

An Unusual Presentation of Gastric Volvulus in A Nontraumatic Diaphragmatic Hernia in An Old Man

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Abstract

Diaphragmatic hernias of the Bochdalek / Morgagni type are rare in adults (5%). Symptoms of these hernias are attributable to the involved viscera. The diagnosis may be made with radiography of the chest in an asymptomatic person or in a person with respiratory and/or gastrointestinal symptoms. Both hernias require repair on presentation because of the risk of incarceration. We present a case of a 65-year-old, male who was misdiagnosed earlier and treated for peptic ulcer disease or GORD. Diagnosis was established pre-operatively by plain chest radiograph and barium meal. A dorsolateral defect was located on left side of diaphragm on CT scan that was corrected by using a prolene mesh via an abdominal approach.

Introduction

A diaphragmatic hernia is defined as a defect in part of the diaphragm through which abdominal contents can protrude into the thorax. It may be congenital or acquired, usually through trauma.¹ Congenital diaphragmatic hernias usually occur in the posterolateral portion of the diaphragm (Bochdalek's hernia) and are on the left side in 90% of cases. Foramen of Morgagni hernias are rare diaphragmatic hernias, usually occurring on the right and located in the anterior mediastinum. Most Morgagni and Bochdalek hernias are found and repaired in children, but 5% are found in adults. Acquired diaphragmatic hernias are relatively rare and result from either blunt or penetrating trauma. The vast majority of adult cases are either hiatal hernias or acute traumatic disruptions. The remaining small fraction

represents unusual cases such as congenital hernias (Morgagni or Bochdalek) presenting in adulthood or traumatic hernias presenting months to years after the traumatic (or surgical) event. The recognition and management of such rare cases is discussed. Gastric volvulus associated with traumatic diaphragmatic hernia is relatively rare.^{2,3} The majority of cases of gastric volvulus are associated with congenital abnormalities, of which congenital diaphragmatic hernias presenting in early childhood are the most common.⁴

Case Report

65 year old male presented to our hospital with complaints of upper abdominal dull aching pain and bloating sensation and fullness after meals for 3 months. There was no episode of trauma. He took treatment in private where he was diagnosed as GORD with no relief. On examination he was thin built with normal vitals. His abdominal examination was unremarkable. However there was decreased air entry in the left basal region. X-ray chest done revealed presence of bowel loops in the left hemithorax. (Fig 1). Barium series done showed the stomach with small bowel loops in the sac with volvulus of the stomach. (Fig 2). His abdominal sonography

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Fig 1 : X-ray chest showing the presence of bowel in the left Hemithorax(arrows).

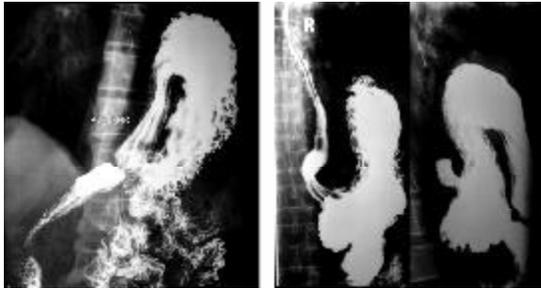


Fig 2 : Barium meal study showing the gastric volvulus in the contents of the hernia in the left hemithorax.

and blood chemistry were within normal limits. He was started on preoperative chest physiotherapy and incentive spirometry. An exploratory laparotomy was performed where in the sac with the contents were repositioned back in the abdomen followed by repair of the left hemi diaphragm by meshplasty (Fig 3). The stomach too was hitched to prevent volvulus. The postoperative recovery was uneventful. A check postoperative X-ray chest revealed complete repair of the left hemi diaphragm. (Fig 4). The patient was on regular follow-up with no recurrence of symptoms.

Discussion

Diaphragmatic hernia is defined as a defect in part of the diaphragm through which abdominal contents can protrude into the

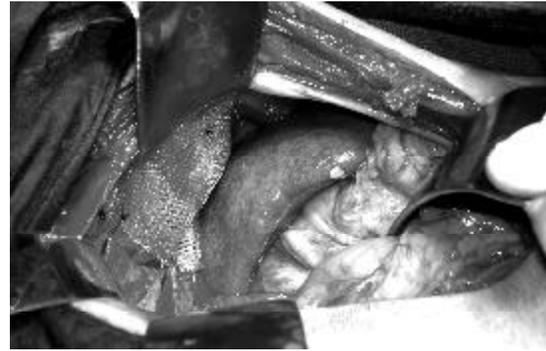


Fig 3 : Photograph of the repair of the diaphragmatic hernia with meshplasty following the removal of the hernial contents and sac from the left hemithorax.



Fig 4 : Post operative X-ray chest showing the constructed left dome of diaphragm with clear left hemithorax.

thorax. It may be congenital or acquired, usually through trauma.¹ Congenital diaphragmatic hernias usually occur in the posterolateral portion of the diaphragm (Bochdalek's hernia) and are left sided in 90% of cases. Loops of bowel, even most of the abdominal contents, may protrude into the hemithorax on the involved side.^{1,5} Morgagni hernias are rare diaphragmatic hernias, usually occurring on the right and located in the anterior mediastinum. Most Morgagni

and Bochdalek hernias are found in newborns and children, but 5% are found in adults.

Diaphragmatic hernia described by Morgagni in 1761 and by Larrey in 1829 is a rare diaphragmatic anomaly that may be considered nearly always congenital. It may be discovered by chance or cause problems in diagnosis in adult or elderly patient because of elusive clinical and radiological findings in them. Morgagni-Larrey hernia usually has a peritoneal sac, which distinguishes this hernia from the Bochdalek one. The hernia often contains: transverse colon, liver but sometimes there may also be small bowel, stomach, pancreas, and gallbladder. Most congenital diaphragmatic hernias are detected in the newborn presenting with respiratory distress; a scaphoid abdomen with bowel sounds (and an absence of breath sounds) being heard over the involved hemithorax.¹ Urgent surgery is usually required to repair the defect.¹

The vast majority of diaphragmatic hernias occurring in adults are either standard hiatal hernias or acute traumatic disruptions. The remaining small fraction represents unusual cases such as congenital hernias (Morgagni or Bochdalek) presenting in adulthood or traumatic hernias presenting months to years after the traumatic (or surgical) event.

Acquired diaphragmatic hernias are relatively rare and result from either blunt or penetrating trauma.^{17,18} Blunt trauma typically produces large radial tears most often at the posterolateral aspect of the diaphragm. Penetrating injuries to the diaphragm can follow accidental trauma, knife or gunshot wounds. Typically, the defect is small and may present late after years of gradual herniation and enlargement. Occasionally a shotgun blast causes a large defect.^{4,6} Right sided diaphragmatic hernias are related with Marfan's syndrome.⁷⁻⁹

Diagnosis usually is radiological; a plain chest roentgenogram can demonstrate the presence especially when the viscera contained in the sac contain air. Radiological studies of the gastrointestinal system with contrast material, gastroscopy, computed tomography and magnetic resonance imaging studies are helpful for confirmation.

Late occurrence of Bochdalek hernias have caused pulmonary infections, dyspnoea, wheezing, chest pain, abdominal pain, nausea, vomiting, diarrhoea and general deterioration.¹⁰⁻¹² In addition, gastric and intestine volvulus, gastric fundus strangulation, and acute gastric dilatation with secondary tension pneumothorax have been reported.¹³⁻¹⁵

Gastric volvulus associated with traumatic diaphragmatic hernia is relatively rare.^{11,17} The majority of cases of gastric volvulus are associated with congenital abnormalities, of which congenital diaphragmatic hernias presenting in early childhood are the most common.¹⁷ Other predisposing causes of gastric volvulus include lax ligaments, bands, adhesions, peptic ulcer disease, gastric neoplasms, and eventration of the diaphragm.^{11,12} This case is rather unusual because of the delayed presentation of a missed nontraumatic diaphragmatic hernia associated with gastric volvulus.

In our case there were repeated pulmonary infections and cough, but there was no history of trauma to the abdomen or thorax. The patient was not suspected for the hernia because of his history of epigastric pain and gastro-oesophageal reflux symptoms. He was treated for the peptic ulcer symptoms without further evaluation by X-ray Chest and Barium swallow. Most probably, this test would have shown the gastric fundus in the thorax, if suspected early.

Gastric volvulus may present acutely with

Borchardt's triad (severe epigastric pain and distension, vomiting then retching without production of any vomitus, and difficulty or inability to pass a nasogastric tube), or with chronic vague abdominal symptoms

Gastric volvulus can be an organ axial type (as in our case), where the stomach may rotate about a line between the pylorus and the cardia, or a mesenterioaxial type, where the stomach may rotate about a line drawn from the mid-lesser to mid-greater curvature.

The treatment of diaphragmatic hernias include surgical repairs with open abdominal approach by reducing the contents back into the abdominal cavity followed by plication of the sac and closure of the defect by a prolene mesh. Nowadays laparoscopic approach also has been devised allowing shorter recovery than open surgery. The treatment of gastric volvulus includes gastropexy i.e. fixation of the stomach and correction of the cause.

Conclusion

In summary, data from this patient demonstrates that diagnosing diaphragmatic hernias in adult or elderly patients depends on a high index of suspicion and careful interpretation of chest X-rays. The patients must be evaluated in detail. Thoracic X-rays should be taken even in patients with nonspecific symptoms. The hernias are treated at the earliest by closure of defect by prolene mesh either by open or laparoscopic method. Gastric volvulus is treated by various surgical procedures, depending on the predisposing cause and the condition of the stomach at the time of operation.

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