Case Report

Symptomatic Bochdalek hernia with kidney in an elderly patient

A case report

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SUMMARY
Bochdalek hernia (BH), resulting from the failure of posterolateral diaphragmatic foramina to fuse, is the most common congenital diaphragmatic hernia and usually manifests in pediatric age with life-threatening complications. We present the case of an elderly man with chronic pulmonary obstructive disease, who presented with chronic atypical chest pain. Computed tomography scans of the chest demonstrated left-sided BH containing kidney and spleen Thus, it is essential to be aware of the coexistence of BH appearing in adult life.
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INTRODUCTION

Congenital diaphragmatic hernias (CDH) are a result of failure of fusion of the developmental components of the diaphragm. CDH occur in 1 in approximately 2,000 to 10,000 births[1], they are more frequent in males and have been correlated with chromosomal abnormalities[2]. They can be classified into three subtypes: i. Bochdalek hernia (BH), ii. Morgagni hernia and other anterior hernias, iii. Central hernia. BH, was first described by Alexander Bochdalek in 1848[3]. Table 1 shows the main differences between Bochdalek and Morgagni hernia.

In this paper, we report the case of a symptomatic left-sided BH in an

TABLE 1. Main differences between Bochdalek and Morgagni hernia.

Bochdalek hernia	Morgagni hernia
Most common CDH (90%)	Less common CDH (2%)
Posterolateral	Anterior
Occurs earlier	Occurs later
More often left-sided	More often right-sided

CDH: Congenital diaphragmatic hernia

81-year-old man, who was admitted to our emergency department with chronic atypical chest pain.

CASE PRESENTATION

An 81-year-old man, arrived in the emergency department with breathlessness, dry cough and chronic atypical left sided chest pain for more than 5 years. He had a history of chronic obstructive pulmonary disease (COPD) and received the appropriate medication. The pain had been attributed to musculoskeletal problems and COPD. Upon examination, he was hemodynamically stable and non febrile. The electrocardiograph was normal and his oxygen saturation was at 88%. Routine hematology and biochemistry blood tests were unremarkable. The chest x-ray gave the impression elevation of the left hemidiaphragm (Figure 1). Computed tomography (CT) scan of the chest showed a left-sided BH containing kidney and spleen and emphysema (Figure 2). Owing to his advanced age, poor lung function and the lack of severe direct complications from the hernia or ectopic kidney, surgical repair was not indicated.

DISCUSSION

BH forms in the posterolateral region of the diaphragm and rarely contains hernia sac. It occurs more commonly on the left side of diaphragm (85%) because the right pleuroperitoneal fold fuses earlier than the left and the liver acts as a barrier. About 10% of BH occurs on the left side and only 5% is bilateral. In a large series of CT, the incidence of BH in adults was 0.17%[4]. The content of BH varies and depends on the position of the hernias. Therefore, the content of left-sided BH may include colon, stomach, spleen, omentum, pancreas, adrenal gland and kidney; while the right-sided BH may include liver, gallbladder, kidney and omentum[5].

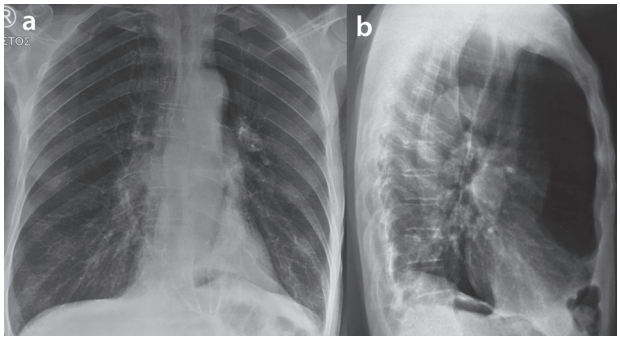

FIGURE 1. Postoanterior chest X-ray (a) and left lateral chest X-ray (b) show intrathoracic mass.

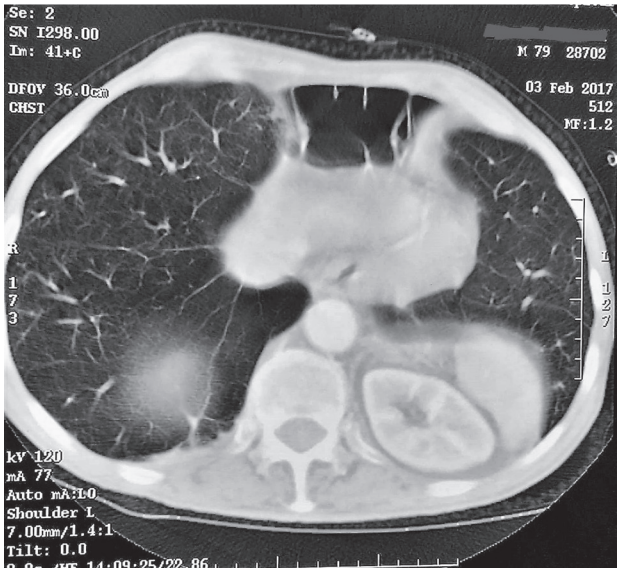

FIGURE 2. Thoracic Computed Tomography (axial view) shows the left kidney and spleen within the left hemithorax.

The majority of BH manifests in infancy and the clinical presentation includes respiratory distress, absent breath sounds on one side of the chest and scaphoid abdomen. Due to herniation of the abdominal organs, there is pulmonary hypoplasia on the side of the hernia and pulmonary hypertension is common[6]. In adult life, the symptoms are nonspecific and chronic and they range from asymptomatic to emergency. The diagnosis of BH in adults is not easy and many times, it is misdiagnosed due to low rarity of BH and a variety of symptoms. At the diagnosis, 86% of patients have hernia related symptoms and only in 14% of patients was BH detected incidentally. Thus, BH may occur as an asymptomatic chest mass, atypical chest, upper abdominal pain or discomfort, breathlessness, cough, dysphagia and gastrointestinal obstructive symptoms such as vomiting and constipation due to herniation of the stomach or bowel. Moreover, BH may occur as an emergency due to strangulation and gastric volvulus[7]. Our patient suffered from chronic pulmonary obstructive disease and was admitted into the emergency department with breathlessness, dry cough and chronic atypical left-sided chest pain.

The manifestations of BH mainly depend on the content of hernia and may include life threatening complications depending on the content of hernia (Table 2)[8-23].

TABLE 2. Complications of Bochdalek hernia depending on the content

Organ	Complications
Stomach	Acute gastric dilation, volvulus, rupture and pleural empyema
Kidney	Kidney obstruction, acute pyelonephritis
Liver	Hepatic hypoplasia
Colon	Perforation, ileus, colon necrosis, colopleural fistula
Small bowel	Intestinal obstruction
Gallbladder	Acute cholecystitis
Bile ducts	Obstructive jaundice
Spleen	Splenic infraction
Omentum	Necrosis and bleeding-hemothorax
Pancreas	Acute pancreatitis

Concerning this particular case, BH includes the left kidney and spleen. The intrathoracic location of an ectopic kidney is very rare and represents 5% of all the ectopic kidneys[24]. *A*dditionally, the incidence of intrathoracic kidney with BH is very rare and specifically less than 0.25%[25]. The intrathoracic kidney with BH differs from other intrathoracic renal ectopias, because they tend to be mobile and are reduced due to pressure from other organs[25].

More often than not, BH is diagnosed with plain film frontal and lateral chest radiography. A normal previous chest x-ray may not exclude BH, because the herniation of content may be intermittent. In this specific case, chest x-ray gave the impression elevation of the left hemidiaphragm. However, due to the low sensitivity of plain film chest radiography, the differential diagnosis includes other thoracic disorders, such as, phrenic nerve palsy, mediastinal and pulmonary cyst or tumor, and pleural effusion[5]. Consequently, in most cases, BH is confirmed by CT or MRI. CT has a sensitivity of 78% for left-sided diaphragmatic hernia and 50% for the right-sided diaphragmatic hernia[26]. Furthermore, ultrasound may help in the diagnosis of suspected cases of BH[27]. The treatment of hernia is surgical and BH repair can be performed via a transabdominal or transthoracic approach, depending on the content and complications[28].

CONCLUSION

BH is the most common congenital diaphragmatic hernia and is usually symptomatic. It is essential to be aware of the coexistence of BH occurring in adult life, since many times it is responsible for mild to severe manifestations and complications. Frontal and lateral chest radiography is a useful imaging tool, however, CT is more sensitive for these lesions.

ΠΕΡΙΛΗΨΗ

Συμπτωματική κήλη του Bochdalek με νεφρό σε έναν ηλικιωμένο ασθενή

Φώτιος Φουσέκης[1], Πέτρος Οικονομίδης[1], Βασίλειος Κόμνας[2], Παναγιώτα Αγγέλη[1], Διονύσιος Δήμας[1], Παναγιώτης Κοτσάφτης[1]

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Η κήλη του Bochdalek, ως αποτέλεσμα της ανεπάρκειας της σύγκλεισης του οπισθιοπλάγιου τμήματος του διαφράγματος, είναι η πιο κοινή κήλη του διαφράγματος και συνήθως εκδηλώνεται κατά τη παιδική ηλικία με απειλητικές για τη ζωή επιπλοκές. Παρουσιάζουμε τη περίπτωση ενός ηλικιωμένου άνδρα με χρόνια αποφρακτική πνευμονοπάθεια, ο οποίος παρουσιάστηκε με χρόνιο άτυπο θωρακικό πόνο και η αξονική τομογραφία θώρακος απεικόνισε μία αριστερή κήλη του Bochdalek η οποία περιείχε νεφρό και σπλήνα, συμπεραίνοντας ότι είναι σημαντικό να είναι κάποιος ευαισθητοποιημένος για την ύπαρξη κήλης του Bochdalek ακόμα και στην ενήλικη ζωή.

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Λέξεις - Κλειδιά: *Κήλη του διαφράγματος, κήλη του Bochdalek, ectopic kidney, ενήλικας*

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