



A Case Report of Congenital Right Sided Bochdalek Hernia.

KEYWORDS

Bochdalek, right sided, herniation.

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ABSTRACT A Bochdalek hernia refers to congenital herniation of visceral contents through a defect in the posterior attachment of the diaphragm when the pleuroperitoneal membrane fails to close in utero. In this article we present two cases of right sided Bochdalek hernia with review of literature.

CASE REPORTS-

CASE 1

A 1 year old female presented with respiratory distress and was admitted to the Pediatric Intensive Care Unit. On chest X ray, multiple thin walled cystic lesions were seen in the right hemithorax which appeared to maintain their continuity from the abdominal cavity (Figure 1A). The right hemidiaphragm was indistinct. She was then subjected to Computed Tomography (CT) imaging of the thorax. On CT imaging, multiple contrast filled bowel loops were seen on the right side of the thorax causing displacement of the mediastinal structures to the left side (Figure 1B and 1C). The liver anatomy appeared abnormal with a part of the liver seen herniating through the defect. The underlying right lung appeared collapsed. However, the bronchial anatomy of the lung was maintained.

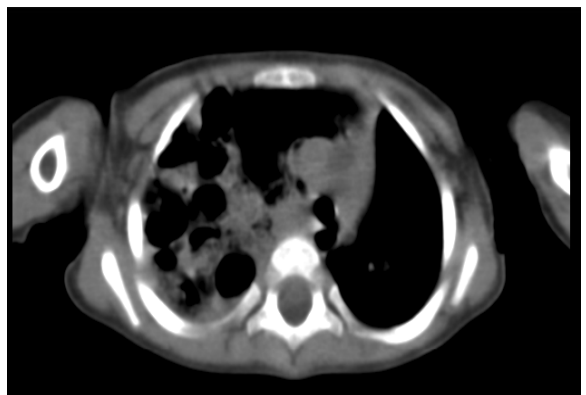


Figure 1B

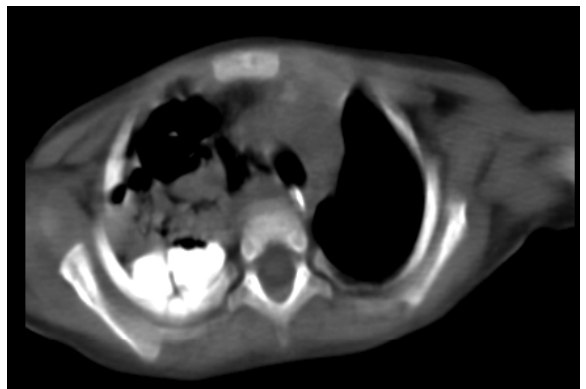


Fig 1 A to C (case1): A. Plain chest X ray showing multiple thin walled cystic lesions and visceral contents in right hemithorax; B and C: Plain and contrast enhanced CT images demonstrating bowel loops in the right hemithorax causing displacement of the mediastinal structures to the left.



Figure 1A

CASE 2

A 9 month old female presented with respiratory distress and was admitted to the Pediatric intensive care unit. She was antenatally diagnosed with Congenital cystic adenomatoid malformation on ultrasound. On Chest X ray, inhomogenous opacities were noted in the right mid and lower lung zones with an indistinct right hemidiaphragm. The ascending colon also appeared altered in architecture and

location which prompted further work up (Figure 2A). The patient was subjected to computed tomography of the thorax and abdomen which revealed herniation of contrast filled bowel loops into the thoracic cavity on the right side with displacement of the mediastinal structures to the left. The underlying lung parenchyma appears collapsed (Figure 2B)



Figure 2A

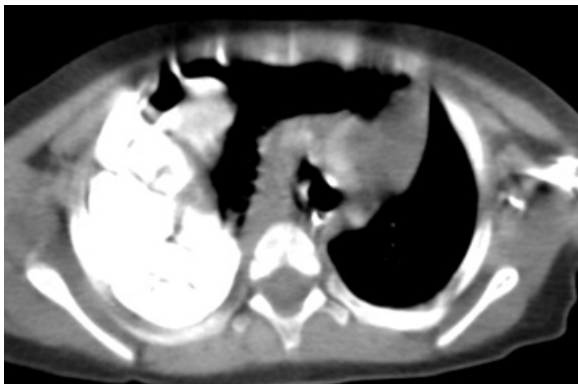


Figure 2B

Fig 2 A & B (case 2): A. Plain chest X ray showing inhomogeneous opacities in the right mid and lower lung zones; B: contrast enhanced CT showing herniation of bowel loops into the thoracic cavity on the right side with displacement of mediastinal structures to the left.

Written informed consent in patient's vernacular language was taken.

DISCUSSION-

Four embryological elements form the diaphragm- the septum transversum, mesentery of the oesophagus, the pleuroperitoneal membranes and ingrowing muscular tissue from the body wall⁽¹⁾. By the 7th week of development, the pleuroperitoneal folds fuse with the mesentery of the oesophagus and joins the septum transversum closing the pleuroperitoneal openings. Failure of closure results in a patent Bochdalek foramen. If the abdominal contents return from the yolk sac prior to closure & if closure is in-

complete, herniation occurs⁽²⁾.

"Bochdalek hernias" were named after professor Vincenz Alexander Bochdalek, a Czech anatomist who described the abnormality back in 1848⁽³⁾. The term "Bochdalek hernia" is preferably used for localized herniations through small diaphragmatic defects that occur later in life without any obvious symptoms. Prevalence of Bochdalek hernia is estimated between 0.17% and 6%^(3,4,5).

A wide spectrum of disorders can simulate Bochdalek hernias namely neoplastic disease, pulmonary sequestration, foreign body aspiration, tension pneumothorax, pneumonia, pleuritis or pulmonary tuberculosis^(6,7,8). The diagnosis of Bochdalek hernia can be established using radiological techniques. Chest radiography being the first modality of choice is usually of limited value⁽⁹⁾. The hernia appears as a soft tissue opacity at the lung base or as a solitary, round lesion in the posterior costophrenic recess⁽¹⁰⁾. Radionuclide imaging can also be of use in showing herniation into the chest⁽¹¹⁾. Ultrasonography of the abdomen may sometimes depict disruption of diaphragmatic continuity with the associated herniated organs⁽¹²⁾. The procedure of choice for demonstrating Bochdalek hernia is CT. Killeen et al. demonstrated sensitivities of 50% and 78% for the detection of right sided and left sided Bochdalek hernias⁽¹³⁾. These imaging modalities accurately establish the diagnosis and obviate the need for further investigations. In symptomatic cases, surgery remains the treatment of choice⁽¹⁴⁾. In adults, clinically silent hernias rarely progress to surgical emergencies⁽¹⁵⁾.

In conclusion, correct diagnosis of Bochdalek hernia using imaging techniques is of paramount importance and should be considered in the differential diagnosis of any paraspinal or diaphragmatic opacity.

CONCLUSION-

Imaging plays a vital role in the detection and characterization of diaphragmatic defects. Acquisition of a CT scan as in this case highlights the paramount importance of multi-modality imaging in diagnosing right sided diaphragmatic herniation.

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