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Gastric Volvulus in Association with Bockdalekhernia in Adult Patient (Case Report)

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Abstract

Purpose: Bochdalek hernia (BH) in adulthood is rare. Symptomatic BH in adults is rarer, but may lead to fatal complications. Patients with acute gastric volvulus on diaphragmatic hernia are a diagnostic and therapeutic emergency.

Materials and Methods: A 22-year-old male patient presented to our emergency department with a two-day history of severe epigastric pain. The pain was dull in nature with dyspnea on lying supine.

Findings: The stomach was within the thorax on the left side due to left diaphragmatic hernia of a nontraumatic cause, diagnosed by chest radiograph, and computed tomography (CT). The patient was prepared for the open surgical repair, to close the defect. The patient recovered with accepted general condition and was discharged 5 days later. In conclusion, in our case, we report this rare presentation of BH with gastric volvulus as an urgent condition that needs to be diagnosed as early as possible to prevent fatal complications.

Implications to Theory, Practice and Policy: A diagnosis of an adult diaphragmatic hernia should always be kept in mindin patients with overlapping abdominal and respiratory symptoms with or without a history of trauma.

Keywords: *Bochdalek; Volvulus; Laparotomy*

1.0 INTRODUCTION

Gastric volvulus is defined as an abnormal rotation of all or part of the stomach around one of its axes. Organoaxial and mesentericoaxial volvulusare distinguished according to the direction of rotation. The most common cause ofgastric volvulus is hiatal hernia.[1] Bochdalek hernia (BH) which is the result of a congenital defect in the posterior costal part of the diaphragm in the regionof the 10th and 11th ribs can be a cause, but fairly rare, especially in adults.[2] Most hernias are asymptomatic and found incidentally.[2] Gastric volvulus is adiagnostic emergency and therapeutic challenge because in acute forms it may lead to gastric strangulation with a high risk of ischemia and necrosis.

Gastric volvulus requires surgical treatment, specifically volvulus reduction,reintegration of the stomach into the abdominal, and correction of causalfactors.[1] To the best of our knowledge, this is the first report from this region documenting this rare cause of gastric volvulus in adults. BH is a defect in the posterolateral part of the diaphragm which through abdominal organs herniates into the thoracic cavity. It is caused by the failure of pleuroperitoneal membranes to close during fetal development. It affects mostlythe left side.

Diagnosis of BH can be done in the prenatal period through USS or after birth.However, BH can present in adults although it is extremely rare [2] diagnosis ofBH in adults is challenging it can be asymptomatic or present with symptoms due to herniation of abdominal organs into the thorax which includes dyspnea , vomiting, chest pain, fullness, and abdominal pain.

Case Report

A 22-year-old male patient presented to our emergency department with a two-day history of severe epigastric pain. The pain was dull in nature with dyspnea on lying supine position relieved by leaning forward with frequent attacks of vomiting and constipation. The patient experienced mild epigastric pain attacks for a prolonged time (8 months) which was relieved by pain killers he was misdiagnosed as irritable bowel syndrome (IBS).

There is no history of trauma or previous abdominal surgery and his past medical and social history were unremarkable. On examination, the patient was dyspneic, spo_2 95% and suffering from epigastric tenderness negative bowel sound, t a c h y c a r d i a and normal blood pressure (Bp= 130/90 mmgh, PR =130/min), Chest examination showing diminished air entry at left lower zone with minimally reduced chest expansion in the left side.

Laboratory investigations were unremarkable. Chest x-ray showing mediastinum shifting to the right side with gas shadow occupying most of the left side haemothorax? (Figure 1)

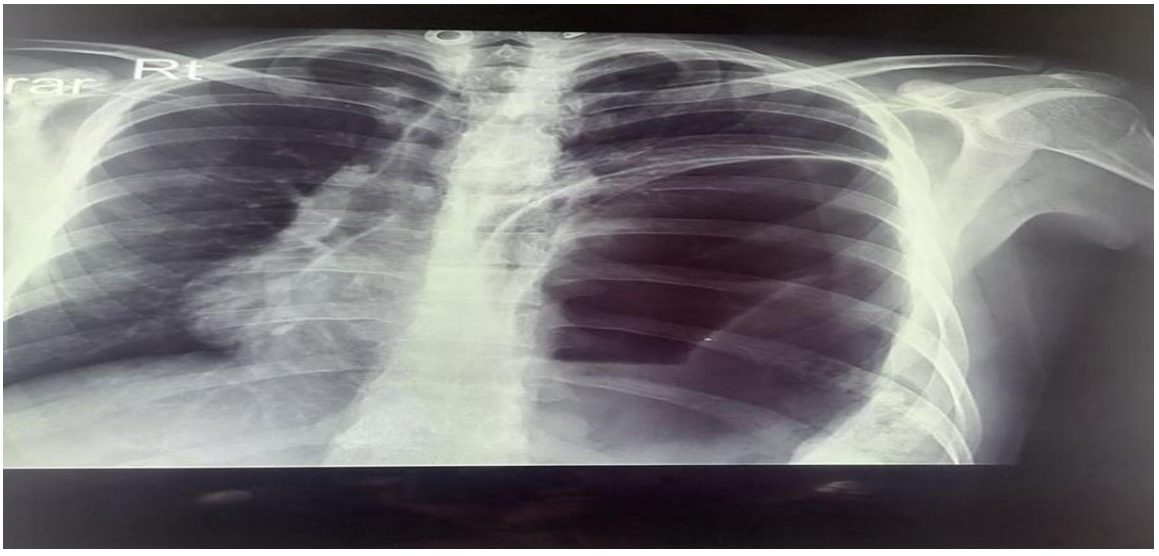

Figure 1: The Figure Shows Gas Shadow in the Left Side of the Chest

Ultrasound of abdomen was not conclusive so computed tomography of the chest and abdomen was performed showing large gas-filled distended bowel loop replacing most of the left-sided haemothorax associated with severe right-sided heart and mediastinum shifting compressing underlying lung gastric volvulus. (Figure 2).

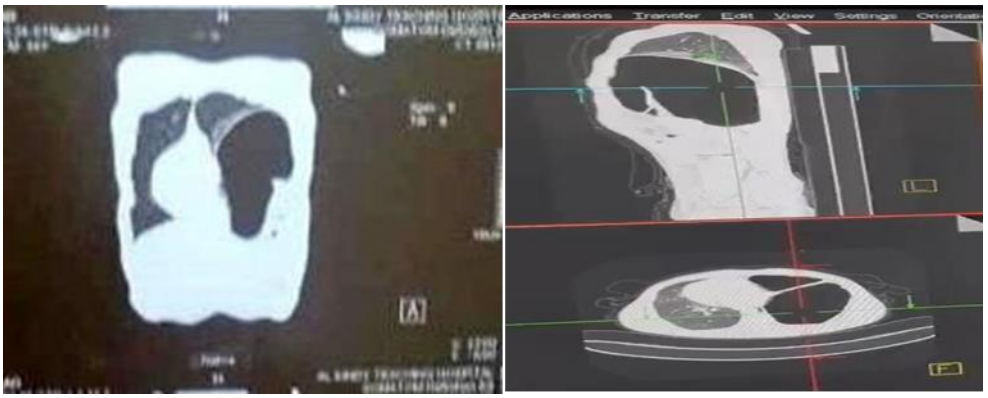

Figure 2: CT Scan of Chest Showing Gas Shadow in Left Side Compressing Lung Parenchyma and Displacing Mediastinum to Right Side

After these radiological findings, nasogastric tube was attempted for insertion but failed, therefore, gastric volvulus was suspected and plan for laparotomy decided.

Therapeutic Intervention

Exploratory laparotomy done through upper midline incision intraoperativefindings include Left postero - lateral Diaphragmatic hernia (Figure 3) with herniation of stomach into the thoracic cavity which was rotated and dilated inaddition to herniation of transverse colon ,mesocolon and spleen. Reduction of content with derotation of stomach it was in form of organ axial type of volvulus, then nasogastric tube passed smoothly and urine bag filled withtwo letters of gas The diaphragmatic defect was approximately 8 cm, (Figure 4) so, primary repair by non-absorbable suture double layer. Gastropexy to anteriorabdominal wall was done.

Chest tube was inserted. Drainage was done. Postoperative period was uneventful.

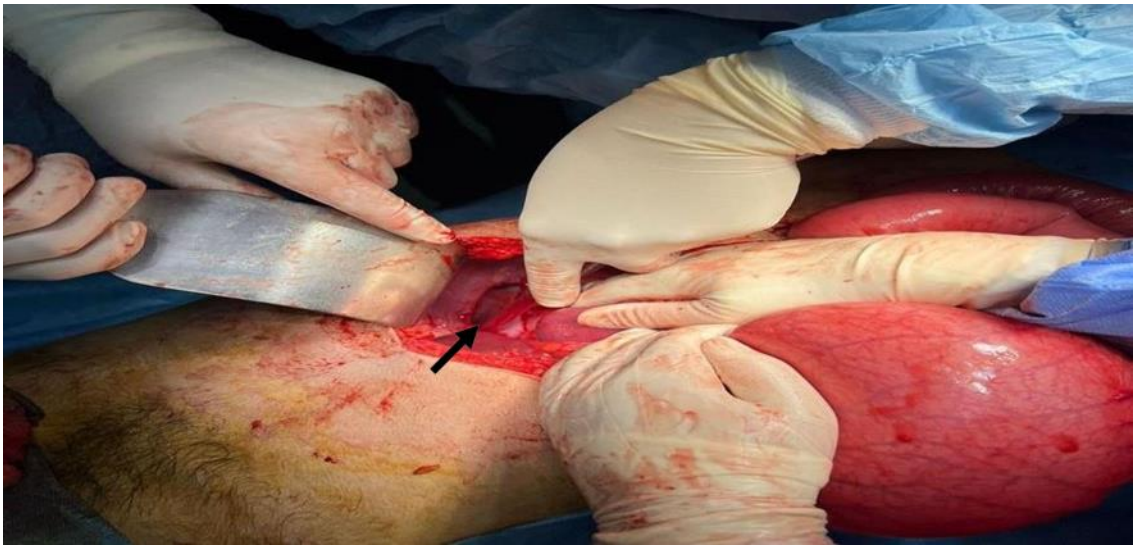

Figure 3: Showing Distended Stomach Pulled from Chest through a Hernial Opening in Diaphragm

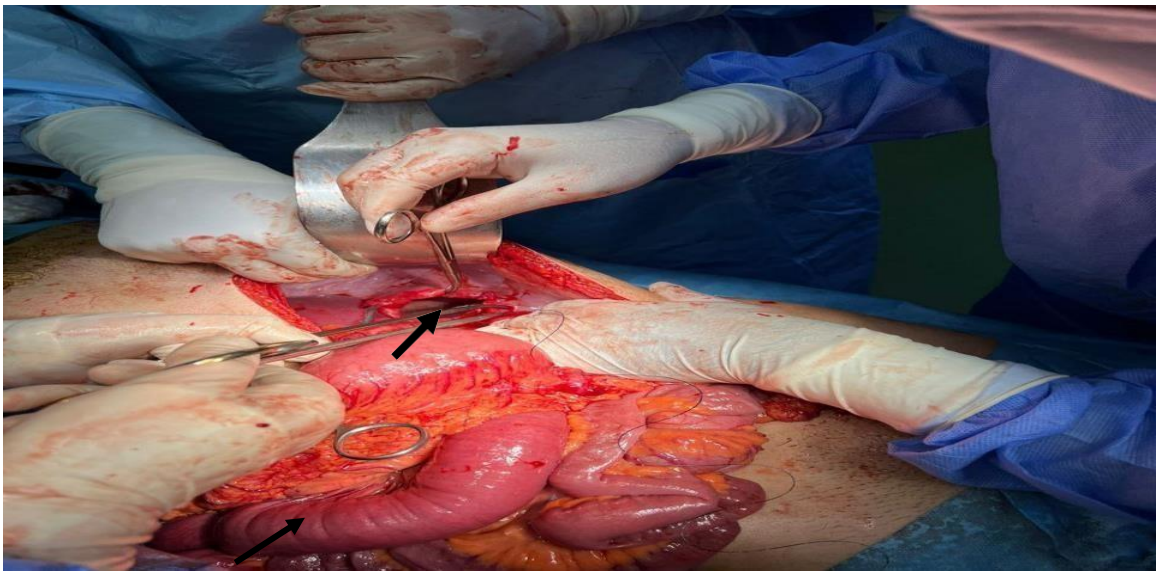

Figure 4: Intraoperative Finding Showing Posteriolateral Diaphragmatic Defect after Reduction of Hernial Content

Discussion

The foramen of Bochdalek is a 2 - 3-cm aperture on the poster lateral part ofthe fetal diaphragm, which allows communication between the pleural and peritoneal cavities.[3] In 1848, Bochdalek initially characterized the closure failure.[4] Bochdalek's hernia typically presents in the early neonatal period. The diagnosis of BH beyond the first 8 weeks of birth is believed to accountfor 5% to 25% of all cases.[5] Adults with BH are frequently asymptomatic.

[3] If a person experiences symptoms, the most frequent manifestation includespain in the chest and abdomen, difficulty breathing, and blockage of the bowels.46% of instances have exhibited a presentation with severe symptoms, while 32% of cases have resulted in mortality due to visceral strangulation and suddendeath caused by intrathoracic complications.[6]

Previous studies have indicated that another possibility is the delayed start of secondary gastric volvulus linked with congenital diaphragmatic event ration.[7] Because the left diaphragm connects two of the stomach's four ligaments (gastro phrenic and gastro splenic), a deficiency may predispose to gastric volvulus. Patients with congenital diaphragmatic hernia may have elongated or missing ligaments.[8] The Borchardt triad—the three main clinicalindications of gastric volvulus—was first documented in 1904. Those include; unproductive retching, localized epigastric distension, and inability to pass a nasogastric tube.[9]

Gastric volvulus is an irregular stomach rotation around one axis. Rotation direction distinguishes organ axial and mesenteric axial volvulus. Although hiatal hernia is the most common cause of gastric volvulus, ligamentous laxity is the main risk factor. Gastric volvulus is most common in the elderly, peakingat about 50.[10] When it comes to gender, the majority of authors do not appear to have any tendency towards dominance.[11]

A high air-fluid level in the chest is indicative of the diagnosis when erect chest radiographs are obtained. Additionally, it is imperative to conduct a barium swallow to verify the diagnosis. However, computed tomography (CT) now offers a thorough account of the thoracic lesion, which includes the vitalityof the stomach.[11] An enlarged and blocked stomach is susceptible to inadequate blood supply and rupture, which can be life-threatening. The surgicaltherapy involves untwisting the volvulus, returning the herniated contents to their original position, closing the defect in the diaphragm, and securing the stomach to the front wall of the abdomen.

2.0 CONCLUSION AND RECOMMENDATIONS

A diagnosis of an adult diaphragmatic hernia should always be kept in mind in patients with overlapping abdominal and respiratory symptoms with or without a history of trauma. Adult BH were more commonly present with gastrointestinal symptoms than with pulmonary symptoms.BH is a rare presentation in adults and the diagnosis is relatively challengingdue to non-specific symptoms it depends on both physical examination, chest radiographs, and chest CT scan through which the detection of focal defects andthe status of herniated abdominal organs can be established.

In this case, we report this rare presentation of BH with gastric volvulus as itsurgent condition and need to be diagnosed as early as possible to prevent mortality and improves morbidity.

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