Case 6392

Bochdalek hernia in an adult with large bowel obstruction – a case report

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Patient: 50 years, female

Clinical History:

We present a case of a 50-year-old fit and healthy lady, who presented to the casualty with chest symptoms and intermittent constipation and gradually developed features of acute large bowel obstruction over a period of 3 days. CT revealed a left sided diaphragmatic hernia (Bochdalek type) with an incarcerated loop of transverse colon lying inside the chest.

Imaging Findings:

A fit and healthy 50-year-old lady presented to casualty with a days history of gradual onset central chest and left upper quadrant pain accompanied by intermittent constipation over last 15 days. ECG performed on admission showed left bundle branch block. Abdomen was soft and not distended. Acute coronary syndrome, pulmonary embolus and chest infection formed the likely differentials for her chest symptoms. However troponin T test, white cell count and D-dimer were all normal. The constipation worsened, becoming absolute within 2 days of admission. This was accompanied by frequent episodes of vomiting and a distended, tight, tender abdomen with increased bowel sounds. Rectum was empty on per-rectal examination. No external hernias were detected. Previous operative history was unremarkable. Abdominal X-ray showed features of large bowel obstruction and a CT was advised. Chest X-ray revealed a raised left hemi-diaphragm but failed to show any free intra-peritoneal air. No active pulmonary pathology was identified. Multi-slice CT abdomen revealed a left sided diaphragmatic hernia with an incarcerated loop of transverse colon and omentum lying inside the chest. The hernia orifice was located in the postero-lateral aspect of the left hemi-diaphragm which was in keeping with a late presenting Bochdalek type congenital diaphragmatic hernia. Urgent laparotomy was performed which corroborated the imaging findings. The hernia was operatively reduced. The herniated bowel loop appeared healthy, however part of necrosed herniated omentum was removed. The diaphragmatic rent was repaired. Post operative recovery was uneventful and the patient was discharged home 8 days post surgery with follow-up appointment.

Discussion:

Bochdalek hernia is a form of congenital diaphragmatic hernia due to defect in the postero-lateral part of the diaphragm. The hernia results from a fusion defect of the diaphragm during embryogenesis. The pleuropertitoneal membrane, which normally seals off the pleuropertitoneal canal, fails to develop properly, producing a deficiency between the central septum transversum and the rest of the developing diaphragm. This persistent opening in the posterolateral region of the diaphragm allows the herniation of fat and various other viscera from the abdomen to the
chest, resulting in a spectrum of clinical findings and presentations. This was first described by Bochdalek in 1848. If the herniation is present from birth, it is described as congenital; whereas if the herniation develops later it is described as acquired [1]. Bochdalek hernias are seen in approximately 1 in 2500 live births twice as common in males as in female [2]. They are commoner on the left [1]. Bochdalek hernias usually become evident in the neonatal period with signs and symptoms related to the respiratory system. This primarily results from lung hypoplasia subsequent to congenital trans-diaphragmatic herniation of left sided abdominal contents like stomach, colon, small bowel, spleen and left kidney. Other congenital defects of the neural tube or heart maybe associated [2]. Right side Bochdalek hernias are relatively rare. In right-sided Bochdalek’s hernias, the contents are predominantly the liver, the kidney, and fat [1]. Colon-containing hernias are rare and usually occur through left-sided defects, as is seen in the case we present. These hernias may become irreducible, incarcerated or strangulate, in keeping with complications of hernias found elsewhere in the body; this being true for both left and right sided hernias [3,4]. Bilateral Bochdalek’s hernias have been reported in 3-6% [5]. Small Bochdalek hernias may remain undetected until adulthood since they are almost always asymptomatic. Symptomatic hernias may present with chest or abdominal pain, breathing difficulties and non-specific upper or lower gastro-intestinal symptoms [1,6]. They can also present with features of small/large bowel obstruction due to incarceration/strangulation of herniated bowel segments [3,4,7] or even as an acute gastric volvulus [8]. Wide use of modern multi-planar CT and MR imaging is able to demonstrate not only the large, clinically symptomatic hernias, but the small asymptomatic defects in adults, as incidental findings that are not easily identified on plain radiographs [1,3]. The case we present is an adult presenting with the first episode of significant gastro-intestinal system related symptoms. The alleged causes for late-presenting hernias include congenital herniation, blunt or penetrating trauma, physical exertion (including sexual intercourse), pregnancy, labor and delivery, sneezing or coughing, and even ingestion of a large meal [1]. However the absence of history of trauma (which could have lead to a previous diaphragmatic injury), along with an uneventful and gradual onset of symptoms suggested the diagnosis of congenital diaphragmatic rent, as opposed to the other differentials. Multi-slice CT and high resolution reconstructions aided in reaching an exact diagnosis prior to the laparotomy; which physically confirmed our imaging findings.

**Differential Diagnosis List:** Left sided bochdalek hernia causing acute large bowel obstruction.

**Final Diagnosis:** Left sided bochdalek hernia causing acute large bowel obstruction.

**References:**


Gale ME. Bochdalek hernia: prevalence and CT characteristics. Radiology 1985; 156:449452. (PMID: 4011909)


Figure 1

Description: Origin:
Description: Origin:
Description: L - Liver
S - Spleen
St - Stomach
Ht - Heart

Origin:
Figure 5

Description: Origin:
Figure 6

Description: Origin:
Figure 7

Description: Origin: