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## Right-sided Bochdalek Hernia Mimicking Pleural Effusion: A Case Report.

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### ABSTRACT

Bochdalek hernia (congenital diaphragmatic hernia) is a phenomena generally seen in early ages of life and rarely in adults. Bochdalek hernia commonly occurs on the left side and rarely on the right side. Patients are generally asymptomatic thus diagnosis may be incidental. Patients may experience gastrointestinal or respiratory symptoms. Chest x-ray may be misleading and thus confirmatory diagnostic test is computed tomography (CT). We present a rare right-sided Bochdalek hernia in a 35 year old male that mimicked pleural effusion.

**Keywords:** Bochdalek Hernia, Congenital diaphragmatic hernia, adult, pleural effusion.

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## INTRODUCTION

Congenital diaphragmatic hernia (CDH) refers to congenital birth abnormality of the diaphragm, with herniation of abdominal organs into the chest through the diaphragm. This primarily occurs in neonates and rarely in adults. The incidence is one in 2,200 to 12,500 live births. Bochdalek hernia is the most common CDH in children, but it is uncommon in adulthood ranging from 0.17% to 6% of diaphragmatic hernia<sup>1-3,5</sup>. This is well described as occurring in 80-90% on the left side while right sided are rare<sup>1,2,4</sup>. Less than a hundred cases of Bochdalek hernia are documented in literature of which less than 20 cases involved right sided hernia<sup>1,2,5</sup>.

We report a rare right-sided diaphragmatic hernia case in an adult that mimicked pleural effusion.

### Case Report

A 35 year old male came with complaints of left upper limb and lower limb weakness since one day, sudden in onset with no history of loss of consciousness, seizures or headache. There were no similar complaints in the past. He had no significant past medical, family and personal history. On examination, his vital signs were stable and there were no focal neurologic deficits. But examination of the respiratory system revealed reduced breath sound on the right infra-axillary and infra-scapular regions. Chest X- Ray (Fig. 1) was taken and it showed homogenous opacity in right lower zone suggestive of pleural effusion. USG abdomen was done to confirm the diagnosis, showed no fluid in pleural cavity instead it revealed eventration of liver. Thus patient was advised to get a chest CECT (Fig.2 & Fig.3) that reported right central diaphragmatic hernia involving part of right lobe of liver, hepatic flexure of colon, part of transverse colon with few ileal loops, transverse mesocolon and mesentery without bowel ischemia. Collapse of basal segment of right lower lobe with collapse consolidation in superior segments of right lower lobe and posterior segment of right upper lobe were also seen. Since patient came with left sided weakness, even though there were no definite neurological signs, MRI brain was done which turned out to be normal.

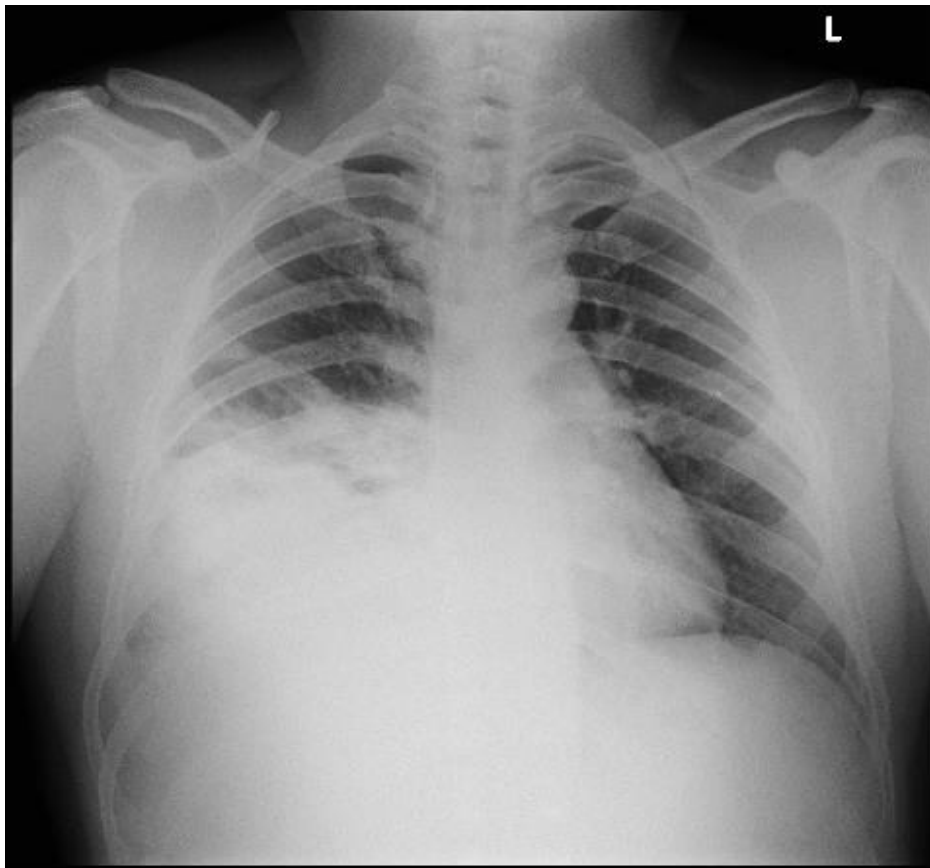


Figure 1: Chest Xray

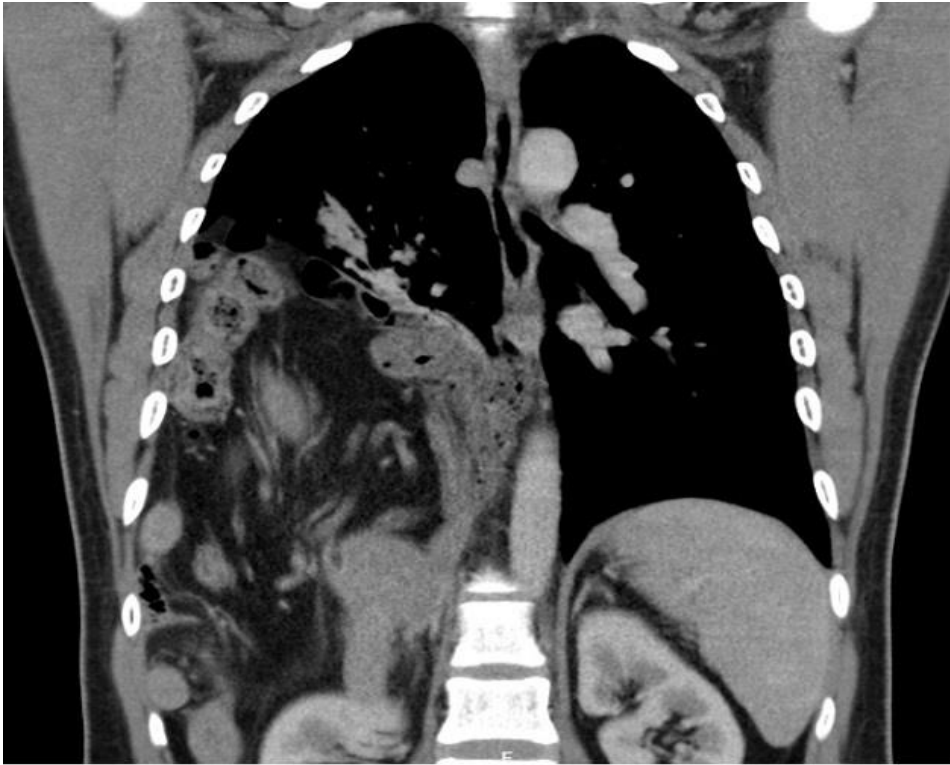


Figure 2: CT Chest Coronal view showing defect in diaphragm leading to herniation of bowel loops and mesentery



Figure 3: CT Chest Saggital view showing herniation of liver, bowel loops and mesentery.

## DISCUSSION

CDH are of two types - Morgagni and Bochdalek. Morgagni occurs through an anterior parasternal foramen while Bochdalek occurs through posterolateral pleuroperitoneal membrane closure defect<sup>6</sup>. Bochdalek hernia predominantly occurs in the left side than right side because the left pleuroperitoneal canal closes later than the right and also attributed to the fact that liver has protective role against herniation of abdominal organs into the thoracic cavity<sup>6,7</sup>. The abdominal organs that commonly herniate are ileum, colon, stomach and spleen, whereas the liver and kidney may be seen with bowel loops in case of right sided Bochdalek<sup>1,2,5,7,8</sup>. As observed in our patient with right sided hernia involvement, there was presence of liver, colon, few ileal loops and mesentery.

Usually it is asymptomatic in adults and the diagnosis is incidental. Clinical presentation of CDH in adults may be gastrointestinal symptoms like intermittent abdominal pain, dysphagia, nausea, vomiting or respiratory symptoms like chest pain, dyspnea and difficulty in breathing<sup>4,9,10,11</sup>. In our patient, on examination, we observed decreased breath sounds on the right lower chest. A series of diagnostic tests for CDH are done like chest X-ray, CT (computed tomography), including upper gastrointestinal and bowel double contrast study. Nevertheless computed tomography of the chest is established as the confirmative imaging test for CDH diagnosis<sup>1,4,7,9</sup>. In our patient as well, CDH was identified after CT as the chest X-ray mimicked findings of pleural effusion. Without the use of CT, Bochdalek hernia is misdiagnosed as pleural effusion, pneumonia, pneumothorax, empyema, lung cyst and atelectasis<sup>4,5,7,9</sup>.

Management of CDH involves surgical intervention and it is indicated even if the patient is asymptomatic<sup>5,11</sup>. It involves the reduction in abdominal contents by either laparotomy or thoracotomy. Right sided defect usually requires thoracic or thoraco-abdominal approach due to the involvement of the liver<sup>1,4,5,9,11</sup>. Whereas for the left sided defect, a transthoracic or transperitoneal approach is indicated<sup>9</sup>. The mortality rate for elective surgery has been reported as less than 4%, however the rate increases to 32% in case of acute state due to delayed diagnosis or development of severe complications<sup>4,5,9</sup>. We have advised our patient to undergo the hernia repair at the earliest.

In conclusion, right sided bochdalek hernia is a rare condition. It may be completely asymptomatic and hence difficult to diagnose. Chest x-ray may be misleading and in case of any suspicion always ask for CT studies. Thereby enabling early detection, applying suitable treatment strategy and avoiding complications.

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