

Giant Hiatal Hernia Caused by Chronic Constipation in an Elderly Patient

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ABSTRACT

Hiatal hernia is a medical condition in which the upper part of the stomach or other intra-abdominal organs are displaced into the thorax through an opening in the diaphragm. This case report presents the diagnosis and treatment process of a case who presented with the complaint of chronic constipation and was diagnosed with a giant hiatal hernia. A 72-year-old female patient was admitted to our outpatient clinic in March 2021 with complaints of regurgitation, retrosternal pain and chronic constipation that had lasted for about three years. Nausea and vomiting have also been added to symptoms in the last few months. Physical examination was unremarkable except for tenderness in the epigastric region. Laboratory tests showed only mild leukopenia ($3.5 \times 10^3/\text{mm}^3$) and a high c-reactive protein level (21 mg/dL). Because of chronic constipation, screening endoscopy and colonoscopy were planned for the patient. Endoscopy revealed distal esophagitis and a giant hiatal hernia; colonoscopy revealed diverticula in the sigmoid colon. On computed tomography, a Type IV giant hiatal hernia, including stomach and intestinal loops, was present in the large diaphragmatic defect. Floppy Nissen fundoplication was performed. She was discharged on the 3rd postoperative day without complications.

Keywords: Colonic inertia, Hiatal hernia, Nissen operation

Introduction

Hiatal hernia (HH) is a medical condition in which the upper part of the stomach or other intra-abdominal organs are displaced into the thorax through an opening in the diaphragm (1). HHs can be congenital or acquired, and their incidence increase in old age. It is believed that muscle weakness, along with loss of flexibility and elasticity with age, predisposes the development of HHs (2). The prevalence of HHs over 50 is approximately 55-60%. Although the prevalence is high in old age, approximately 9% of cases have symptoms (3). In addition, HHs are difficult to treat in old age due to comorbidities.

The typical clinical presentation of HH is gastroesophageal reflux disease (GERD). Patients with GERD typically complain of heartburn and sometimes regurgitation. In advanced and giant hernia cases, dysphagia is also an important symptom due to lateral obstruction of the oesophagus (4). In cases where the colonic loops are displaced into the thoracic cavity, chronic constipation can also be seen due to the slowing of the passage (5). In geriatric patients with chronic constipation, the diagnosis of malignancy should be considered primarily. Malignancies

should be ruled out with upper and lower gastrointestinal system endoscopy. If malignancy has been ruled out, the diagnosis of giant HH should be kept in mind.

This case report presents the diagnosis and treatment process of a case who presented with the complaint of chronic constipation and was diagnosed with a giant HH.

Case Report

A 72-year-old female patient was admitted to the Erzurum City Hospital general surgery outpatient clinic in March 2021 with complaints of regurgitation, retrosternal pain and chronic constipation that had lasted for about three years. Nausea and vomiting have also been added to symptoms in the last few months. The patient, who had no previous history of surgery, did not have any other disease. In 2018, she was diagnosed with a giant HH, but surgery was not accepted due to her older age.

On physical examination, her vital findings were as follows: blood pressure: 128/68 mm Hg, the pulse rate: 98 beats per minute, oxygen saturation on room air: 92%, and body temperature: 36.9° Celsius. Physical examination was unremarkable

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Fig. 1. Axial section of computed tomography (Yellow arrows indicate hernia sac, and 'A' indicates colon loops)

except for tenderness in the epigastric region. She had no pathology on digital rectal examination. Other system examinations were normal. Laboratory tests showed only mild leukopenia ($3.5 \times 10^3/\text{mm}^3$) and a high c-reactive protein level (21 mg/dL). Other laboratory parameters, including tumour markers, were unremarkable. Because of chronic constipation, screening endoscopy and colonoscopy were planned for the patient. Endoscopy revealed distal esophagitis and HH; colonoscopy revealed diverticula in the sigmoid colon. Control thoracoabdominal computed tomography was performed for the patient with a history of HH. On CT, a Type IV giant HH, including stomach and intestinal loops, was present in the large diaphragmatic defect (Figures 1, 2 and 3).

Elective surgery was recommended to the patient. Exploration revealed a large diaphragmatic defect and stomach and colon loops within the defect. The structures within the hernia sac were taken to the abdomen into the abdominal cavity. The large defect in the diaphragm was narrowed with silk sutures. Floppy Nissen fundoplication was performed (Figures 4,5 and 6). A drain was placed adjacent to the cardio-oesophageal junction. The patient was taken to the intensive care unit in the postoperative period. After one day of follow-up in the intensive care unit, the patient was taken to the general surgery service. Her abdominal drain was removed on the 2nd postoperative day, and she was discharged on the 3rd postoperative day without complications.

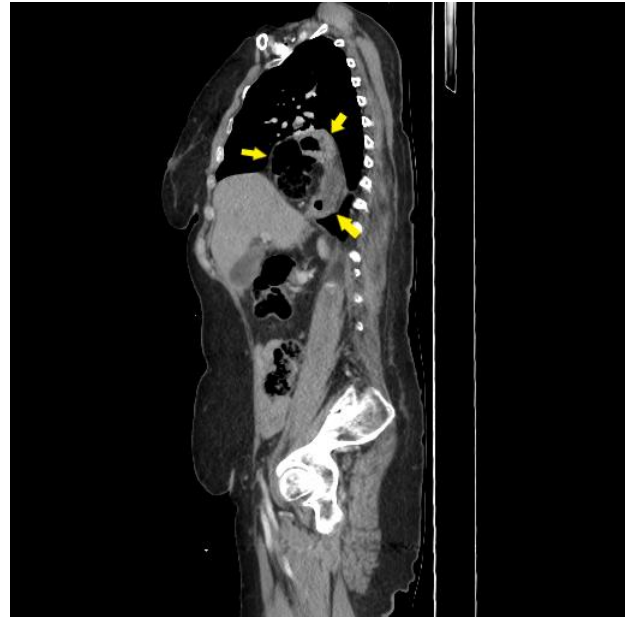


Fig. 2. Sagittal section of computed tomography (Yellow arrows indicate hernia sac and hernia contents)

Discussion

Hiatal hernia (HH) is a common pathology in the community and causes gastroesophageal reflux if symptomatic. HH occurs with disruption of the normal anatomical relationship between the gastroesophageal junction and the diaphragmatic hiatus (6). HHs are divided into four types according to the position of the gastroesophageal junction, hernia size and content. Type I HHs are called sliding HHs. Sliding HHs account for 95% of all HHs (7). Type II HHs are paraesophageal hernias, which occur when part of the stomach migrates into the mediastinum parallel to the oesophagus. Type III HHs are a combination of sliding hernia and paraesophageal hernia. Type IV HHs are the herniation of different organs, such as the colon, small intestine or spleen, and the stomach in the thoracic cavity (8). In this case, the diagnosis and treatment process of a giant Type IV HH is presented.

The typical clinical presentation of Type I HH is gastroesophageal reflux disease (GERD). The classic symptom of gastroesophageal reflux is epigastric or substernal burning and pain. While bending over, reflux symptoms occur with excessive exertion; standing upright reduces it. Reflux may be accompanied by regurgitation, is often associated with posture, and is an important finding in the diagnosis (9). In Type II and Type 3 HHs, the hernia sac compresses the distal oesophagus and creates dysphagia, fullness or pain after meals, early satiety, postprandial vomiting,



Fig. 3. Coronal section of computed tomography (Yellow line indicates the diaphragmatic defect, and 'A' indicates colon loops)

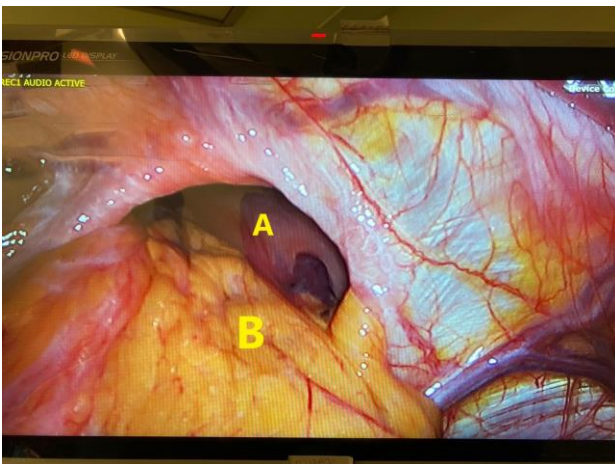


Fig. 4. Operative view of giant hiatal hernia ('A' indicates the hernia defect, and 'B' indicates herniated organs)

and the relief of symptoms afterwards are the main symptoms. Ulcers formed within the hernia pouch, frequently seen due to the deterioration of the nutrition of the herniated stomach wall, may result in chronic anaemia due to bleeding or hematemesis and melena. Acute mediastinitis and empyema may develop due to perforation in the gastric pouch. Gastric volvulus, obstruction, and infarcts lead to life-threatening situations in type II and III hernias (10). In Type IV HH, the symptoms vary according to the organs in the hernia sac. Since the frequently herniated organ is the transverse colon, it may cause chronic constipation due to its obstruction and clinical manifestations requiring emergency surgical interventions (11). The absence of pathognomonic

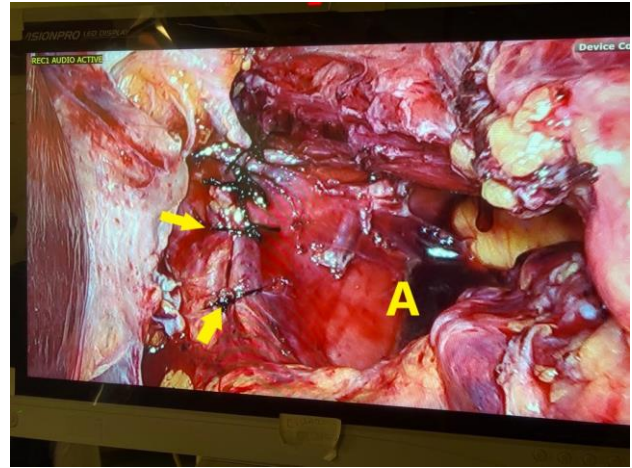


Fig. 5. Operative view of cruroplasty (Yellow arrows indicate the cruroplasty sutures, and 'A' indicates the hernia defect)

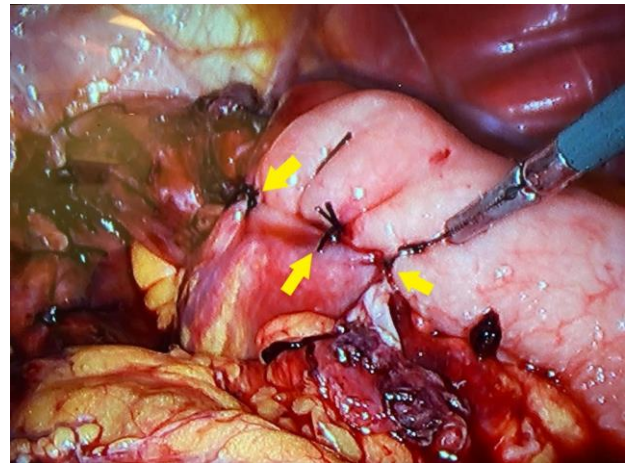


Fig. 6. Operative view of fundoplication (Yellow arrows indicate the fundoplication sutures)

symptoms of HH is the biggest factor in diagnosis or misdiagnosis. The first condition for a patient to be diagnosed with a hiatus hernia and to request an examination in this direction is that a hiatus hernia is among the possible clinical manifestations since the findings are similar to many diseases. In geriatric patients with chronic constipation, the diagnosis of malignancy should be considered primarily. Malignancies should be ruled out with upper and lower gastrointestinal system endoscopy. If malignancy has been ruled out, the diagnosis of giant HH should be kept in mind. In this case, the patient had chronic constipation, regurgitation, retrosternal pain, nausea and vomiting. Due to the patient's old age and chronic constipation, screening endoscopy and colonoscopy were performed, and a possible malignancy was ruled out.

The diagnostic tests in a patient being considered for operative treatment will help confirm the diagnosis, exclude other pathologic entities, and

direct the operative intervention. Endoscopy is important for diagnosing malignant and pre-malignant lesions and is the first and main step for determining HH grade. Manometry, pH monitoring and esophagography are other tests used to diagnose GERD and to differentiate primary oesophageal pathologies (7). Computed thoracoabdominal tomography is extremely useful in determining the width of the defect in large Type 4 HHs, as well as in detecting organs within the hernia and in demonstrating other intra-thoracic and intra-abdominal pathologies. We primarily performed endoscopy and colonoscopy in the patient we presented to rule out malignancy. Since there was no pathology in these two tests, control thoracoabdominal computed tomography was performed in the patient known to have a HH, and hernia characteristics were re-evaluated.

The type of hernia and the severity of the symptoms determine the treatment decision. The first-line treatment for a patient presenting with typical GERD symptoms is a double-dose proton pump inhibitor (12). However, surgical treatment should be considered in patients with evidence of severe oesophageal damage, such as ulcers, strictures, or Barrett's mucosa (13). Surgery should also be considered in patients with prolonged symptoms or symptoms resistant to medical therapy. In addition to these indications, surgical treatment is required in large Type III and Type IV HHs with or without complications. In the present case, surgical intervention was performed on the patient because the patient had long-lasting symptoms and a large hernia defect involving the stomach and colon loops in imaging.

Complete (Nissen) or partial (Dor or Toupet) fundoplication procedures are the most commonly used surgical techniques in HH surgery. Nissen fundoplication involves completely wrapping the GEJ using the fundus of the stomach (14). Compared to the Nissen, Toupet fundoplication creates a 220 to 250-degree wrap around the posterior aspect of the oesophagus (15). Dor fundoplication is performed by folding the fundus over the anterior surface of the oesophagus and then securing it to the hiatus and oesophagus as in the 360-degree wrap. Over time, floppy Nissen and Nissen-Rosetti fundoplication methods have been described by modifying the original Nissen method. We used the floppy Nissen fundoplication in HH surgery in our patient.

Hiatal hernia is a medical condition in which the upper part of the stomach or other intra-abdominal organs are displaced into the thorax through an opening in the diaphragm. There are

four types of HHs, and Type IV HH is the most difficult to manage. Especially in elderly patients with chronic constipation, the diagnosis of Type IV HH should be considered after malignancy has been ruled out. Computed tomography should be used to evaluate the hernia characteristics, and the most appropriate surgical method should be selected for the patient.

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