

CASE REPORT

STRANGULATED LEFT BOCHDALEK DIAPHRAGMATIC HERNIA:
A LESSON LEARNED

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Congenital Bochdalek diaphragmatic hernia (CDH) is the most common embryologic defect of the diaphragm which occurs 1 in 2500–5000 live births. Most commonly CDH presents soon after birth but it can present late in 10–30% of cases, leading to a diagnostic dilemma. Late presenting patients can remain asymptomatic for a variable period before presenting with complications in the form of obstruction or strangulation of gut. Bochdalek diaphragmatic hernia presenting with strangulation of gut is very rare. We report a case of such a rare variety of strangulated Bochdalek left diaphragmatic hernia in an 11-month-old boy which was managed successfully.

Keywords: Congenital Diaphragmatic Hernia, Strangulation, Complications

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INTRODUCTION

Congenital Bochdalek diaphragmatic hernia (CDH) is the most common embryologic defect of the diaphragm presenting soon after birth but in 10 to 30% of cases it presents late and creates a diagnostic dilemma. Late presenting cases may remain asymptomatic before presenting with complications.¹ Strangulated Bochdalek diaphragmatic hernia is a very rare presentation.²

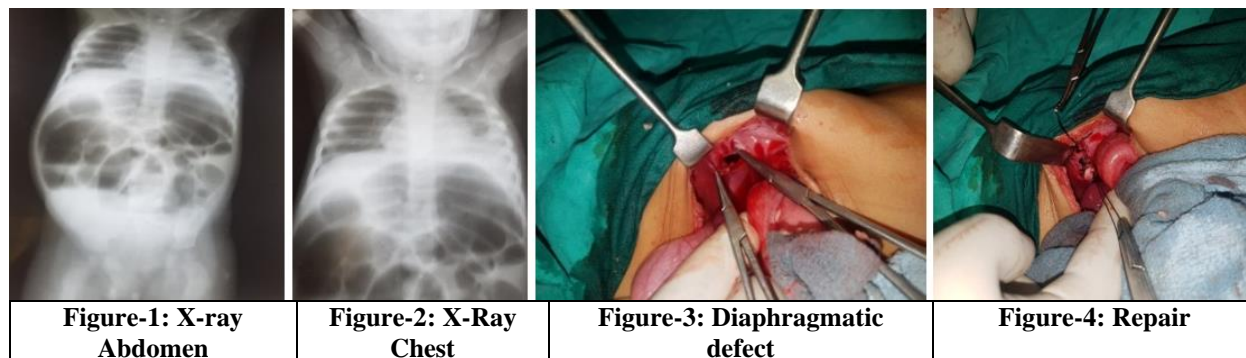
CASE

An 11 months old boy was referred from paediatrics in emergency with history of distention of abdomen, not passing stools and bilious vomiting for three days. His past history was not significant having no episodes of such complaints or any recurrent respiratory tract symptoms. There was no history of trauma. On examination the boy was moderately dehydrated and anaemic.

His abdomen was distended diffusely. Character and intensity of bowel sounds was exaggerated. His anus was located at normal place and his rectum was empty. Rest of the clinical examination was unremarkable. Patient was diagnosed as a case of acute intestinal obstruction. His X-ray abdomen showed multiple air and fluid levels (Figure-1). His x-ray chest showed haziness at left costophrenic angle, suggesting mild pleural effusion or pneumonia (Figure-2). Ultrasound examination of abdomen was normal and there were no comments for presence of pleural effusion or pneumonia. Haemoglobin was 7gm/dl and biochemistry

reports were within normal range. Patient was kept NPO, a nasogastric tube was placed for aspiration, intravenous fluids started, broad spectrum antibiotics administered and anaemia corrected with blood transfusion. After resuscitation, patient underwent laparotomy through right transverse upper quadrant incision. Whole of the gut was found to be dilated especially the right transverse colon. The rectum, sigmoid and left portion of the transverse colon was collapsed. The incision was extended to left of the midline making it possible to see the entrapped colon in the left hemi-diaphragm. The transverse colon and omentum were snugly entrapped inside the diaphragmatic defect, which were delivered out from the diaphragm by enlarging the diaphragmatic defect.

The entrapped colon and omentum were dusky in colour, which improved to normal colour after relief of compression and application of warm saline. The diaphragmatic defect (Figure-3) was repaired with non-absorbable suture (Figure-4). The rest of the gut was found to be normal with no evidence of malrotation. Abdominal incision wound was closed in layers using absorbable suture vicryl 3/0. A chest tube was placed on the affected side before closing the diaphragmatic defect and connected with under water seal bottle. Post-operative course was uneventful and the postoperative x-ray chest showed disappearance of haziness on the affected side. Patient was discharged on 5th postoperative day. Postoperative follow up showed a healthy and thriving baby.



DISCUSSION

Congenital Bochdalek Diaphragmatic Hernia (CDH) is easily recognized if it presents soon after birth with classic symptoms of respiratory system. Cases of CDH that present late are barely noticeable so are less easily diagnosed. The cases presenting early have more respiratory symptoms whereas patients presenting late have symptoms related with gastrointestinal tract. The incidence of late-presenting CDH has been reported between 5–25% of all case CDH. These patients have a variable clinical picture ranging from asymptomatic to chronic to acute symptoms related to respiratory or gastrointestinal tract. Literature reports delayed diagnosis in such cases.³ Causes of late presentation include late rupture of small hernia sac which contained viscera in the abdomen or plugging of hernia defect by solid viscera before the development of hernia due to increased abdominal pressure. The abdominal organs which ascend through the diaphragmatic defect may be spleen, liver, colon, stomach, kidney and tail of pancreas but colon and stomach are the two organs most commonly involved.⁴ The diaphragmatic defect in our patient was very small and most probably plugged with omentum before ascent and entrapment of the colon.

Diagnosis of CDH relies on clinical examination and radiography. X-Ray chest or in case of doubt contrast study is advised. CT scan or MRI is recommended in cases with equivocal diagnosis.² Misdiagnosis of strangulated Bochdalek hernia is common as it may be misinterpreted as pleural effusion, empyema thoracis, lung cyst, pneumonia and pneumothorax.³ The diaphragmatic lesion in our patient was also missed in preoperative evaluation because the solid patch on left side of base of lung was misinterpreted as pneumonic patch or a small pleural effusion. As patient was in acute intestinal obstruction so the patient

underwent emergency laparotomy and the diagnosis was made peroperatively.

The surgical options for obstructed diaphragmatic hernia include laparotomy, laparoscopy and thoracoscopy (VATS) or thoracotomy.⁵ Patients with symptoms of intestinal obstruction should undergo laparotomy to assess and address intestinal and other visceral ischemia and correct malrotation of the intestine if found. During laparotomy the patient may require widening of the hernia ring to facilitate removal of entrapped viscera.^{1,2}

The surgical options for the repair of CDH defect is repair with non-absorbable interrupted simple sutures. If the defect is too large a mesh can be inserted to repair the rent.^{2,3} In our patient the defect was small and was repaired easily with non-absorbable interrupted sutures.

The overall prognosis in patients with late-presenting congenital diaphragmatic hernia is better than the patients presenting soon after birth.²

We recommend high index of suspicion in such type of cases to plan a surgical approach more appropriate with less extensive sub-costal incision on the affected side and minimizing surgical trauma.

CONCLUSION

The lesson learnt by managing this case was that a high index of suspicion should be kept in paediatric patients presenting with acute intestinal obstruction particularly if they have an undiagnosed radio-opaque patch at the base of the lung. A definitive pre-operative diagnosis helps to plan the incision.

If time allows, a CT scan or MRI must be obtained before surgical intervention because the x-ray findings are not always typical in complicated congenital diaphragmatic hernia.

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