Strangulated Bochdalek Hernia: Approach of Management in Emergency Setting

Pradeep Chand Chandran¹, Dinesh Baithma Jothi²,³, Firdaus Hayati⁴, Chiak Yot Ng⁵

¹Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia.
²Department of Surgery, Queen Elizabeth Hospital, Ministry of Health Malaysia, Kota Kinabalu, Sabah, Malaysia.
³Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia
⁴Department of Surgery, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
⁵Department of Radiology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia

ABSTRACT

Bochdalek hernia is a type of congenital diaphragmatic hernia that primarily manifests in children however in rare instances they do manifest in adulthood spontaneously or after physical exertion. We report a case of a left-sided Bochdalek hernia in an adult who presented with left-sided chest pain and worsening symptoms of dyspnea. His chest radiograph revealed dilated small bowel loops in the left hemithorax causing a mediastinal shift. A computed tomography done revealed a posterolateral diaphragmatic defect through which the abdominal viscera had herniated. He was subsequently intubated due to severe respiratory distress. The patient underwent an emergency laparotomy which revealed a large 10 cm posterolateral diaphragmatic defect with herniation of small bowel, spleen and transverse colon. The small bowel was gangrenous and perforated therefore a primary repair of the defect with non-absorbable sutures was done. Gangrenous bowel was resected and primary anastomosis was done. Postoperatively, the patient had significant clinical improvement and was discharged a week later with no immediate complications.

Keywords: Agenesis of hemidiaphragm, Bochdalek hernias, Congenital diaphragmatic defect, Congenital diaphragmatic hernias, Spiral computed tomography

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ORCID IDs: P.C.C. 0000-0003-2203-030X, D.B.J. 0000-0002-2569-1413, F.H. 0000-0002-3757-9744, C.Y.N.0000-0003-4704-7482

Address for Correspondence / Yazışma Adresi: Firdaus Hayati, MD, DrGenSurg. Department of Surgery, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia E-mail: m_firdaus@ums.edu.my

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¹Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia.
²Department of Surgery, Queen Elizabeth Hospital, Ministry of Health Malaysia, Kota Kinabalu, Sabah, Malaysia.
³Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia
⁴Department of Surgery, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
⁵Department of Radiology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia

ÖZET

Bochdalek fıtığı, esas olarak çocuklarda ortaya çıkan ancak nadiren yetişkinlikte kendiliğinden veya fiziksel efordan sonra ortaya çıkan bir tür doğuştan diyafram fıtığıdır. Sol tarafta göğüs ağrısı ve kötüleşen dispne semptomları ile başvuran bir erişkinde sol taraftı Bochdalek hernisi olgusunu sunuoyor. Akciğer grafisinde sol hemitoraksta mediastinal kaymaya neden olan dilate ince barsak ansları görüldü. Yapılan bilgisayarlı tomografi, karan iç organların fıtığı posterolateral diyafram defekti ortaya çıksı. Daha sonra şiddetli solunum sıkıntisi nedeniyle entübe edildi. Hastaya acil laparotomi yapıldı ve ince barsak, dalak ve transvers kolon herniasyonu ile birlikte 10 cm’lik büyük bir posterolateral diyafram defekti ortaya çıktı. Ince bağırsak kangrenli ve delinmişti, bu nedenle emilmeyen diksişlerle defektin birincil onanımı yapıldı. Gangrenöz barsak rezeke edildi ve primer anastomoz yapıldı. Ameliyat sonrası hastada önemli klinik düzeme oldu ve bir hafta sonra herhangi bir komplikasyon gelişmeden taburcu edildi.

Anahtar Sözcükler: Hemidiyafragma agenezisi, Bochdalek hernileri, Konjenital diyafram defekti, Konjenital diyafram hernileri, Spiral bilgisayarlı tomografi

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INTRODUCTION

Bochdalek hernia is a diaphragmatic hernia that results from a failure of the posterolateral diaphragmatic foramina to fuse in utero. Although mainly detected in childhood they can manifest in adulthood with a reported incidence rate as low as 0.17% and as high as 6% of all diaphragmatic hernias (1). The clinical presentation of a Bochdalek hernia in an adult is exceptionally rare. In 1959, Kirkland published the first review of adult Bochdalek hernia which included 34 cases and as of 1992 only 100 cases of symptomatic adult Bochdalek hernia have been reported in world literature (2). In adults, most Bochdalek hernias are detected as an incidental finding on computed tomography (CT) scan of the abdomen in asymptomatic adults, alternatively, it may be diagnosed only after complications occur. The clinical presentation of adult Bochdalek hernia is variable and is mainly confined to the respiratory or gastrointestinal systems; which makes the diagnosis even more difficult. Symptomatic Bochdalek hernia may lead to incarcerated or strangulated bowel, intraabdominal organ dysfunction and severe respiratory disease. Imaging plays a vital role in diagnosing and assessing the contents of the hernia and at the same time evaluating the presence of any associated abnormality. We describe a middle-aged gentleman who presented to us with strangulated Bochdalek hernia.

CASE REPORT

A 49-year-old man presented to the emergency department of a district hospital with worsening symptoms of left-sided chest pain and dyspnea over a 3-day period. He had no prior known medical illnesses and denied any history of trauma or physical exertion. He also complained of difficulty to open his bowels and pass flatus since the onset of his primary symptoms. On examination, he was hypertensive and tachycardic. Auscultation revealed decreased air entry of the left side and per abdomen examination showed a tender epigastrium with no abdominal distension or peritonitis. His chest radiograph (Figure 1) showed dilated small bowel loops in the left hemithorax with significant mediastinal shift to the right.

CT of the thorax and abdomen (Figure 2 and 3) was done immediately and showed a large left posterolateral diaphragmatic hernia with herniation of small bowel and mesenteric fat. The defect involved both diaphragmatic muscle and fascia. Small bowels were twisted around the mesentery causing a closed-loop obstruction, however, no evidence of ischemia was seen at the time. He was subsequently intubated due to worsening respiratory distress and was transferred to a tertiary centre for further definitive management.
The foramen of Bochdalek is 2 x 3 cm opening in the posterior aspect of the diaphragm in the fetus. It is through this opening the pleuropertitoneal canal communicates between the pleural and peritoneal cavities. This foramen usually closes at 8 weeks of gestation however failure or incomplete fusion of the lateral with posterior crural components of the diaphragm leads to a Bochdalek hernia formation. The left canal closes later than the right canal resulting in this hernia being found more prevalent on the left (1). Presentation of symptomatic Bochdalek hernia in adults varies with most patients presenting with chest pain, dyspnea, dyspepsia and even features of intestinal obstruction. This particular patient presented to us with classical symptoms of left-sided chest pain, dyspnea with features of intestinal obstruction without any aggravating factors. A high degree of suspicion and prompt imaging studies are vital to an early diagnosis and accurate management of the disease (3).

REFERENCES

1. Mullins ME, Stein J, Saini SS, Mueller PR. Prevalence of incidental Bochdalek’s hernia in a large adult population. AJR Am J Roentgenol. 2001;177:363-6.
2. Gale ME. Bochdalek hernia: prevalence and CT characteristics. Radiology. 1985;156:449-52.
3. Hung YH, Chien YH, Yan SL, Chen MF. Adult Bochdalek hernia with bowel incarceration. J Chin Med Assoc. 2008;71:528-31.
4. Shin MS, Mulligan SA, Baxley WA, Ho KJ. Bochdalek hernia of diaphragm in the adult. Diagnosis by computed tomography. Chest. 1987;92:1098-101.
5. Silker CW. Imaging of diaphragm injuries. Radiol Clin North Am. 2006;44(2):199-211.
6. Shanmuganathan K, Killeen K, Mirvis SE, et al. Imaging of diaphragmatic injuries. J Thorac Imaging 2000;15:104-11.
7. Amandine Desir and Benoit Ghaye. CT of Blunt Diaphragmatic Rupture. Radiographics 2012;32(2):477-98.
8. Hamid KS, Rai SS, Rodriguez IA. Symptomatic Bochdalek hernia in an adult. JSLS: Journal of the Society of Laparoendoscopic Surgeons. 2010;14(2):279-81.
9. Alam A, Chandler BN, Adult Bochdalek Hernia. Medical Journal, Armed Forces India. 2005;61(3):284-6.