

BOCHDALEK HERNIA IN AN 83-YEAR-OLD EX-PULMONOLOGY NURSE

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Abstract

Bochdalek hernia (BH) represents the herniation of abdominal visceral components through a discontinuity between the lateral (costal) and posterior (crural) components of the diaphragm. With an incidence directly proportional to age, it is rare in adults, with reported frequencies in the specialized literature ranging from 0.17% to 6% of all diaphragmatic hernias, and it is the most common type of congenital diaphragmatic hernia, affecting the left hemidiaphragm in 85% of cases^(1,2).

The authors describe the case of an 83-year-old patient, a former nurse in a pneumology department, diagnosed with Bochdalek hernia, which mimicked a suspicious neoplastic lung mass. The patient's clinical context and conducted investigations established the benign etiology of the formation, without requiring further surgical intervention. Additionally, we provide a brief review of the medical literature on this topic, radiological approaches, and the importance of differential diagnosis.

Keywords: Bochdalek hernia, nurse, suspicious formation.

Rezumat

Hernia Bochdalek (HB) reprezintă hernierea unor componente viscerele abdominale printr-o soluție de continuitate dintre componenta laterală (costală) și posterioară (crurală) a diafragmului. Cu o incidență direct proporțională cu vârsta, se întâlnește rar la adulți, frecvența raportată variind în literatura de specialitate între 0,17- 6% dintre toate herniile diafragmatice și este cel mai frecvent tip de hernie diafragmală congenitală, în 85% cazuri fiind afectat hemidiafragmul stâng.

Autorii descriu cazul unei paciente de 83 de ani, fostă asistentă medicală în cadrul unei secții de pneumologie, diagnosticată cu hernie Bochdalek, ce mima o masă tumorală pulmonară suspect neoplazică. Contextul clinic al pacientei și investigațiile desfășurate au stabilit etiologia benignă a formațiunii, fără să impună sancțiune chirurgicală ulterioară. De asemenea, prezentăm o scurtă trecere în revistă a literaturii medicale pe această temă, a abordării radiologice și a importanței diagnosticului diferențial.

Cuvinte cheie: hernia Bochdalek, asistent medical, formațiune suspectă.



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Introduction

Given the huge importance of the respiratory tract in the homeostasis of the body, any suspicious lesion, especially an abnormal mass, should be thoroughly and closely examined. When it comes to elderly patients, a solitary mass can be attributed to various conditions, ranging from severe infections and tuberculosis to neoplastic diseases. It is common in today's medical practice for healthcare professionals to adopt the approach of "Call it anything, but not cancer, until proven!", which is ethically correct, but it does not negate the importance of ruling out malignancy as a priority. In this particular case, a benign mass was diagnosed, which was a much better outcome than initially presumed. However, we should not overlook the potential complications it may still pose.

Clinical case

We present the case of an 83-year-old female, a non-smoking patient, who was evaluated at a local hospital for a clinical presentation characterized by sensations of sternal oppression, dry cough, and discomfort in the left flank of the abdomen. The patient has multiple coexisting somatic comorbidities including cardiovascular and renal conditions (hemorrhagic stroke without residual motor deficit, hypertension, coronary artery disease,

and stage II chronic renal failure) that have been under medical supervision and carefully monitored during hospitalization.

The physical examination was noncontributory while routine blood tests revealed mild normocytic/normochromic anemia and normal values for other parameters. Based on the reported symptoms and medical history, a chest X-ray was performed in the posteroanterior incidence (Figure 1), revealing a round, homogeneous opacity measuring approximately 43 mm in diameter, located at the level of the left hemidiaphragm. The next diagnostic step involved a contrast-enhanced chest CT scan (Figure 3), which identified a macronodular lesion located in the left lower lobe with smooth margins, measuring 36/39/25 mm in diameter, and exhibiting a lipid aspect, suggestive of a possible lipoma.

During a subsequent review of the CT scan, a discontinuity in the left hemidiaphragm with protrusion of an adipose mass was noted. Serial imaging evaluation, in the absence of systemic impregnation signs, led to the diagnosis of Bochdalek hernia of mesenteric adipose tissue. Considering the patient's cardiovascular and renal comorbidities, advanced age, and lack of severe symptoms, a "watch and wait" approach is recommended without surgical intervention.

Another significant mention in the course of the presented case is an emergency admission to the local pneumology clinic with respiratory

infection symptoms, which occurred 4 years prior to the diagnosis of Bochdalek hernia. At that time, although a chest X-ray was performed (Figure 2), the radiology department did not identify the prominent retrocardiac mass, which consequently prolonged the diagnostic process.

Discussion

Diaphragmatic hernias are commonly known as "Bochdalek hernias" in honor of Professor Vincenz Alexander Bochdalek, a prominent Czech anatomist who first described this abnormality in 1848⁽³⁾. Nowadays, the term "congenital diaphragmatic hernia" is preferred for hernias that present during the neonatal period, characterized by large central defects in the diaphragm that allow abdominal organs to protrude into the thoracic cavity. These cases can be life-threatening emergencies due to the compression of the lungs and mediastinum by the abdominal contents⁽⁴⁾. The term "Bochdalek hernia" is used for more localized herniations through small diaphragmatic defects that typically occur later in life without obvious symptoms. Triggering factors that have been suggested include physical exertion, sexual intercourse, childbirth, Valsalva maneuver, large meals, and abdominal trauma (including post-operative events)⁽⁵⁾.

The estimated incidence of Bochdalek hernia ranges between 0.17% and 6%^(6,7), with a higher prevalence on the left side due to anatomical protection provided by the liver on the right side⁽⁸⁾. The clinical presentation can vary depending on the size of the hernia sac, the contents of the hernia, or the strangulation of the herniated organs. Patients may be asymptomatic or experience symptoms such as nausea, vomiting, chest or abdominal pain, cough, and, in certain cases of intestine

herniation with strangulation, bowel sounds may be heard upon auscultation⁽⁹⁾. Often, the condition remains undiagnosed, especially when the hernia sac contains fatty tissue or when the mass is not large enough to cause complications⁽⁷⁾.

Chest X-ray is the most commonly used investigation in the diagnostic process, but it can sometimes lead to confusion as the evidence of the diaphragm defect can go unnoticed⁽¹⁰⁾. In such cases, a CT scan is considered the gold standard investigation due to its ability to provide detailed sectional views and multi-slice imaging capabilities. If the diagnosis remains unclear after the CT scan, an MRI scan may be the next considered option⁽¹⁰⁾. The differential diagnosis is performed carefully and in stages, considering a wide range of pathologies that Bochdalek hernia can mimic, including neoplastic disease, pulmonary sequestration, foreign material aspiration, tension pneumothorax, pneumonia, pleuritis, or pulmonary tuberculosis^(11,12,13).

Regarding treatment, Bochdalek hernia typically involves surgical correction, but this is reserved for severely symptomatic patients. Elderly patients with silent or minimally symptomatic progression of the condition often undergo basic monitoring, as life-threatening complications are very rare. Despite the low incidence in adults and advanced age, there are reported cases of Bochdalek hernias identified in the third decade of life, and often the diagnosis occurs in the context of complications.

In the present case, the Bochdalek hernia was more of an incidental finding in the chest radiograph performed for symptoms unrelated to the hernia. As described by other authors, in older age groups, there are two typical clinical manifestations: incidental findings in a symptomatic context unrelated to



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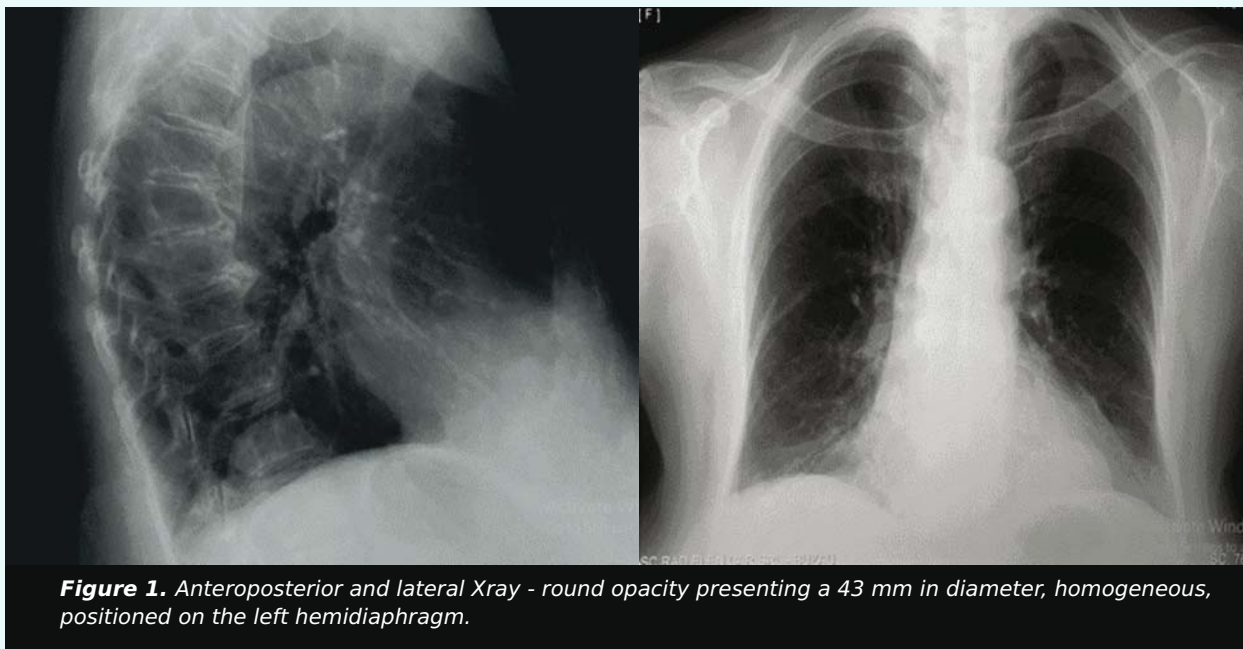


Figure 1. Anteroposterior and lateral Xray - round opacity presenting a 43 mm in diameter, homogeneous, positioned on the left hemidiaphragm.

the hernia or symptoms that develop due to incarceration, strangulation, and visceral perforation within the thoracic cavity⁽¹⁴⁾.

The particularity of the case

Considering the old age, the radiographic appearance of a tumor mass with a suspicious appearance, and the patient's exposure at work as a medical assistant in the pulmonology department (ionized radiation, epidemiological context) for many decades, the differential diagnosis can begin including the presumption of neoplastic disease involvement. Also, in the process of differential diagnosis, we can also refer to the changes that may appear as a result of various

infections that affect the lung parenchyma, taking into account the comorbidities, the immunodepression acquired with age and the duration of exposure during professional activity to different pathogenic germs that may remain latent for decades.

In conclusion, Bochdalek hernia is a rare and often asymptomatic disease, but it can have a significant impact on common radiological investigations. Attention to small details and thorough consideration of the patient's history and risk factors can make a difference in distinguishing between a benign assumption and a malignant condition.

Conflict of interest

There was no conflict of interest.

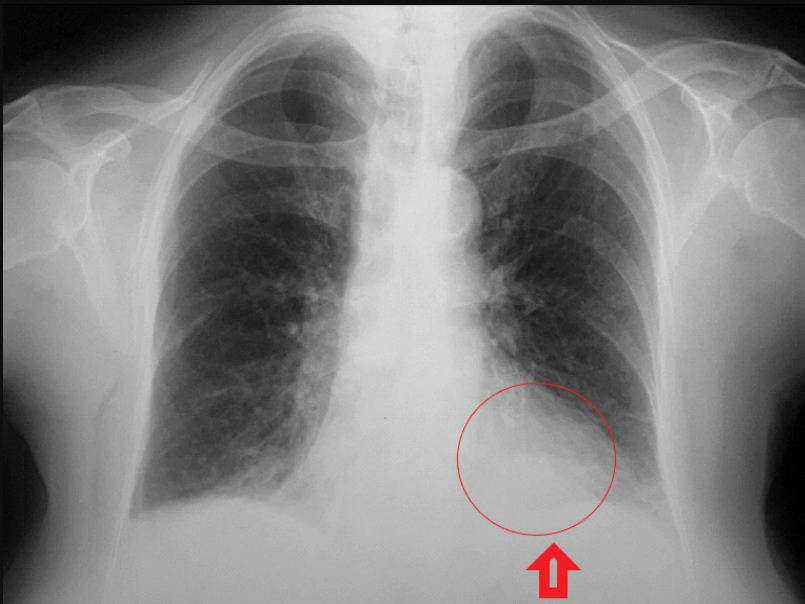
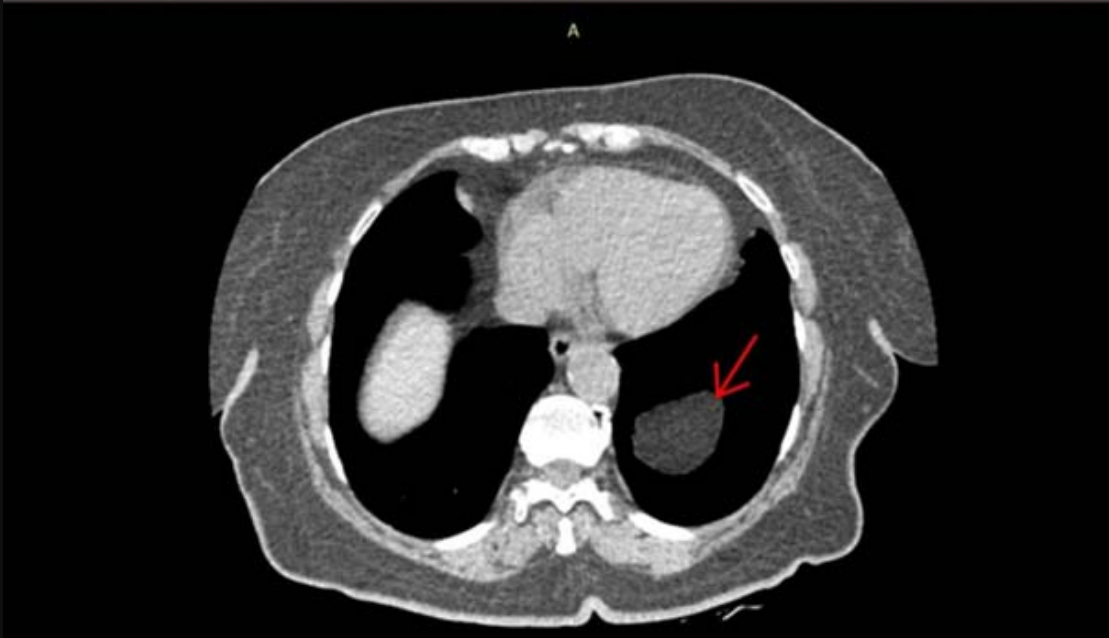


Figure 2. 2018 Xray from emergency admission which showed the suspect mass 4 years prior the diagnose

Figure 3. CT Scan - Sagittal/Coronal/Axial aspects describing a macronodular lesion localized in the left inferior lobe, with smooth edges, 36/39/25 mm in diameter and lipidic intensity, interpreted as a possible lipoma



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References

1. J. P. Ramspott^{1,2}, T. Jäger¹, M. Lechner¹, P. Schredl¹, A. Gabersek¹, F. Mayer¹, K. Emmanuel¹, S. Regenbogen, A systematic review on diagnostics and surgical treatment of adult right-sided Bochdalek hernias and presentation of the current management pathway. (PubMed) (PubMed) (Google Scholar)
2. Yuika Yagishita^{1,2}, Yasuhiro Kano¹, Mikio Takamori², Mari Tawara³, Satoru Iwanami¹, Masaaki Ibe², Kengo Murata^{1,2}, Junko Araki³, Satoshi Watanuki¹, Takaie Kuki¹ and Miyako Kitazono² Abstract:Bochdalek Hernia Causing Sigmoid Colon Strangulation in an Elderly Patient. (PubMed) (PubMed) (Google Scholar)
3. Salacin S, Alper B, Cekin N, Gulmen MK. Bochdalek hernia in adulthood. A review and an autopsy case report. J Forensic Sci. 1994;39:1112-1116 (PubMed) (PubMed) (Google Scholar)
4. Mullins ME, Saini S. Imaging of incidental Bochdalek hernia. Semin Ultrasound CT MR. 2005;26(1):28-36. (PubMed) (PubMed) (Google Scholar)
5. Losanoff JE, Sauter ER. Congenital posterolateral diaphragmatic hernia in an adult. Hernia. 2004;8(1):83-85. (PubMed) (PubMed) (Google Scholar)
6. Gale ME. Bochdalek hernia: prevalence and CT characteristics. Radiology. 1985;156:449-452. (PubMed) (PubMed) (Google Scholar)
7. Mullins ME, Stein J, Saini SS, Mueller PR. Prevalence of incidental Bochdalek's hernia in a large adult population. Am J Roentgenol. 2001;177(2):363-366. (PubMed) (PubMed) (Google Scholar)
8. Gaerte SC, Meyer CA, Winer-Muram HT, Tarver RD, Conces DJ. Fat-containing lesions of the chest. Radiographics. 2002;22:S61-S78. (PubMed) (PubMed) (Google Scholar)
9. Ozturk H, Karnak I, Sakarya MT, Cetinkursun S. Late presentation of Bochdalek hernia: clinical and radiological aspects. Pediatr Pulmonol. 2001;31(4): 306310. (PubMed) (PubMed) (Google Scholar)
10. Eren S, Ciris F. Diaphragmatic hernia: diagnostic approaches with review of the literature. Eur J Radiol. 2005;54(3):448-459. (PubMed) (PubMed) (Google Scholar)
11. Brooks AP, McLean A, Reznick RH. Diaphragmatic (Bochdalek) hernias simulating pulmonary metastases on computed tomography. Clin Radiol. 1990;42(2):102-104. (PubMed) (PubMed) (Google Scholar)
12. Dalton AM, Hodgson RS, Crossley C. Bochdalek hernia masquerading as a tension pneumothorax. Emerg Med J. 2004;21(3):393-394. (PubMed) (PMCFree article) (PubMed) (Google Scholar)
13. Kaur G, Singh T. Right-sided diaphragmatic hernia masquerading as staphylococcal pneumonia. Indian J Pediatr. 2003;70(9):743-745. (PubMed) (PubMed) (Google Scholar)
14. Sheetal Ashok Murchite, Karthik M. Chavannavar, Vaishali Vinayak Gaikwad, Abhay D. Chougale, Saurabh Gandhi, Rajat Kumar Singh. Bochdalek's hernia in an elderly male - A case report. (PubMed) (PubMed) (Google Scholar)