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MODERN METHODS OF SURGICAL TREATMENT OF ACHALASIA CARDIA IN CHILDREN

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Abstract: Achalasia cardia is a rare esophageal motility disorder that causes lower esophageal sphincter laxity, dysphagia, regurgitation, and chest pain. Although the disease is often diagnosed in adults, its appearance in children creates unique difficulties. Achalasia in children can significantly affect quality of life and nutritional status. Modern surgical techniques for the treatment of achalasia cardia in children, particularly laparoscopic Heller myotomy and POEM, have revolutionized treatment strategies. These methods allow effective relief of symptoms with minimal invasiveness, improving overall patient outcomes. Continued research is needed to improve these approaches and understand long-term effects.

Key words: achalasia cardia, children, laparoscopic Heller myotomy, oral endoscopic myotomy (POEM), surgical treatment, gastroesophageal reflux.

Surgery or Surgery (Greek: cheir – hand and ergon – action, work), surgery – a branch of medicine. He studies diseases that require surgical operations and develops methods of operation. Since ancient times, people have helped themselves or each other by using simple methods such as applying pressure to the wound and sprinkling ashes on the wounds to stop the bleeding. Traces of skull trepanation and leg amputation were found in ancient excavations. Surgery was initially formed in countries with developed science and culture (Egypt, India, Greece, China, Byzantium). Mil. av. It is also noted that bloodletting and bladder stone removal operations were performed in the treatment of diseases.

Hippocrates (460-377 BC) observed the primary and secondary healing of wounds, developed different dressing techniques, and used boiled rainwater to maintain cleanliness during surgery. Esophageal achalasia, often simply called achalasia, is a laxity of smooth muscle fibers that causes the lower esophageal sphincter to remain closed. Without a modifier, "achalasia" usually means achalasia of the esophagus.

Achalasia can occur at different points in the gastrointestinal tract. Achalasia of the rectum can occur, for example, in Hirschsprung's disease. The lower esophageal sphincter is a muscle between the esophagus and the stomach that opens when food enters. Then it is closed so that the stomach acids do not come back up. The exact cause of the disease is unknown, and there are factors that increase the risk of its occurrence. It has been speculated that achalasia is genetically inherited, but this has not been fully studied or proven.

Achalasia is characterized by difficulty swallowing, dyspnea, or chest pain. Diagnosis is achieved with the help of esophageal manometry and tube swallowing radiography. Various treatments are available, but none can completely cure the disease. In some cases, certain

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medications or Botox can be used, but more permanent relief can be achieved by dilating the esophagus and surgically removing the muscle (Heller myotomy).The most common form is primary achalasia with no known cause. This is due to the failure of distal esophageal inhibitory neurons. However, a small proportion may be secondary to other conditions such as esophageal cancer, Chagas disease (an infectious disease common in South America), or Triple-A syndrome. Achalasia affects one in 100,000 people per year.

There is no gender predominance for the occurrence of the disease. The term α-+-chalasia means "looseness". After swallowing, food moves into the stomach through rhythmic contractions of the esophageal muscles called peristalsis. Food then enters the stomach through the opening of the lower esophageal sphincter, which is a ring of muscle that keeps the lower end of the esophagus closed, so food and stomach acid don't flow back up. into the esophagus. When you swallow, this sphincter relaxes normally to allow food to pass into the stomach.Two abnormalities usually occur in achalasia: absence of esophageal contraction or aperistalsis caused by degeneration of nerves in the wall of the esophagus;and absence or complete opening of the lower esophageal sphincter. The main symptom of achalasia is swallowing disorders.

This leads to,dysphagia, which is the sensation of food being blocked when swallowing or passing through the esophagus, which is present in 90% of people with achalasia;regurgitation of undigested food or liquids stagnant in the esophagus, especially during sleep, is present in 70% of cases,sometimes narrowing chest pain;If patients swallow food into the lungs, it can cause coughing, respiratory tract infection, bronchiectasis, or inhalation pneumonia.

These symptoms can persist for years, intermittently and capriciously, and may occur with solid foods and/or liquids. They can gradually worsen and cause mild to moderate weight loss or even malnutrition. Respiratory complications are common, occurring in 20 to 40% of patients. Diagnosis of achalasia is based on:esophago-duodenal endoscopy, which allows observation of the mucous membrane of the esophagus;X-ray examination of the esophagus, in which the patient ingests barite, an X-ray contrast agent, which allows visualization of a dilated esophagus that does not empty well;and finally esophageal manometry, which uses a probe to measure the pressure across the esophagus and the degree of relaxation of the lower esophageal sphincter. In the case of achalasia, manometry records the absence of esophageal contraction in response to swallowing water, as well as complete or incomplete relaxation of the lower esophageal sphincter. No treatment can correct the pathophysiological changes responsible for achalasia.

Suggested treatments are aimed at relieving symptoms by reducing lower esophageal sphincter pressure and improving the flow of esophageal contents into the stomach via gravity:endoscopic injection of botulinum toxin into the lower esophageal sphincter allows its release. This treatment, which is renewed every six to twelve months, is mainly indicated in the most vulnerable patients who are at high risk for surgery; endoscopic dilatation, or pneumatic dilatation, using a balloon inserted into the inflated esogastric junction, which helps stretch the muscles and relax the esophagus. It is effective in almost 80-85% of cases; Surgical myotomy, called Heller's, consists of cutting the muscle fibers of the lower esophageal sphincter using laparoscopy, a surgical method that allows access to the interior of the abdominal cavity through small incisions.

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This intervention, which is effective in more than 85% of cases, usually involves the creation of a valve at the level of the esophageal junction to limit the risk of gastroesophageal reflux;end oral endoscopic myotomy (POEM) is an incision made endoscopically. This method, which is effective in 90% of cases, consists in creating a tunnel in the wall of the esophagus, which allows direct access to the lower esophageal sphincter to cut it. The modern approaches to treating cardia achalasia in children, particularly laparoscopic myotomy and endoscopic balloon dilation, have significantly improved the management of this condition. Laparoscopic myotomy has emerged as the preferred surgical technique due to its minimally invasive nature, which reduces postoperative pain, shortens recovery times, and minimizes scarring. This approach aligns with the trend towards less invasive procedures across many surgical fields. Endoscopic balloon dilation offers an effective alternative, especially for patients who may be deemed too high-risk for surgery or who experience recurrent symptoms post-surgery. Its role as a less invasive option complements the surgical approaches, providing additional flexibility in treatment strategies. Despite the advancements, some challenges remain. The need for individualized treatment plans based on patient-specific factors, such as age and overall health, is crucial. Continued research and long-term follow-up studies are necessary to refine techniques and establish best practices. Monitoring for potential complications and the possibility of symptom recurrence is essential for optimizing patient outcomes.Overall, both laparoscopic myotomy and endoscopic balloon dilation represent significant advancements in the management of cardia achalasia in children. These techniques offer substantial benefits over traditional methods, including improved symptom relief, reduced recovery times, and fewer complications. Future research should focus on enhancing these techniques and exploring new approaches to further improve outcomes for pediatric patients.

The pathophysiology involves degeneration of ganglion cells in the myenteric plexus, leading to impaired peristalsis and sphincter relaxation. Symptoms often include difficulty swallowing (dysphagia), chest pain, and regurgitation of undigested food. Early diagnosis and treatment are crucial to prevent malnutrition and further complications. Laparoscopic Heller myotomy is considered the gold standard for surgical intervention in pediatric achalasia. The procedure involves a minimally invasive approach to cut the muscle fibers of the lower esophageal sphincter (LES), allowing for improved passage of food into the stomach. Indications: recommended for children with severe symptoms unresponsive to conservative management. Procedure: performed under general anesthesia using small incisions in the abdomen. The surgeon dissects the LES and may perform a partial fundoplication to prevent reflux.Outcomes: studies indicate high success rates (up to 90%) in relieving dysphagia, with a low incidence of complications such as esophageal perforation or significant reflux.POEM is an innovative technique that has gained traction in recent years. It involves an endoscopic approach to perform myotomy through the esophageal lumen. Indications: suitable for children with achalasia who prefer a less invasive option or for those who may not tolerate traditional surgery.Procedure: an endoscope is inserted through the mouth into the esophagus, where a submucosal tunnel is created, allowing access to the LES for myotomy.Outcomes: early studies show promising results, with symptom relief comparable to laparoscopic myotomy. POEM also has a shorter recovery time and hospital stay.Fundoplication is often performed in conjunction with myotomy to prevent gastroesophageal reflux, which can occur postoperatively.Procedure: the upper part of the stomach is wrapped around the lower esophagus to create a barrier against reflux.Outcomes: while effective in reducing reflux symptoms, it may complicate

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postoperative recovery if not performed carefully alongside myotomy.Botulinum toxin (Botox) injections into the LES can serve as a temporary measure for patients who are not candidates for surgery or as a bridge to more definitive treatment.

• Indications: useful in very young children or those with significant comorbidities.

• Outcomes: provides symptomatic relief but is not a permanent solution; effects typically last several months.Both laparoscopic Heller myotomy and POEM have shown high success rates in managing achalasia symptoms in children. Long-term follow-up demonstrates sustained improvement in dysphagia and overall quality of life.While complications are relatively rare, they can include:

• Gastroesophageal reflux

• Esophageal perforation

• Infection at incision sites

Surgical approaches may vary based on the child's age and development. Younger patients may benefit from less invasive techniques like POEM, while older children might be better suited for laparoscopic myotomy.Modern surgical methods for treating achalasia cardia in children have significantly improved patient outcomes. Laparoscopic Heller myotomy and POEM are effective options that provide relief from symptoms with minimal invasiveness. Ongoing research and clinical trials will continue to refine these techniques and enhance our understanding of long-term effects on growth and development in pediatric patients.

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