

Congenital Diaphragmatic Hernia Complicating Pregnancy: A Case Report

S Pai, N Rao, K Balu, J Madhusudhanan

Citation

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Abstract

Adult foramen of Bochdalek hernia complicating pregnancy is a very rare occurrence with only 35 cases (including this one) reported in the literature. A very high degree of suspicion is needed for diagnosis as the symptoms produced by this hernia are seen in normal pregnancy also. Emergency intervention becomes mandatory in severely symptomatic patients as this condition is associated with high fetal and maternal loss. We present here a patient with CDH who became acutely symptomatic during the postpartum period and was managed successfully. A brief discussion of management principles and guidelines is also mentioned.

CASE REPORT

A 26-year old primigravida came to the obstetrics department of our hospital with the complaint of increasing breathlessness near term and right sided chest pain. She had history of breathlessness throughout her pregnancy which was mild and was attributed to pregnancy itself during her antenatal visits. Near term examination revealed complicated breech presentation and the patient was taken up for elective caesarean section under spinal anaesthesia. A female baby was delivered and cried at birth. The perioperative period was uneventful.

The patient continued to have dyspnea during the postpartum period and it was associated with right-sided chest pain. On examination, the patient was afebrile; the vitals were stable and slightly tachypneic. The trachea was slightly deviated to left with decreased air entry in the right lower thorax. Careful auscultation revealed the presence of bowel sounds in the right lower thorax. Abdomen was soft with loss of normal liver dullness. Chest x-ray was taken which showed right diaphragmatic hernia.

Figure 1



A barium enema was done which confirmed the diagnosis and showed the presence of colon in the hemithorax. With this diagnosis, the patient was referred to the cardiothoracic unit of our hospital.

As the patient was otherwise stable, it was decided to do elective repair of the defect after preoperative evaluation. A right anterolateral thorocotomy was done. Entire liver, ascending colon, hepatic flexure, part of transverse colon and omentum was found in right hemithorax with adhesions. The underlying lung was hypoplastic with partly expanded upper lobe and chronically atelectatic middle and lower lobes. Margins of the diaphragmatic defect was identified

and held with Babcock forceps. Adhesions were released and contents were reduced into the abdomen without any difficulty. Anteriorly the defect was closed with 2-0 prolene sutures and posteriorly prolene mesh was used as the defect was large. Lung expansion was noted on inflation and the thoracotomy was closed after placing a chest drain. Suction was applied to chest tube for 36 hours. She made a satisfactory postoperative recovery except for a slight delay in the appearance of bowel sounds (on POD 3). The chest tube was removed on POD 8. A repeat chest x-ray on 9th postop day showed good lung expansion and she was discharged. She was seen after 3, 6 and 18 months of surgery and had no problems.

Figure 2

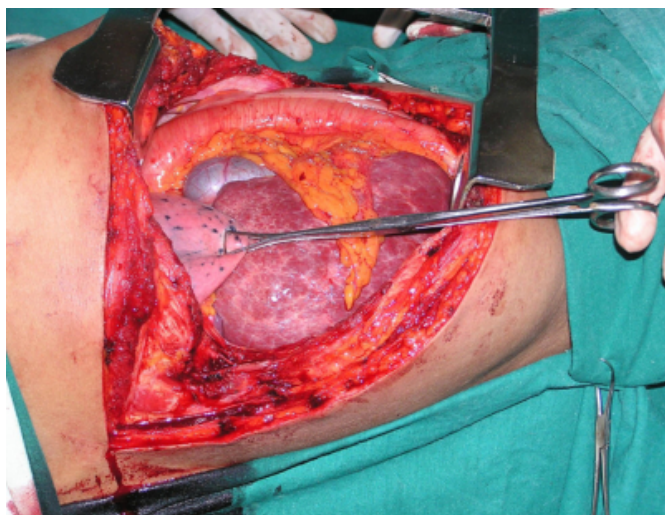
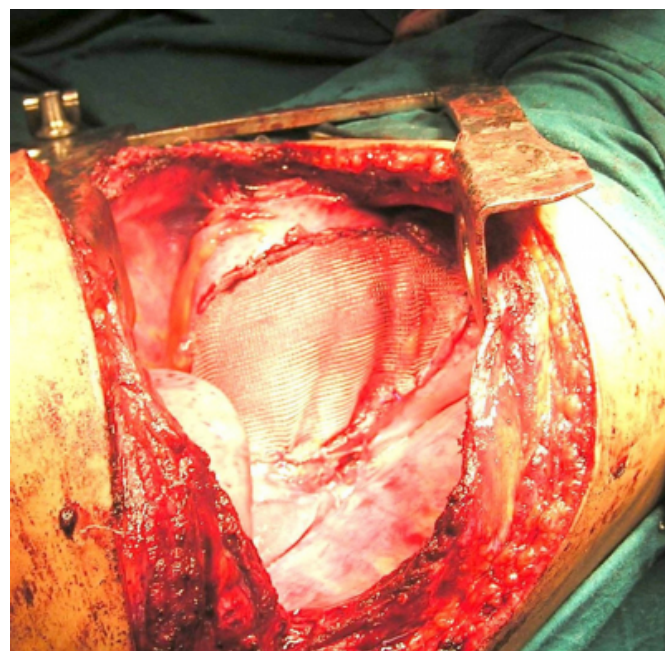


Figure 3



Figure 4



DISCUSSION

Congenital hernias resulting from development failure of the posterolateral diaphragmatic region were first described by Bochdalek in 1848. The central tendinous portion of diaphragm develops from septum transversum, the mediadorsal portion from the mesoesophagus and the lateral portion from the lateral body wall and pleuroperitoneal membranes. Between the eighth and tenth week of fetal life, septum transversum and pleuroperitoneal membranes fuse separating the abdominal and thoracic cavity. At about the same time GI returns to the abdominal cavity. Herniation of abdominal contents can occur prior to the closure of pleuroperitoneal canal₁.

A Bochdalek hernia in newborn usually causes severe respiratory distress and has high mortality rate. CDH presenting after neonatal period has nonspecific thoracic and abdominal complaints. Bochdalek hernia occurring in adult is a rare entity. CDH as a complication of pregnancy has been previously reported in 34 patients since 1928₂. Ninety percent of these hernias occur in left side while right sided hernias are very rare as the caudate lobe of liver narrows the pleuroperitoneal canal and prevents herniation₂.

Common symptoms that bring the patient to the hospital are sharp epigastric or left chest pain and unremitting nausea with vomiting. Nevertheless, the clinical presentation of CDH during pregnancy can range from being totally asymptomatic throughout pregnancy to acute intestinal obstruction during any trimester. Diagnosis depends on

clinical suspicion. Physical signs are usually inconclusive. A chest x-ray after passing Ryle's tube usually confirms the diagnosis. There is an instance in a previous case report where MRI abdomen has been used for diagnosis₃.

Management of a patient with CDH complicating pregnancy requires thorough assessment, close monitoring and preparedness for emergency surgery. The pregnant mothers run the risk of intestinal obstruction and strangulation as greater amount of viscera is displaced into the thorax by the enlarging viscera. The previous case reports suggest that diaphragmatic hernia can be safely repaired in the antepartum period_{3, 4}. Symptomatic patients presenting in first and second trimester should undergo operative repair. Corticosteroids for fetal maturity should be administered to the mother before surgery if the gestational age is between 24 and 34 weeks because of the risk of preterm delivery during or after surgery. The patients who had undergone repair of hernia during their first or second trimester can be allowed to deliver vaginally. Uterine contractions do not increase intraabdominal pressure and are unlikely to cause rupture at repair site₃. However, bearing down efforts can increase intraabdominal pressure which can be overcome by epidural anaesthesia and assisted labor using vacuum or forceps. For symptomatic patients presenting during third trimester, elective cesarean section and hernia repair can be done simultaneously.

The incidence of asymptomatic Bochdalek hernia in adult population was reported to be 0.17% with female-to-male ratio of 17:5₅. In spite of such high incidence, the number of reported cases of CDH complicating pregnancy is extremely small (34 cases since 1928).

Thus asymptomatic pregnant women with CDH can be observed and can be allowed to labor and deliver vaginally-preferably assisted labor with epidural analgesia₃. Induction of labor at term should also be considered to avoid unplanned delivery. Nevertheless, they should be closely followed up during the antepartum and postpartum for signs and symptoms of intestinal obstruction. If these patients develop obstruction, immediate exploration and repair of hernia should be done regardless of the stage of fetal development₆. Our patient, though had a large defect with colonic herniation, was largely asymptomatic during the gestation period and had an uneventful elective caesarean

section. Retrospectively this confirms the fact that asymptomatic patients can be managed expectantly.

Previous reports have showed high fetal and maternal mortality if surgery is delayed in symptomatic cases₇. Hence, emergency operation is mandatory in such patients. One report suggests that gastric decompression transiently improves the clinical condition of the patient in obstruction which can allow surgery to be delayed until the patient is shifted to a tertiary care hospital or until antenatal steroids are administered_{3, 8}. Patients who had undergone emergency surgery in third trimester should be taken up for elective cesarean section after confirming fetal maturity. Those who had emergency operations in first and second trimesters can be allowed to deliver vaginally using aforementioned principles.

To conclude, we feel that a high degree of suspicion is required for diagnosis of this rare but treatable condition when an obstetrician is dealing with a pregnant woman with undue respiratory distress.

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References

1. Kirkland JA, Congenital posterolateral diaphragmatic hernia in the adult. *Br J Surg* 1959; 47:16-22.
2. Kaloo PD, Studd R, Child A. Postpartum diagnosis of maternal diaphragmatic hernia. *Aust NZJ Obstet Gynecol* 2001;41: 461-3.
3. Mehmet RG, Thomas EC, Stephen JF, Errol Norwitz. Maternal Congenital Diaphragmatic Hernia Complicating Pregnancy. *Obstet Gynecol* 2003;102:1194-6.
4. Richard BK, Keith SN, Robert AS. Repair of Symptomatic Diaphragmatic Hernia during Pregnancy. *Obstet Gynaecol* 1988;71: 869-71.
5. Mullins ME, Stein J, Saini SS, Mueller PR. Prevalence of incidental Bochdalek's hernia in a large adult population. *AJR Am J Roentgenol* 2001;177:363-6.
6. Ortega-Carnicer J, Ambros A, Alcazar R. Obstructive shock due to labor-related diaphragmatic hernia. *Crit Care Med* 1998; 26: 616-18.
7. Gimovsky ML, Schiffrin BS. Incarcerated foramen of Bochdalek hernia during pregnancy. A Case Report. *J Reprod Med* 1983; 28:156-8.
8. Fleyfel M, Provost N, Ferreira JF, et al. management of Diaphragmatic Hernia During Pregnancy. *Anaesth Analg* 1998; 86:501-3.

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