



Published by DiscoverSys

A rare case report of symptomatic Bochdalek hernia in an adult



CrossMark

Supomo Supomo^{1*}

ABSTRACT

Background: Bochdalek hernia is the most common type of congenital diaphragmatic hernia and is commonly diagnosed prenatally or in the immediate postnatal period. Adult cases are extremely rare and mostly asymptomatic. Symptomatic cases are even more exceptional with a wide variety of gastrointestinal or respiratory symptoms, which makes it difficult to diagnose.

Case: A 58-year-old female had experienced nausea, vomiting, atypical chest pain, and productive cough for two weeks before admission. She

was diagnosed and treated for pneumonia and dyspepsia before being referred to our hospital. Further investigation using computerized tomography (CT) scan of the thorax showed a defect at the posterior aspect of left hemidiaphragm with a protrusion of the stomach and its omentum to the left hemithorax.

Conclusion: Symptomatic adult case of Bochdalek hernia is rare and difficult to diagnose. The CT scan can be used to confirm the diagnosis.

Keywords: Adult, Bochdalek, congenital defect, diaphragmatic hernias

Cite This Article: Supomo, S. 2020. A rare case report of symptomatic Bochdalek hernia in an adult. *Bali Medical Journal* 9(1): 19-21. DOI:10.15562/bmj.v9i1.1600

¹Thoracic and Cardiovascular Surgery Division, Department of Surgery, Dr. Sardjito General Hospital, Universitas Gadjah Mada

INTRODUCTION

The incidence of congenital diaphragmatic hernia (CDH) is ranging from 0.8 to 5/10,000 births. Bochdalek hernia is the most prevalent form of CDH (70-75%) with the majority of cases occurring on the left side of hemithorax (85%).¹ It is commonly diagnosed during the neonatal or antenatal period.² Adult cases of Bochdalek hernia are extremely rare, with less than 100 published cases in the literature.^{2,3} In adults, Bochdalek hernia cases are mostly asymptomatic and often detected as an incidental finding on X-ray or computerized tomography (CT) scan of the abdomen and thorax.^{3,4} Symptomatic adult cases of Bochdalek hernia are even more exceptional with a wide variety of either gastrointestinal or respiratory symptoms, which make the diagnosis even more difficult.³ The case was unique because the patient had both gastrointestinal and respiratory symptoms for two weeks before finally diagnosed and treated as Bochdalek hernia. This report illustrates the importance of clinical suspicion and the role of imaging for accurate diagnosis and management of symptomatic Bochdalek hernia in adults.

CASE REPORT

A 58-year-old female was referred to the Thoracic and Cardiovascular Surgery Division of Dr. Sardjito General Hospital with a suspected left hemithoracic mass. One month before admission, she

experienced nausea and vomiting. Her complaints were treated as dyspepsia in the previous hospital and were improved after five days of treatment. Two weeks before admission, she experienced nausea, vomiting, and dysphagia. She also had a productive cough with mucoid sputum, mild dyspnea, and mild chest discomfort. She came back to the same hospital and underwent a chest X-ray and rapid test for tuberculosis infection. The plain X-ray showed a non-homogenous opacity in her left hemithorax, and multiple air bronchograms in both lungs (**Figure 1-A**) and the rapid test showed a negative result. She was treated for pneumonia and dyspepsia in the previous hospital without any improvement within ten days of treatment. Therefore, she was referred to our hospital for further examination and treatment. At the time of admission, her vital signs were as follows: blood pressure 124/78 mmHg, respiratory rate 24 breaths per minute, heart rate 102 beats per minute, and body temperature 36.6°C. The physical examination showed decreased vesicular breath sound at the bottom of the left hemithorax, without rales or wheezing. While the abdominal physical examination showed no abnormality, Thoracic CT scan was performed and showed a defect at the posterior aspect of the left hemidiaphragm with a protrusion of the stomach and its omentum to the left hemithorax (**Figure 1-C, D**). Thoracotomy was performed to repair the hernia under general anaesthesia. The defect was located at the posterior aspect of the left hemidiaphragm with nearly all

*Correspondence to:
Supomo Supomo, Thoracic and Cardiovascular Surgery Division, Department of Surgery, Dr. Sardjito General Hospital, Universitas Gadjah Mada
supomo.tkv@mail.ugm.ac.id

Received: 2019-09-09
Accepted: 2019-11-20
Published: 2020-04-01

Table 1 Timeline of Patient's Medical History and Course of Care

| Dates | Relevant past medical history |
|----------------------------|---|
| One month before admission | Past medical history: <ul style="list-style-type: none"> Treated as dyspepsia in other hospital and were improved after five days of treatment. |
| Two weeks before admission | Past medical history: <ul style="list-style-type: none"> Diagnosed as pneumonia and dyspepsia Received treatment for ten days without improvement The patient was referred for further evaluation. |

| Dates | Summaries from Initial and Follow-up Visits | Diagnostic Testing | Interventions |
|--------------------------------|---|---|---|
| Admission | <ul style="list-style-type: none"> Referred to the Thoracic and Cardiovascular Surgery Division Physical examination showed decreased vesicular breath sound at the bottom of the left hemithorax, without rales or wheezing. | Thoracic CT Scan <ul style="list-style-type: none"> defect at the posterior aspect of the left hemidiaphragm with a protrusion of the stomach and its omentum to the left hemithorax | <ul style="list-style-type: none"> Thoracotomy and hernia repair |
| Three days after the procedure | <ul style="list-style-type: none"> Symptoms are improved | Thorax X-ray show full expansion of the lung and no pleural effusion | - |
| Three months of evaluation | <ul style="list-style-type: none"> No symptom | No recurrence on radiographic evaluation | - |

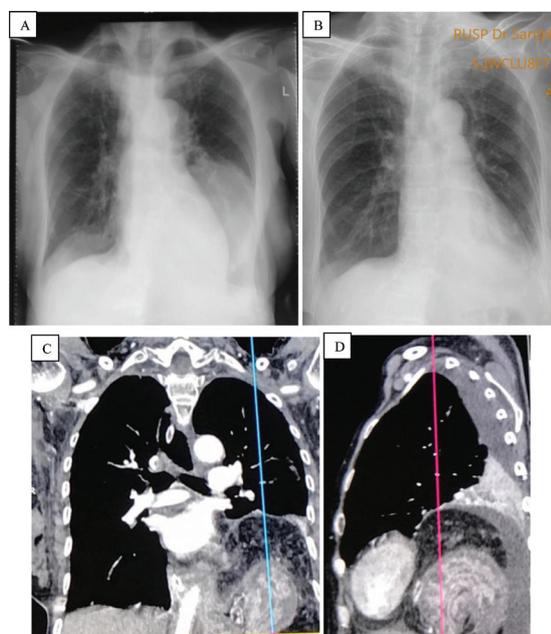


Figure 1 Plain X-ray showed a non-homogenous opacity in her left hemithorax and multiple air bronchograms in both lungs (A); A post-operative evaluation of thorax X-ray showed no pleural effusion and full expansion of the left lung (B); Thorax CT scan showed a defect at the posterior aspect of the left hemidiaphragm with a protrusion of the stomach and its omentum to the left hemithorax (C&D).

parts of the stomach and its omentum herniated through this defect (Figure 2-A). There was no

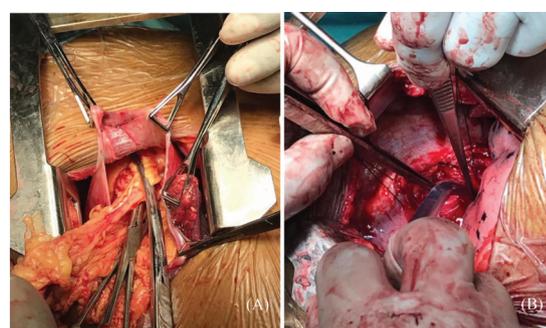


Figure 2 Intraoperative documentation of Bochdalek hernia management. (A) Stomach and its omentum herniated through the defect. (B) The defect was closed by interrupted 1/0-silk suture.

intrathoracic adhesion, and the herniated contents were reduced into the abdominal cavity without difficulty. The defect was closed by a figure of eight 1/0-silk suture (Figure 2-B). After the hernia repair procedure, a chest tube was inserted for drainage. Three days after the procedure, the symptoms were improved, the drainage production was minimal, and the chest tube was removed. An evaluation of thorax X-ray showed no pleural effusion and full expansion of the left lung (Figure 1-B). The patient was discharged from the hospital ten days after the surgery. She has remained symptom-free for three months of evaluation, and no recurrence was detected on radiographic evaluation. Verbal informed consent was obtained at the third month of follow up. A timeline of the patient's medical history and care are provided in Table 1.

DISCUSSION

The posterolateral diaphragmatic foramen or Bochdalek foramen in the fetus is generally fused at the eight weeks of gestation. Failure or incomplete fusion of this foramen may lead to the development of Bochdalek hernia.^{3,5} This foramen is commonly found to have two centimetres of diameter, which may allow several abdominal organs to penetrate the thoracic cavity. The herniated contents of the more common left-sided Bochdalek hernia commonly include the stomach, spleen, small bowel, colon, omentum, pancreas, or adrenal gland, while the less common right-sided Bochdalek hernia may include the liver, kidneys, or gallbladder.⁵

Bochdalek hernia is extremely rare in adults and mostly asymptomatic.^{2,3} In symptomatic adult cases, the herniated contents may produce either gastrointestinal or respiratory symptoms. The gastrointestinal symptoms may include abdominal pain, abdominal discomfort, abdominal fullness or vomiting. In severe cases, the herniated bowel can be strangulated or obstructed, resulting in an obstructive ileus.² The respiratory symptoms may include dyspnea or cough.²⁻⁴ In the case, both gastrointestinal and respiratory symptoms were present, and the patient was misdiagnosed for pneumonia and dyspepsia. A wide variety of symptoms makes this abnormality challenging to be accurately diagnosed.²⁻⁴ The clinical suspicion and correct radiographic examination are vital for the making of accurate diagnosis.

In the investigation of the diagnosis of Bochdalek hernia, several options of the radiographic examination are as follows: plain thoracic X-ray, barium meal, fluoroscopy, ultrasound, computed tomography (CT scan), and magnetic resonance imaging (MRI).² Among these radiographic examinations, multiple sliced CT scan with contrast is the gold standard for diagnosing Bochdalek hernia. The plain X-ray has the lowest sensitivity and may lead to a false diagnosis.⁶

The management of Bochdalek hernia is performed by reducing the herniated contents back to the abdominal cavity. It can be performed either by laparotomy, thoracotomy, thoracoscopy or laparoscopy.⁷ The open methods of either thoracotomy or laparotomy provide better visualization and are easier to perform than minimal invasive methods such as laparoscopy and thoracoscopy.

On the other hand, minimally invasive methods provide early recovery and less post-operative complications.² The choice of using these methods can be determined by considering the amount of herniated content, the severity of the case, and the availability of minimally invasive surgery devices in the facility.⁷ However, in the best of our knowledge, there is no exact guideline available for determining operative management choice between these surgical approaches.

CONCLUSION

A symptomatic adult case of Bochdalek hernia is extremely rare with a wide variety of symptoms. It can be misdiagnosed, and the CT scan can be used to confirm the diagnosis.

ACKNOWLEDGEMENTS

The author wants to thank Handy Darmawan for his help in the writing of this article.

DISCLOSURE

The author reports no conflicts of interest in this work.

REFERENCES

1. Candrasekharan PK, Rawat M, Madappa R, Royhstein DH, Lakshminrusimha S. Congenital diaphragmatic hernia - a review. *Matern Health Neonatol Perinatol*. 2017; 3:1-16.
2. Yagmur Y, Yigit E, Babur M, Gumus S. Bochdalek hernia: a rare case report of adult age. *Ann Med Surg*. 2016; 5:72-75.
3. Alam WC, Chander GC. Adult Bochdalek hernia. *Med J Armed Forces India*. 2005; 61:284-286.
4. Venkatesh SP, Ravi MJ, Thrishuli, Chandra BJ. Asymptomatic presentation of Bochdalek hernia in adult. *Indian J Surg*. 2011; 73:382-383.
5. Hamid KS, Rai SS, Rodriguez JA. Symptomatic Bochdalek hernia in an adult. *JSLs*. 2010; 14:279-281.
6. Santos-Netto JM, Oliveira CV, Sousa MG. Right-sided Bochdalek hernia in adult associated with cholestatic syndrome: case report. *Arq Bras Cir Dig*. 2015; 28:299-301.
7. Saroj SK, Kumar S, Afaque Y, Bhartia AK, Bhartia VK. Laparoscopic repair of congenital diaphragmatic hernia in adults. *Minimally Invasive Surgery*. 2016; 9032380.



This work is licensed under a Creative Commons Attribution