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Case Report

A rare case of delayed presentation of post traumatic diaphragmatic hernia presented with intestinal obstruction

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ABSTRACT

Traumatic diaphragmatic injuries are rare complications resulting from a thoracic-abdominal blunt or penetrating trauma. Diaphragmatic injury is a rare entity and clinically difficult to be diagnosed as symptoms are often masked due to associated injury in poly trauma case. There are no specific signs and symptoms for diagnosing diaphragmatic rupture. High degree of clinical suspicion is needed in all cases of thoroco-abdominal injury to diagnose a case of diaphragmatic rupture. Left sided diaphragmatic injuries are more commonly reported in literature.

Keywords: Diaphragmatic hernia, Intestinal obstruction, Post traumatic

INTRODUCTION

The diaphragm is a dome shaped and thin musculoaponeurotic barrier that plays the important role in respiratory function and located between chest and abdomen. Left sided diaphragmatic rupture is more common as a result of protective anatomical site of liver on right side. The stomach is the most common organ to herniate followed by spleen. Post traumatic diaphragmatic injuries can present with symptoms of diaphragmatic hernia due to the herniation of abdominal viscera in to the thoracic cavity. A diaphragmatic hernia has been reported in 1-7% of patients with blunt abdominal trauma and 10-15% of cases involving penetrating abdominal injuries.[1] The most common cause of blunt diaphragmatic injuries is motor vehicle accident.

We represent a rare case of left post traumatic diaphragmatic hernia presented with small bowel obstruction.

CASE REPORT

A 60-year male presented with generalised abdominal pain and abdominal distention and bilious vomiting since 7 days and obstipation since 3 days and with no history of fever, weight loss or any other comorbidities. In surgical history patient had history of left side intercostal drainage tube insertion before 1.5 year after trauma to patient by fallen from tree. On per abdominal examination he has generalised tenderness and guarding over abdomen. Laboratory investigation showed normal parameters. Standing abdominal X-ray was suggesting of multiple air fluid levels. Ultrasonography was suggestive of multiple content loaded dilated bowel loops with reduced peristalsis, max diameter of 3.7 cm possibility of sub-acute to acute intestinal obstruction likely. Patient was taken for emergency exploratory laparotomy and on exploration stomach, small bowel, cecum, ascending colon and transverse colon appears distended with collapsed descending colon, sigmoid and rectum. The splenic flexure of colon found to be herniated through the posterolateral left hemi diaphragmatic defect of approx. 3 cm. The herniated splenic flexure was reduced back in peritoneal cavity and found to be gangrenous. Approx 5 cm of distal transverse colon and 5 cm of proximal descending colon found to be gangrenous, resection gangrenous colon was done with double barrel descending and transverse stoma. Left side ICD insertion was done and diaphragmatic defect was closed with

prolene 2-0 in continuous interlocking manner. Two drain placement was done one was sub diaphragmatic and one in pelvic cavity

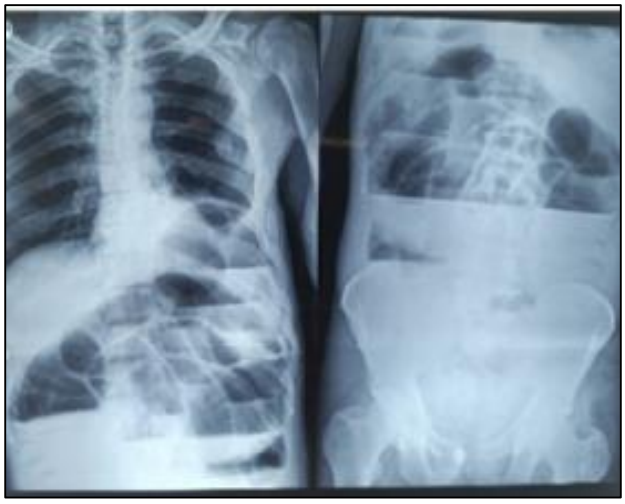

Figure 1: Chest and abdominal x-rays of the patient's preoperatively.

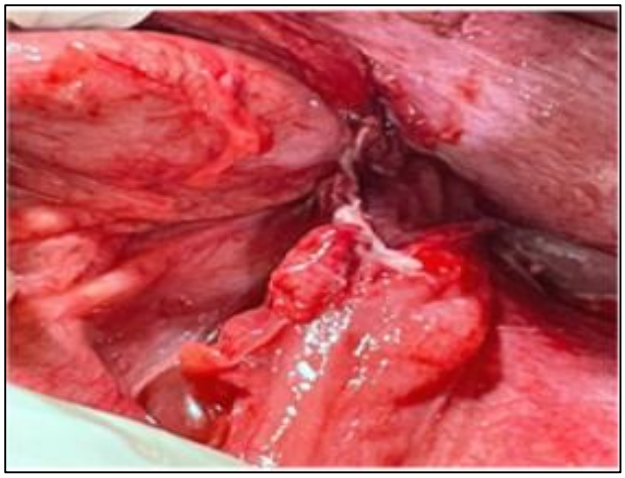

Figure 2: Herniated splenic flexure of colon.

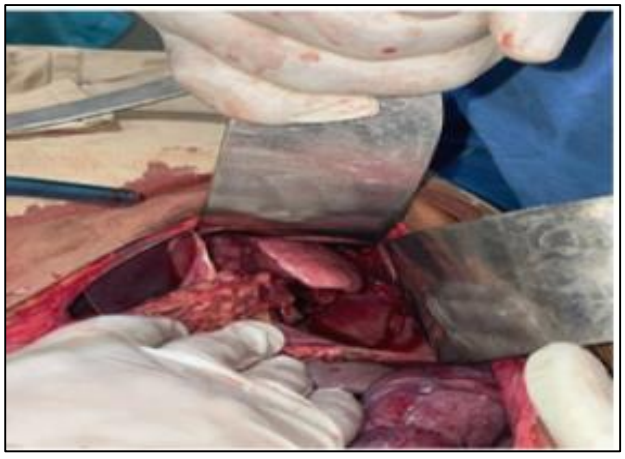

Figure 3: Visible gap defect in anterolateral diaphragm with visible lower margin of lung.

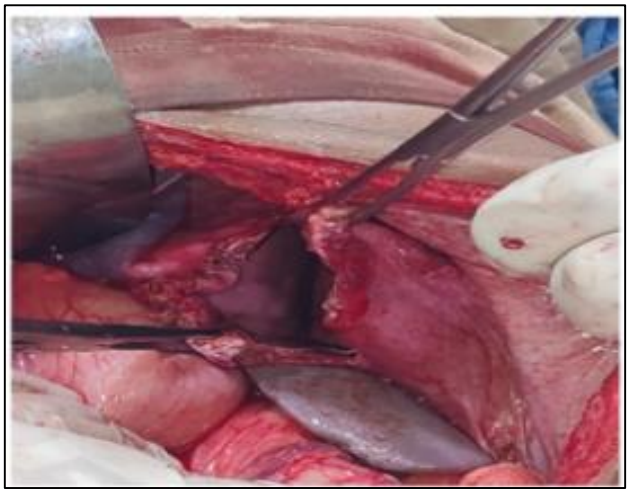

Figure 4: Visible gap defect in anterolateral diaphragm with visible lower margin of lung.

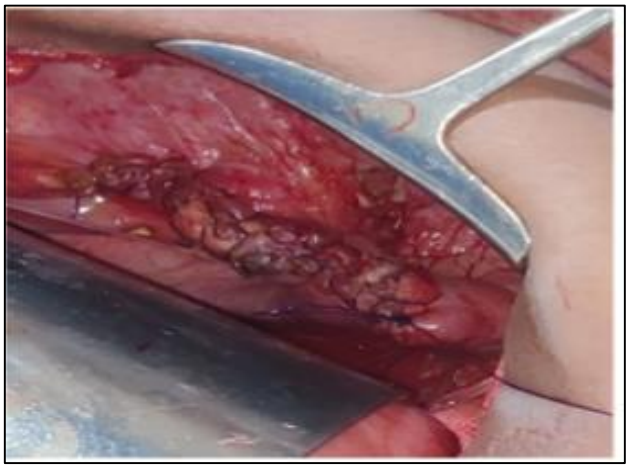

Figure 5: Closure of diaphragmatic defect with prolene 2-0 in continuous interlocking manner after ICD insertion.

DISCUSSION

Although diaphragmatic hernia is known condition it is one of the rare cause of intestinal obstruction. In most the cases of bowel obstruction due to diaphragmatic hernia, the most common cause is blunt abdominal trauma mostly associated with road traffic accidents.

Diaphragmatic hernia can be congenital or acquired. Most commonly, diaphragmatic hernias are congenital, accounting for more than 80-90% of all cases.[2] Posttraumatic diaphragmatic hernias are much more common on the left side. While the reason for this is not clear, it is known that a triangular gap exists between the muscle fibres of the costal part of the diaphragm (i.e., Bochdalek's gap, via which the eponymous hernia occurs) and that this gap is more common on the left side than the right. Other possible reasons include: (a) the line of fusion of the septal and muscular parts of the diaphragm is a potential weak area; (b) the oesophageal

hiatus may provide an easier conduit for herniating viscera (this would also explain why the most commonly reported viscera to herniate is the stomach); and (c) the liver, a large solid organ that is less prone to herniate, is positioned on the right side (only one case of liver hernia has been reported thus far).[3]

Diaphragmatic hernias may go unnoticed on initial imaging exams. Only 25-40% of radiographs taken on admission are diagnostic, and CT scan is an accurate help.[4]

In this case, patient might have developed diaphragmatic injury due to that penetrating trauma 1.5 years back but did not develop any sign, symptoms or complications as the defect and the wound was small and might have missed the vital organs. Later on patient developed pain abdomen and the series of events might have led to intestinal obstruction due to herniation of abdominal contents through the defect.

The natural tendency of diaphragmatic hernias is an increase in size due to the forces to which the structure is subjected, the pressure gradient that exists between the chest and abdomen (7-20 cm H_2O and may increase to up to 100 cm H_2O in situations such as deep inspiration) causes the abdominal contents to occupy the chest cavity.[5]

The choice of the surgical approach is controversial, due to the non-operative therapies approach and minimally invasive surgery. However, laparotomy is choice of surgery for all urgent exploration of wounds and thoracoabdominal contusions. Laparotomy approach can diagnose and take care of associated lesions. Thoracotomy is indicated in the case of late diaphragmatic hernia, isolated lesions of the right diaphragm and in case of suspicion of chest injury.

CONCLUSION

Life-threatening situations involving multiple injuries can cause misdiagnosis of a ruptured diaphragm. Herniation of abdominal organs can lead to their strangulation with the resulting increases in morbidity and mortality. An appropriate medical history must include the patient's trauma history and a high clinical suspicion to avoid the delay of a correct diagnosis of this condition. High index of suspicion is necessary in those patients presented with signs of intestinal obstruction with history of chest trauma.

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