Bochdaleki hiatal hernia in an eight month old infant - case report

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Abstract

The aim of this paper is to report a case of congenital diaphragmatic Bochdalek hernia in eight month old baby with herniation of stomach into thoracic cavity and subsequent postoperative bleeding from right gastroepiploic artery with formation of intraabdominal haemathoma, which was clinically manifested as vomiting and ileus. Multidisciplinary approach (obstetricians, pediatric surgeons and neonatologists) is imperative along with timely diagnosis and treatment.

Keywords. Congenital Diaphragmatic hernia, diagnosis, surgical treatment.

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Introduction

Congenital Diaphragmatic hernia (CDH) is characterized by a defect in the diaphragm which results with protrusion of abdominal contents into the thoracic cavity (1,2), with incidence from 0.8 - 5/10,000 births (2). It is more frequent in males (2). The most common type is postero-lateral hernia (Bochdalek; (70–75%) with the majority occurrence on the left side (85%) and less frequently on the right side (13%) or bilateral (2% (2)). Anterior defects (Morgagni; 23–28%) and central hernias (2–7%) present other types of hernia. Early diagnosis (possibly prenetal) with timely treatment is very important (2,3).

Case report

The female infant was hospitalized several times at gastroenterology department of Pediatric Clinic, Clinical Center University of Sarajevo due to recurrent vomiting. The parents did not notice blood in vomit and the patient didn't have a fever. Bowel movements and urination were normal. She had a loss of appetite. Upon admission, laboratory results showed a slight metabolic alkalosis; other laboratory findings were within normal range. The pediatric surgeon was consulted because of the clinical and radiological suspicion of late-recognized diaphragmatic congenital Bochdalek hernia. The patient had frequent respiratory infections and on several occasions was hospitalized at the Pulmonary Department of Pediatric Clinic. Chest X-ray showed shading in the mediastinum region and the right half of the chest (Figure 1), and due to suspected congenital diaphragmatic hernia, urgent CT without contrast was made. Radiologists have described the presence of intestinal loops in the right half of the chest. (Figure 1). The patient was observed and after 24 hours the patient developed breathing difficulties, started vomiting, her clinical condition exacerbated. A control urgent CT with contrast was performed and stomach presence in

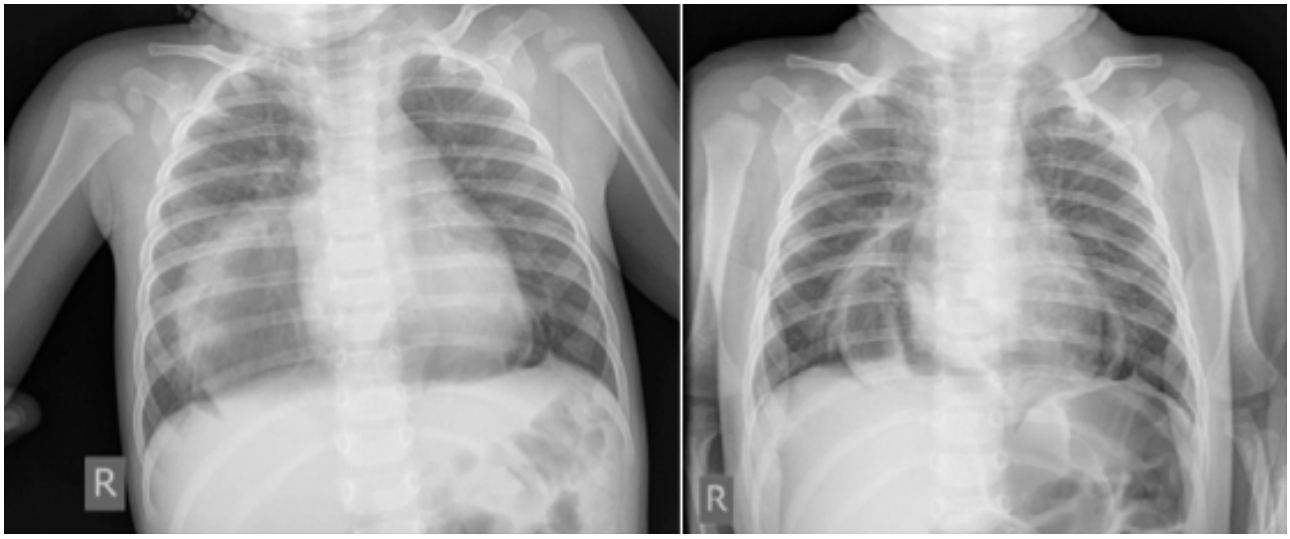

Figure 1. Initial chest X- ray - left; presence of colon in right hemithorax - right

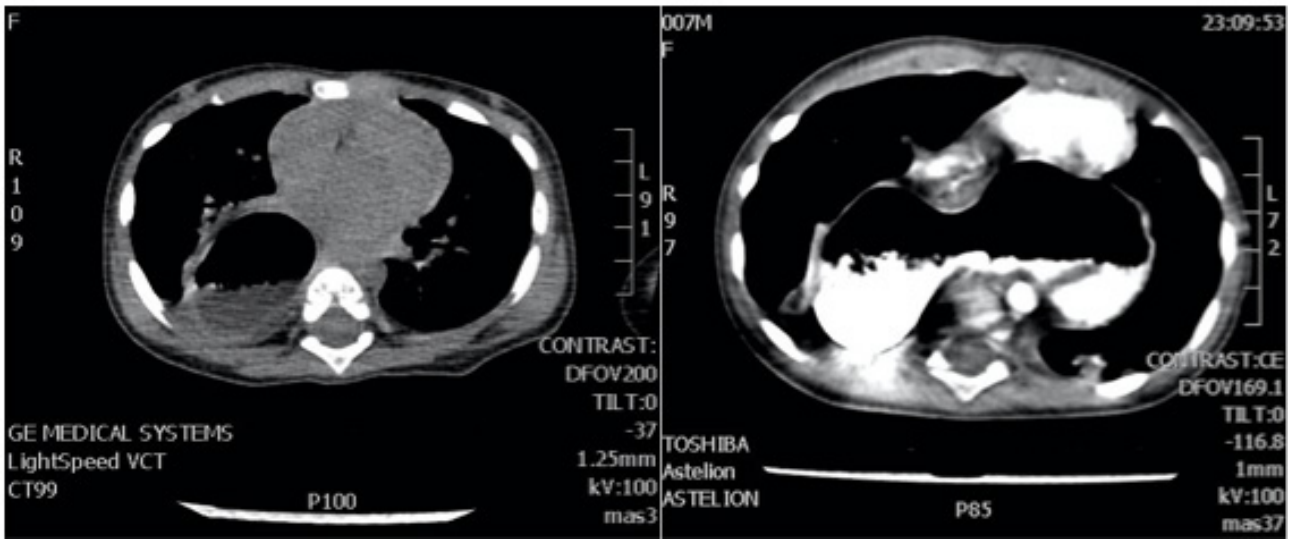

Figure 2. CT finding - stomach presence in the chest was suspected

the chest was suspected (Figure 2). Urgent laparotomy was indicated for suspicion of strangulation of abdominal organs in the chest. Due to the doubt posed by the radiologist that the congenital Bochdaleki hernia is present, subcostal lateral laparotomy (Kocher) is performed. However, by exploration it was determined that the right hemidiaphragm was intact. There is a lack of stomach presence and the incision is widened like the „Mercedes sign" towards the epigastrium (Figure 3), with complete elongation of stomach, which is dilated and located in the mediastinum.

The stomach retracts back into the abdominal cavity. A large opening with a nonresorptive suture was closed, the fundus of the stomach fixed to one side with the cardio making up the other part for the diaphragm cupola (Nissen-Roseti). Following surgery, the infant was admitted to Pediatric intensive care unit (PICU). Postoperative course does not turn out satisfactory; the patient has a decreased hematocrit and received multiple blood transfusions. Also, she developed a fever.

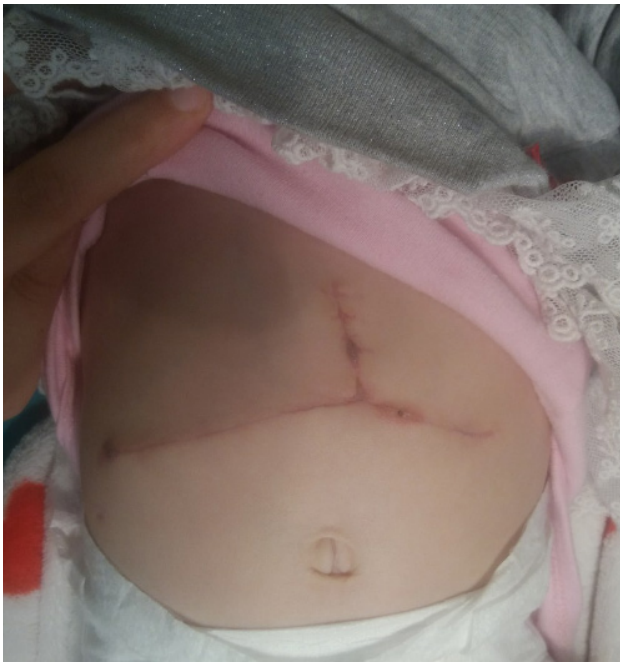

Figure 3. Postoperative scar

Escherichia coli was isolated in blood culture. On the third post-operative day, she was vomiting profoundly with clinical and radiological signs of ileus. There was an indication for relaparotomy. During surgical procedure, a large blood cloth was found near gastrohepatic ligament, arrising from right gastroepiploic artery. The artery was ligated, omentum maius was partially resected. After the second surgery, the postoperative course was satisfactory. The nasogastric tube was placed for 7 days. Upper gastrointestinal X-ray with contrast was done, which showed normal anatomy of the digestive tract (Figure 4). The infant reached full recovery and was discharged in good condition.

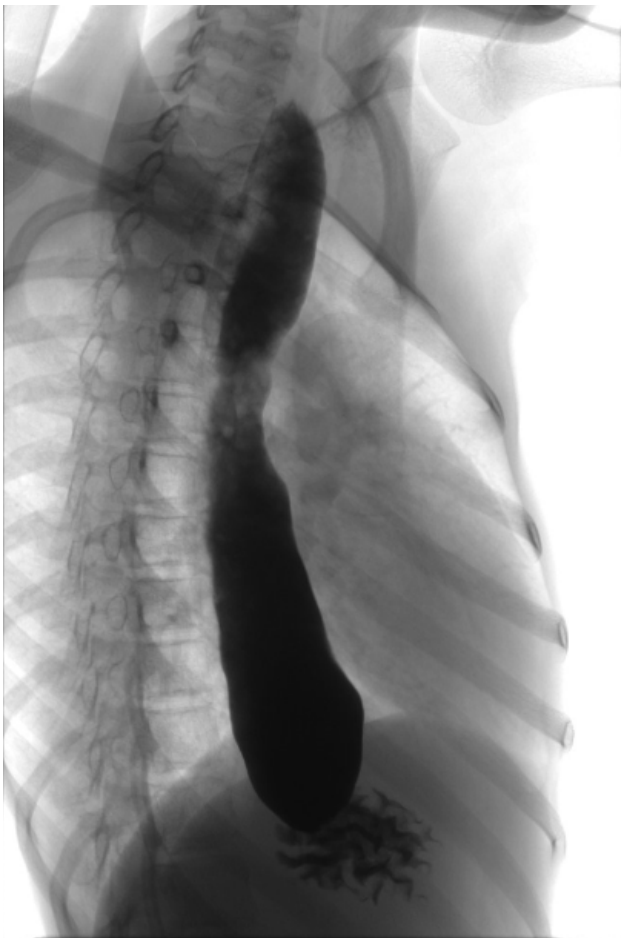

Figure 4. Upper gastrointestinal X-ray with contrast - normal anatomy of the digestive tract

Discussion

CDH can be found isolated, but also within the Pentalogy of Cantrell, Apert, Brachmann-Cornelia De Lange, Beckwith-Wiedemann, CHARGE, Coffin-Siris, Goldenhar sequence, Simpson-Golabi-Behmel, Stickler, Pierre Robin sequence and VACTERL (4) . Etiology is often unclear but it is assumed to be multifactorial (1,3,5). It is associated with chromosomal abnormalities (trisomy 18, 13 and 21) (6). Prenatal diagnosis by ultrasound detects more than 50% of CDH cases at a mean gestational age of 24 weeks.(4) Prenatal treatment is one of the modalities of treatment (2,4). Treatment of congenital diaphragmatic hernia (CDH) challenges obstetricians, pediatric surgeons, and neonatologists (4). The major determinants of the outcomes in CDH are the presence of associated anomalies, especially the heart disease, extent of lung hypoplasia and position of the liver. The presence of other symptoms, especially in the cardiovascular and respiratory system, present complications that directly depend on the treatment. Surgical treatment through thoracic or abdominal approach, in open or minimally invasive manner, and the outcome is dependent on the characteristics of the diaphragmatic defect (5,6).

Conclusion

Although rare, Bochdaleki hernia should be suspected in infants with prolonged vomiting, or recurrent respiratory infections, especially when all other possible causes are excluded. Multidisciplinary approach in treatment is imperative.

Declaration of interest

The authors declare no conflicts of interest.

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