may provide temporary relief of symptoms, its long-term effectiveness is inferior to laparoscopic myotomy. In addition, there is an increased risk of complications, such as esophageal perforation, with this approach. [10]

Per-Oral endoscopic myotomy has become a novel alternative for achalasia's invasive treatment that consists in the section of muscular layers of the esophageal junction through a submucosal tunnel. Although this approach has shown similar effectiveness to laparoscopic myotomy in sense of symptom's relief, there is lack of consensus on long term results and side effects. [1,2]

DISCUSSION

The choice of surgical approach in the treatment of achalasia depends on several factors, including the surgeon's experience, patient preferences, and individual case characteristics. While both laparoscopic myotomy and pneumatic esophageal dilation can provide symptomatic relief, laparoscopic myotomy is considered the treatment of choice due to its greater long-term efficacy and lower complication rate. [11]

Importantly, regardless of the surgical approach used, long-term follow-up is critical to assess response to treatment and detect potential late complications. In addition, it is necessary to consider the need for complementary measures, such as pharmacological therapy with proton pump inhibitors or adjuvant fundoplication, to control the symptoms of acid reflux that may occur after myotomy. [2]

CONCLUSION

Achalasia is a rare but significant disease that affects patients' quality of life. Surgical treatment, especially laparoscopic esophageal myotomy, has been shown to be highly effective in relieving symptoms and improving esophageal function. Although there are different surgical approaches, the choice of treatment should be based on the experience of the surgeon and the individual characteristics of the patient. Long-term follow-up and consideration of complementary measures are crucial to achieve optimal results in the management of achalasia.

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