

Symptomatic Bochdalek Hernia in an Adult

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ABSTRACT

Background and Objectives: Bochdalek hernias are congenital diaphragmatic defects resulting from the failure of posterolateral diaphragmatic foramina to fuse in utero. Symptomatic Bochdalek hernias in adults are infrequent and may lead to gastrointestinal dysfunction or severe pulmonary disease. We describe our experience with this rare entity.

Methods: A retrospective chart review was performed on a single patient for data collection purposes.

Results: The patient is a morbidly obese 53-year-old female who presented with epigastric pain and diffuse abdominal tenderness. Computed tomography scans of the chest and abdomen revealed a small posterior diaphragmatic defect containing gastric fundal diverticulum. Laboratory work and imaging revealed no other findings. Laparoscopic repair of the Bochdalek hernia was done via an abdominal approach and utilized primary closure with an AlloDerm patch apposed to the defect. The patient has had significant clinical improvement and continues to do well at 9 months postoperatively.

Conclusion: Laparoscopic repair of symptomatic adult Bochdalek hernias can be performed successfully and may result in significant clinical improvement.

Key Words: Bochdalek, Diaphragm, Hernia.

INTRODUCTION

Bochdalek hernias are congenital diaphragmatic hernias resulting from the failure of posterolateral diaphragmatic foramina to fuse properly in utero.¹ First described by Bochdalek in 1848,² this entity has been almost purely a pediatric disease that generally presents with pulmonary symptoms between the neonatal period and preschool age.¹⁻⁵ Approximately 100 to 150 reports of adult Bochdalek hernia can be found in the world literature. The majority of these cases are incidental, asymptomatic posterolateral diaphragmatic defects. Symptomatic Bochdalek hernias in adults are relatively rare but may lead to incarcerated bowel, intraabdominal organ dysfunction, or severe pulmonary disease.^{1,6,7} We present a case of symptomatic Bochdalek hernia in a 53-year-old woman.

METHODS

A retrospective chart review was performed on a single patient for data collection purposes.

RESULTS

The patient is a 53-year-old woman who presented to her primary care physician with chronic epigastric pain “for greater than 20 years” that had acutely worsened over the week prior to her clinic visit. The pain was typically postprandial and radiated to her back with associated cramping, nausea, vomiting, and intermittent constipation. The patient was morbidly obese with diffuse epigastric tenderness to palpation.

Computed tomography (CT) scans of the chest and abdomen were done for severe chest pain of unknown etiology 3 months prior to presentation and revealed a small posterior diaphragmatic defect containing gastric fundal diverticulum. This defect and an incisional abdominal hernia from a previous cholecystectomy were considered to be incidental at that time (**Figure 1 & 2**).

Esophagogastroduodenoscopy and colonoscopy were performed but revealed no abnormalities aside from the Bochdalek hernia of the diaphragm. Single-contrast small bowel examination and serologies for inflammatory bowel disease were unremarkable.

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DOI: 10.4293/108680810X12785289144719

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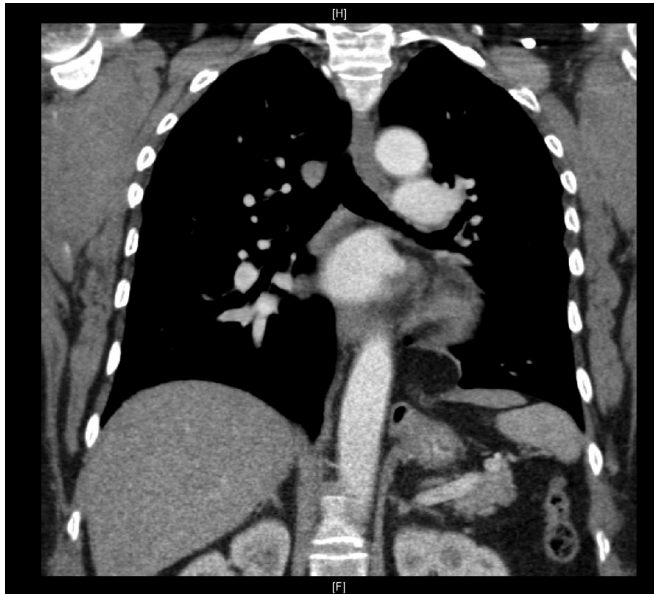


Figure 1. CT Scan, Frontal View. Left-sided diaphragmatic defect with herniation of gastric fundal diverticulum.

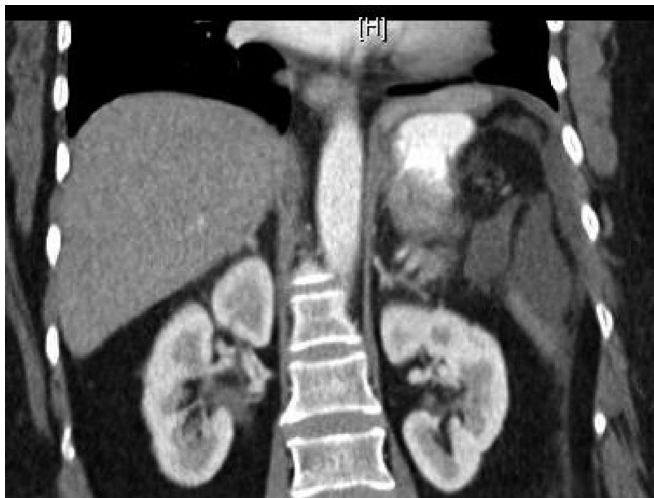


Figure 2. CT Scan, Frontal View. Resolution of defect 6 months status after repair.

Laparoscopic repairs of the Bochdalek hernia and incisional hernia were done via an abdominal approach and utilized primary closure of the defects. An AlloDerm mesh patch was apposed to the diaphragm to reinforce the repair, and a lysis of adhesions was performed. The patient had an uneventful postoperative course and was discharged home with no complications. The patient has had significant clinical improvement and continues to do well 9 months postoperatively.

DISCUSSION

A Bochdalek hernia results when there is failure of closure of the diaphragm posteriorly during embryogenesis. This opening is generally found to be a 2-cm defect located just superior to the adrenal gland.⁶ Symptomatic Bochdalek hernias in adults are relatively rare, but the incidence of asymptomatic Bochdalek hernias in the adult population has been estimated to be anywhere between 1 in 2000 to 7000 based on autopsy studies^{2,3} to as high as 6% in early CT findings.⁴ A retrospective review of 13 138 CT scans by Mullins et al¹ found 22 patients with incidental, asymptomatic Bochdalek hernias, which represents an incidence of 0.17%.

The symptoms associated with Bochdalek hernias are most often pulmonary or gastrointestinal in nature. Symptomatic Bochdalek hernias in adults are typically manifested as gastrointestinal symptoms related to obstruction of the herniated organ. Breathlessness, recurrent chest infections, and other pulmonary sequelae can still be presenting symptoms, but they are less common presenting symptoms in adults than gastrointestinal complications.⁸ Contents of left-sided Bochdalek hernias may include colon, stomach, spleen, small bowel, omentum, pancreas, and adrenal gland. Contents of right-sided diaphragmatic hernias typically include liver, gallbladder, kidney, and omentum.⁹

Bochdalek hernias are routinely diagnosable with plain film frontal and lateral chest radiography. These hernias are evidenced by abnormal findings above the dome of the diaphragm, such as gas-filled loops of bowel or soft tissue mass. Due to the low sensitivity of plain film chest radiography, Bochdalek hernias may be confused for other thoracic pathology including left middle lobe collapse, air space consolidation, pericardial fat pad, sequestration of the lung, mediastinal lipoma, or anterior mediastinal mass.^{6,10} Chest CT more accurately visualizes focal defects in the diaphragm and can definitively diagnose herniation in comparison to plain film chest radiography. A study by Killeen et al⁴ found CT to have sensitivities of 78% for left-sided hernias and 50% for right-sided hernias.

Bochdalek hernia repair can be performed via 2 approaches, depending on the clinical scenario. The transabdominal approach may be preferred in cases of intestinal obstruction or strangulation. If the bowel does not display signs of strangulation or necrosis, a transthoracic repair should be considered, because it is a technically simpler procedure to perform in comparison with a mid-line laparotomy.⁹

CONCLUSION

Bochdalek hernias result from a failure of fusion of the posterolateral diaphragmatic foramina. Although symptomatic Bochdalek hernias are common in the neonatal and early pediatric age groups, they are relatively rare outside of this range. Adult Bochdalek hernias more commonly present with gastrointestinal symptoms than with pulmonary symptoms. Frontal and lateral chest radiography is a good screening tool but thin-section CT scanning has higher sensitivity for these lesions. Laparoscopic repair of symptomatic adult Bochdalek hernias can be performed successfully and may result in significant clinical improvement.

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