CASE REPORT

Bochdalek Hernia with Incarceration of Large Bowel

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Abstract:

Congenital Diaphragmatic Hernia (CDH) is a condition characterized by developmental defect in the diaphragm with herniation of the abdominal contents through the defect into the thorax. Late presentation of CDH is around 5 to 25%. This is a report of a young female presenting with acute abdomen and left- sided chest pain. Laparotomy revealed a Bochdalek Hernia with incarceration of large bowel. The contents were reduced, gangrenous bowel and omentum resected and intestinal continuity restored. Acute intestinal obstruction with respiratory embarrassment warrants a high index of suspicion. An adequate resuscitative measure with urgent surgical intervention and ventilatory support is the key to a successful outcome.

Keywords: Bochdalek, Diaphragm, Acute Abdomen, Chest Pain

Introduction:

Congenital Diaphragmatic Hernia (CDH) is a condition characterized by developmental defect in the diaphragm with herniation of the abdominal contents through the defect into the thorax. The incidence is 1 in 4000 to 5000 live births [1]. Commonest type of CDH occurs through the foramen of Bochdalek in the posterolateral portion of the diaphragm [2]. Small hernias may remain undiagnosed until adulthood [3]. Late presentation of CDH is around 5 to 25% [2]. Most (80-90%) of the cases occur on the left side of the diaphragm [2].

Case Report:

A 20 year old female presented to the emergency ward with features of intestinal obstruction and left-sided chest pain since 5 days. On examination, she was toxic, febrile with tachycardia, hypotension and in respiratory distress. X-ray abdomen revealed multiple air-fluid levels (Fig 1). The patient was resuscitated and haemodynamically stabilized. Emergency laparotomy revealed herniation of the large bowel and omentum into the thorax through a small rent in the posterolateral aspect of the left hemidiaphragm (Fig 2 & 3). There was no herniasac. The splenic flexure of the colon was gangrenous with evidence of perforation. The left one- third of transverse colon and the upper part of descending colon appeared ischemic. The ischemic and gangrenous segment of the bowel along with the affected omentum was resected and end-to-end anastomosis was performed (Fig 4). The defect in the diaphragm was closed using Prolene 1-0 sutures (Fig 5). Intercostal drain was placed in the left hemithorax. A thorough peritoneal lavage was given and an intra-abdominal drain was placed. The post-operative period was uneventful.

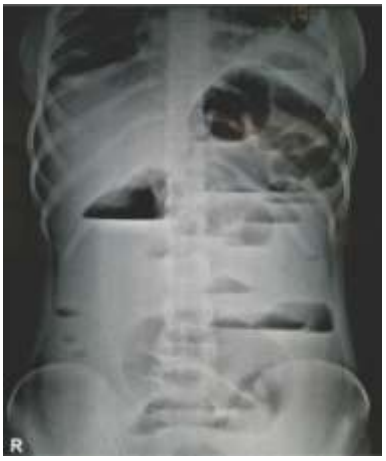

Fig. 1: Air-fluid Levels on X-ray Abdomen

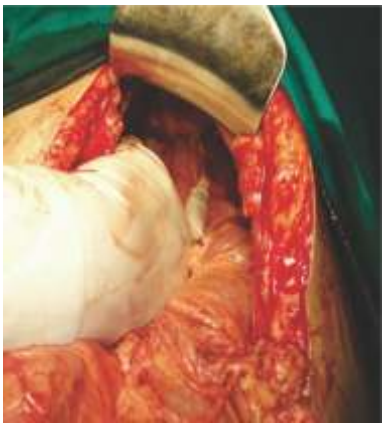

Fig. 2: Bowel Herniation through the Defect in Diaphragm

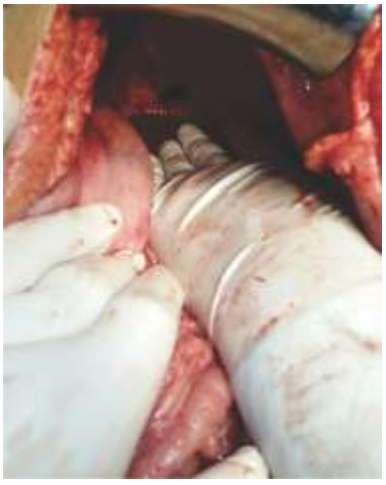

Fig. 3: Defect in Diaphragm

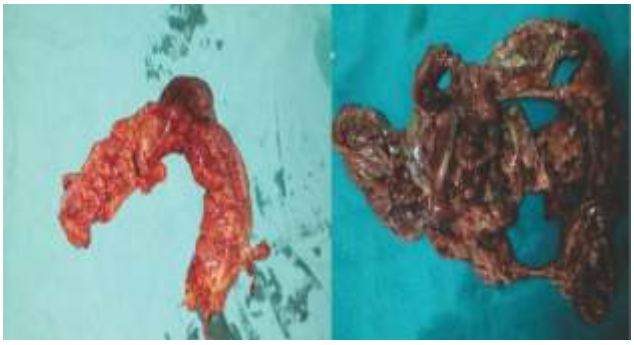

Fig. 4: Resected Specimen

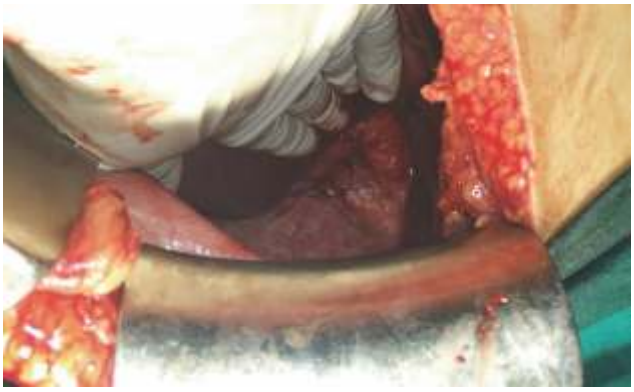

Fig. 5: Closure of Defect

Discussion:

The diaphragm develops from: septum transversum (ventral and pericardial portion), pleura-peritoneal membrane (lateral portion), dorsal mesentery (medial dorsal component), and striated muscles (origin opposite the fifth cervical segment). The canals usually close by 8th week of gestation. Failure of closure leads to developmental defects [4].

Diaphragmatic hernia was first reported by Fennertus in 1541 [5] and traumatic diaphragmatic hernia was first described by Ambroise Pare in 1579 [6]. Lazarus Riverius first described a congenital diaphragmatic hernia in 1690 in a 24 year old man at post-mortem [7]. The description of gross anatomy associated with congenital diaphragmatic hernia in a newborn baby was reported by McCauley in 1754. Bochdalek hernia

was first reported by Victor Alexander Bochdalek in 1848 [8].

Neonates with CDH, present with a triad of respiratory distress, apparent dextrocardia and a scaphoid abdomen [1]. In adults, CHD can present with intermittent abdominal pain, vomiting, dyspnea and chest pain. Acute presentations as seen in our case can be due to incarceration or obstruction of the hernia contents. A positive pressure gradient between the peritoneal and pleural spaces with a range of 7 to 20 cm H20 can cause herniation of the abdominal contents through the defect in the diaphragm [9].

The diagnosis can be made by frontal and lateral chest radiographs, CT thorax and MRI. Bochdalek hernias appear as gas-filled bowel loops above the dome of diaphragm on chest X-ray. The condition may be misdiagnosed as pleural effusion, tension pneumothorax, atelectasis [10]. CT demonstrates thoracic herniation of the abdominal viscera or omentum through the defect [11]. T1 weighted sequence of MRI can show an abrupt defect in low signal intensity of the hemidiaphragm, with herniation of the abdominal viscera [12].

The treatment of Bochdalek hernia includes reducing the abdominal contents and repairing the defect using non-absorbable sutures through a laparotomy or thoracotomy [1]. Emergency situations, wherein patients may present with septic shock as seen in our case, warrant immediate resuscitation. Mesh repair is not recommended in contaminated cases [8].

Conclusion:

CDH can remain asymptomatic until adulthood, wherein they can present as acute cases. There is a high risk of incarceration of hernia contents through small defects without a sac. Acute intestinal obstruction with respiratory embarrassment warrants a high index of suspicion. Adequate resuscitative measures with urgent surgical intervention and ventilatory support is the key to a successful outcome.

References

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