

CASE REPORT

A case of right Bochdalek hernia

Durr-e-Sabih*, Kashif Rahim

Multan Institute of Nuclear Medicine and Radiotherapy (MINAR), Multan, Pakistan

Abstract

Congenital diaphragmatic hernias are most commonly diagnosed as lethal anomalies in neonates or infants. In adults, congenital hernias can present as an incidental finding or may be associated with nonspecific symptoms. The presence of a basal lung mass due to the presence of herniated abdominal contents in the thoracic cavity can appear dramatic on imaging and the unwary can be led into making a wrong diagnosis. We report a case of an incidentally diagnosed right-sided Bochdalek hernia in a young woman and discuss the developmental anomalies leading to this pathology.

***Key words**: Adult diaphragmatic hernia, congenital diaphragmatic hernia, Bochdalek hernia*

Introduction

Congenital diaphragmatic hernias (CDH) are most commonly diagnosed as lethal anomalies in neonates or infants [1]. In adults, CDH can present as an incidental finding or may be associated with nonspecific symptoms. Chest x-ray can mimic a mass or pnemothorax and lead to treatment complications [2]. Right sided Bochdalek hernias are very rare, we describe a patient where this entity was diagnosed incidentally when a routine abdominal ultrasound was unable to identify the right kidney in its normal location.

***Correspondence**

Dr Durr-e-Sabih
MINAR
Nishtar Hospital, Multan
Tel: +92 61 9200 252
Email: dsabih@yahoo.com

Case report

A 21-year-old woman underwent an ulrasound as part of the work-up for primary subfertility. The right kidney wasn't visualised on the ultrasound. The patient was referred to the nuclear medicine department for renal cortical scintigraphy to investigate the apparent renal "absence" and to determine if this was due to renal ectopia or renal agenesis. Scintigraphy was performed 2 hours after intravenous injection of 120 MBq ^{99m}Tc-DMSA. The DMSA renal scan showed the right kidney located at an unusually higher level as compared to the left (Figure 1). A colloid liver scan was next performed 30 minutes after intravenous injection of of 200 MBq ^{99m}Tc-stannous colloid. This showed the right kidney lying above the right lobe of the liver (Figure 2). A repeat ultrasound examination to look for the right kidney was next performed, which showed a right kidney normal in size and appearance located above the diaphragm (Figure 3). There were echogenic areas next to kidney showing peristaltic activity, which were suspected to represent loops of gut herniating with the kidney.

Computed tomography (CT) with oral contrast showed the ascending and most of transverse colon in the right thorax along with the right

 2221-0288(201307/01)3:1<61:ACORBH>2.0.TX;2-M

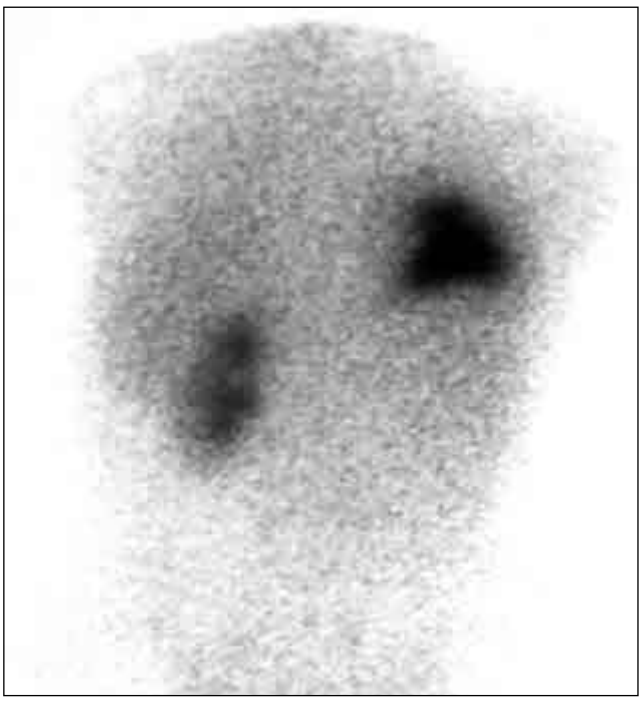

Figure 1 *DMSA renal scan in the posterior projection showing the right kidney located at an unusually higher level as compared to the left*

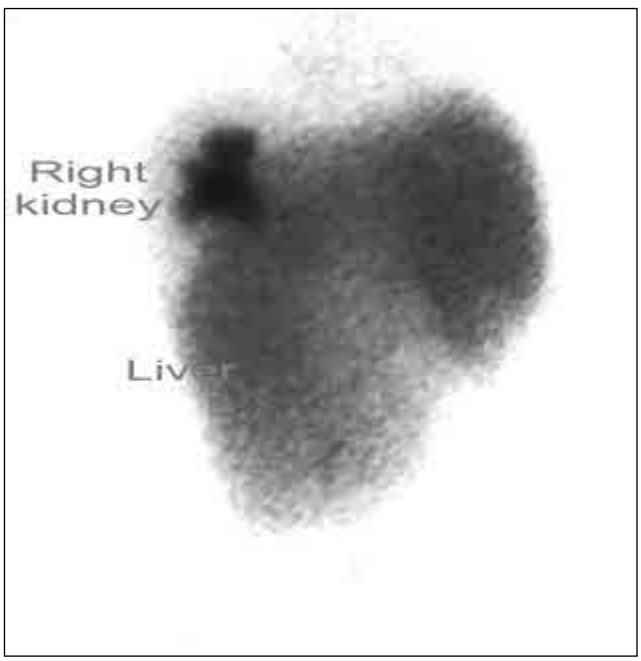

Figure 2 *The combined colloid liver scan and DMSA renal scan showing the right kidney to be lying above the right lobe of the liver*

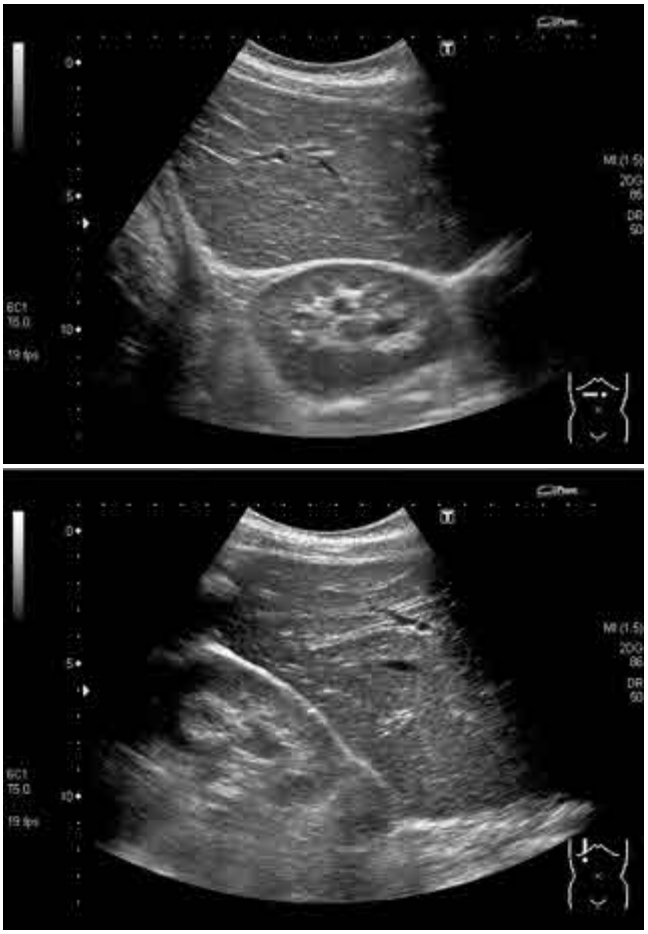

Figure 3 *Ultrasound showing a right kidney normal in size and appearance but located above the right lobe of the liver*

kidney (Figure 5). A right sided Bochdalek hernia was diagnosed by the fact that posteriorly located retroperional strucures had herniated into the chest.

Discussion

The diaphragm forms from the fusion of the septum transversum, two pleuroperitonial folds, cervical myotomes and the dorsal mesentery. Development begins in the third week of gestation and is complete by the eighth week [3]. Congenital diaphragmatic hernias (CDH) are usually a lethal birth defects, associated with a 30-50% mortality rate [4]. CDH are associated with several other anomalies and more than one cause

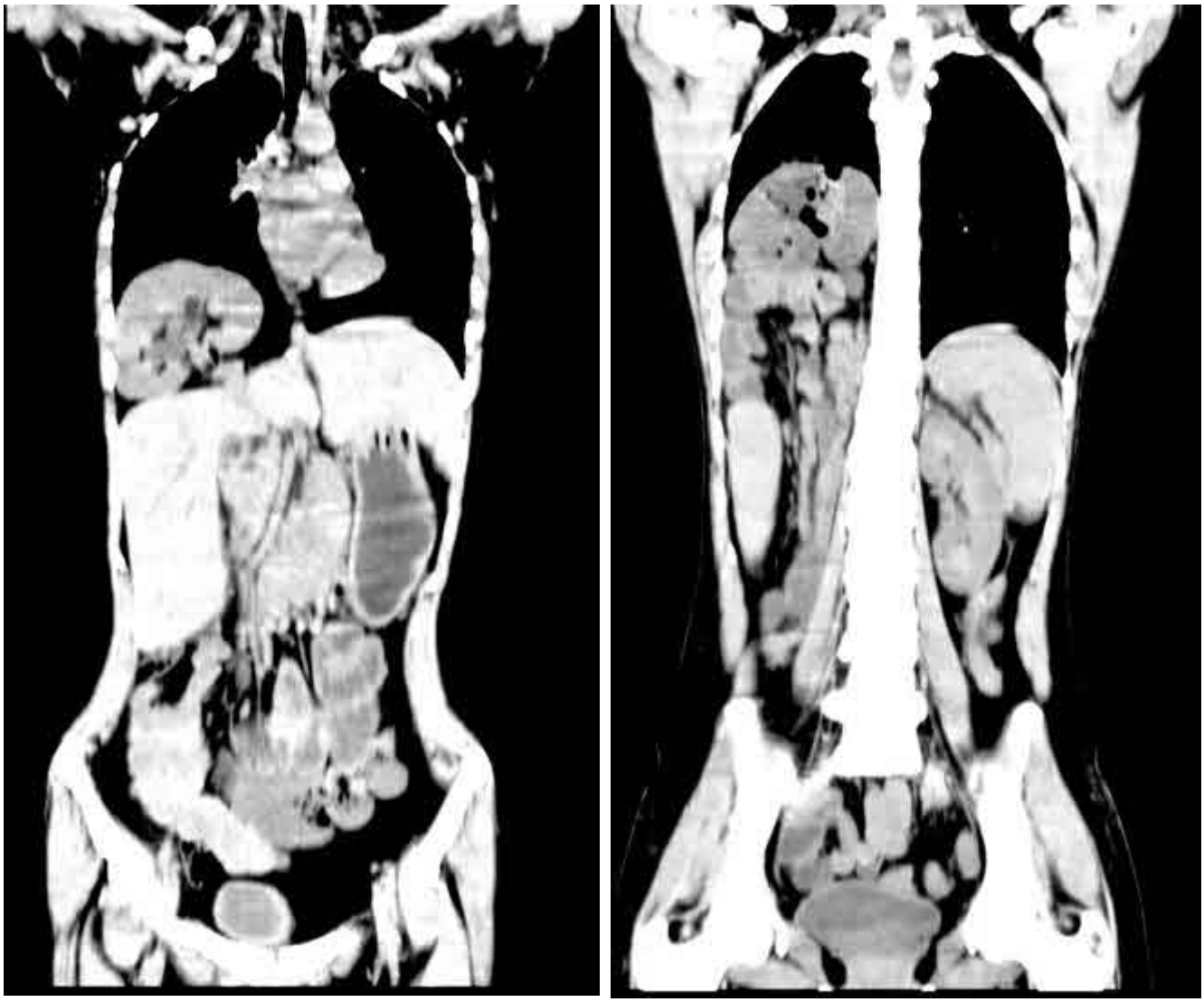

Figure 5 *CT with oral contrast showing the ascending and most of transverse colon in the right thorax along with the right kidney*

aneuploidy may exist [5].

In 1848, Bochdalek first described the failure of fusion of the posterolateral foramina in the pleuroperitoneal folds and the resultant herniation. The foramina of Bochdalek are openings in the posterior aspects of the diaphragm (pleuroperiontal canals) through which the pleural and peritoneal cavities communicate [6]. There are three distinct openings in the diaphragm to allow the passage of the aorta, the oesophagus and the inferior vena cava. Two types of congenital hernias occur, anterior (Morgagni) and posterior (Bochdalek), both types can occur on either side but are more common on the left. The canal on the right closes earlier and is also "plugged" by the liver on the right accounting for hernias rarely occurring on the right. In fact only about 20 cases of right sided Bochkdalek hernia had been reported till 2007 [7].

Most Bochdaleck hernias are diagnosed in neonates and children and present with acute respiratory symptoms. In adults, the diagnosis tends to be incidental as in our case, or made during workup for nonspecific gastrointestinal

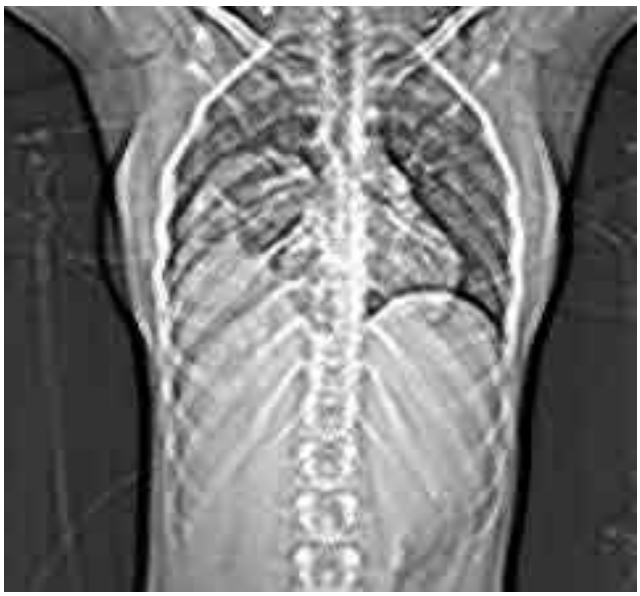

Figure 7 *Scout film showing right sided chest mass*

or respiratory symptoms [8]. Not all cases are asymptomatic and shortness of breath [6] respiratory failure [9], pain with colon necrosis [1] chest pain and even renal colic [10] have been described in case reports. Sometimes a chest x-ray will show a lung mass, loops of gut in the chest, an eventrated diaphragm or fluid with blunting on the costophrenic angle [11]. One child with Bockdalek hernia has been reported to be misdiagnosed as a case of pneumothorax on a chest x-ray [12]. However, in our case a prior chest x-ray wasn't performed but the scout film showed a right sided lung mass (Figure 7) that could have been misinterpreted had this diagnosis not been already made and the cause of apparent lung mass determined. This report describes interesting imaging findings in a rare case.

References

1. Kocakusak A, Arikan S, Senturk O, Yucel AF. Bochdalek's hernia in an adult with colon necrosis. Hernia 2005;9(3):284-7.

2. Dalton AM, Hodgson RS, Crossley C. Bochdalek hernia masquerading as a tension pneumothorax. Emerg Med J 2004;21(3):393-4.

3. Schwartz DS. Congenital diaphragmatic hernias. 2009. http://emedicine. Med scape.com/article/426142- overview#a04.

4. Smith NP. Jesudason EC, Losty PD. Congenital diaphragmatic hernia. Paediatr Respir Rev 2002;3(4):339-48.

5. Langham MR Jr, Kays DW, Ledbetter DJ, Frentzen B, Sanford LL, Richards DS. Congenital diaphragmatic hernia. Epidemiology and outcome. Clin Perinatol 1996;23(4):671-88.

6. Alam A, Chander BN. Adult Bochdalek hernia. Med J Armed Forces India 2005; 61:284-286.

7. Rout S, Foo FJ, Hayden JD, Guthrie A, Smith AM. Right-sided Bochdalek hernia obstructing in an adult: case report and