World Journal of Surgery and Surgical Research

Case Report
Published: 14 Jan, 2023

Giant Bochdalek Hernia in an Adult: A Case Report

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Abstract

Bochdalek hernia is one of the most common types of diaphragmatic hernia. It appears frequently in infants but rarely in adults.

We present the case of a 30-year-old male patient with giant left-sided congenital posterolateral diaphragmatic hernia (Bochdalek hernia) with progressive dyspnea and abdominal symptoms due to incarceration of the stomach, spleen, pancreas, small bowel and transverse colon, but without a history of trauma.

The diagnosis of BH was made based on chest X-ray and CT-scan. A laparotomy was performed to reduce in abdominal cavity a herniation of the strangulated viscera preceded by phrenotomy with defect correction and a direct closure of the defect opening was finally performed by dual mesh interposition.

The surgical approach for the resolution of this pathology is variable and it depends on the presence and severity of visceral complications (incarceration, strangulation, hemorrhage and visceral perforation in the chest cavity) and experience of the surgeon.

Introduction

Bochdalek hernia is one of the most common types of congenital diaphragmatic hernia caused by the failure of the post-lateral diaphragmatic foramina to fuse properly at around 8th to 10th weeks of gestation, it was described by the Czechoslovakian anatomist Vincent Alexander Bochdalek in 1848, but the first description appeared in 1575. Successful surgical treatment of congenital diaphragmatic hernia in an infant was first performed in 1902, whereas the first neonate operated within 24 h of life was reported in 1946 [1]. Congenital diaphragmatic hernia occurs in 1 in 2,000 to 3,000 newborns, normally it is diagnosed in neonatal and postnatal patients - the clinical manifestation of symptoms and diagnosis in adults is extremely rare [2]. Most of the hernias (80% to 90%) are found on the left side. Right-sided hernias are rarer because the right pleuroperitoneal canal closes earlier and the liver buttresses the right diaphragm [3,4]. Rarely, hernias present bilaterally, a peritoneal hernia sac is not present in over 85% and also appears dependent on the timing of pleuroperitoneal fold fusion [5]. Normally Bochdalek hernia is diagnosed in childhood for acute respiratory symptoms; adult presentation while is rarely reported but the diagnosis of Bochdalek hernia have increased with introduction of chest CT scan for surveillance of cancer or assessment of vague symptoms.

Case Presentation

We present the case of a 30-year-old male patient with giant left-sided congenital posterolateral diaphragmatic hernia (Bochdalek hernia) with progressive dyspnea and abdominal symptoms due to incarceration of the stomach, spleen, pancreas, small bowel and transverse colon, but without a history of trauma. There was no relevant past medical history. He had complaints such as epigastric pain, nausea, vomiting, shortness of breath, severe left sided chest pain radiated to the ipsilateral dorsal region. His vital signs were blood pressure 110/65, heart rate 110 beats per minute, respiratory rate 22 per minute and temperature 37°C. The bowel sounds were audible on the left side of the chest.

Chest X-ray and CT-scan (Figures 1-3) was used as diagnostic methods. In the left hemithorax was seen spleen, pancreas tail, a prominent gastric bubble, transverse colon and small bowel. Dislocation of mediastinum and stretching of hepatic pedicle was demonstrated.

A laparotomy was performed. There was a 6 cm defect in the post-lateral left hemi-diaphragm (Figure 4). The stomach, transverse colon, small bowel, spleen and pancreas tail were carefully reduced in to the abdominal cavity through the hernia defect. There were any anatomopathological

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Received Date: *29 Dec 2022*
Accepted Date: *11 Jan 2023*
Published Date: *14 Jan 2023*

Citation:
Lattanzio F, Lionetti I. Giant Bochdalek Hernia in an Adult: A Case Report. World J Surg Surgical Res. 2023; 6: 1443.

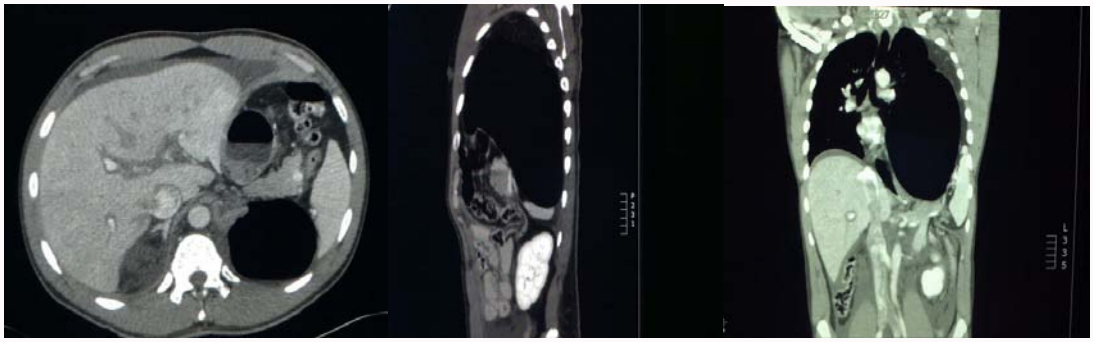

Figure 1-3: Coronal, sagittal and axial CT-scan showing a large posterior defect at the left hernia diaphragm, a mediastinal shift to the right and the presence of herniated viscera in the left thoracic cavity. (Stomach, omental fat, small intestine, colon, spleen and pancreas tail).

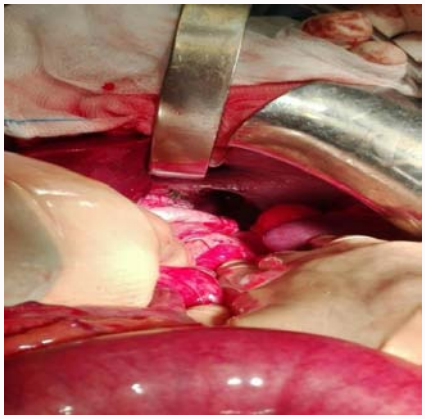

Figure 4: Intraoperative vision of the wall defect.

lesion of viscera. Suture of diaphragm defect was performed and dual mesh was fixed to the defect area to close definitely the diaphragm defect (Figure 5). No complication was observed during the surgical procedure and in postoperative hospital stay.

The patient was taken into the intensive unite care for one day. The oral intake started in second postoperative day and patient discharged in sixth postoperative day.

The best surgical approach in in an elective setting is laparoscopy or thoracoscopy, but in emergency most surgeons prefer laparotomy for visceral complication; in our case we preferred laparotomy approach for the presence of the spleen and the prominent gastric bubble in the thoracic cavity.

Discussion

Bochdalek hernia is congenital defect resulting from a developmental failure of the diaphragm located in the posterior insertion described by Vincent Alexander Bochdalek in 1848. The disease is due to the failure of closure of the canal between the septum transversum and the esophagus during the 8th week of gestation. The most frequent are the left posterolateral hernias (85%) whereas the right side or bilateral are 13% and 2% respectively.

Normally BH are diagnosed in children and neonates that present clinical symptoms caused by associated pulmonary insufficiency. In adults BH diagnosis is difficult for its rarity and the symptoms are nonspecific and may be confused with other diseases (dyspnea, breathlessness, cough, chest pain, generic chronic gastrointestinal symptoms).

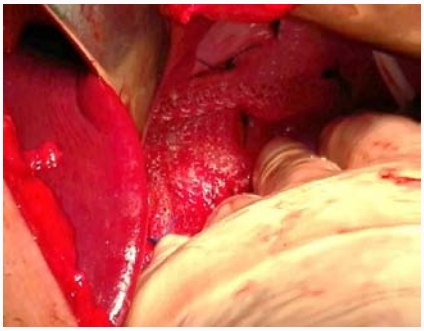

Figure 5: Diaphragm suture and placement of the dual mesh prosthesis.

The correct diagnosis is normally performed with X-ray chest, CT-scan or RMI that offer a better visualization of the defect.

These hernias may contain intraperitoneal or retroperitoneal structures; in the right-sided hernias the contents are the liver, the kidney, and fat while left-sided BH may contain the transverse colon, loops of the small bowel, the liver, the spleen, the pancreas.

The management of BH includes reduction of hernia contents to the peritoneal cavity and repair of the diaphragmatic defect. The defect is sutured for the restoration of the anatomy between the thoracic and the abdominal cavities; many surgeons prefer a prosthetic dual mesh graft because the continuing stress on the diaphragm that results from respiratory and cardiac motions.

Laparotomy is the widely used surgical approach, while mininvasive approach, laparoscopy or thoracoscopy, are used in elective setting; however, all these techniques are used in relation to the surgeon skills and the presence of visceral complications.

Conclusion

Adult BH is very rare condition. Correct diagnosis and early treatment is very important to avoid the occurrence of morbidity and a higher complication rate.

Surgical management is recommended in order to prevent complications like intestinal obstruction or viscera strangulation, hemorrhage and visceral perforation in the chest cavity.

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