

Left post-traumatic diaphragmatic hernia with incarcerated and perforated colon

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Abstract

Diaphragmatic rupture is a serious complication of thoracoabdominal trauma. It is a rare consequence of thoraco-abdominal trauma. The high morbidity and mortality of this condition require early diagnosis and rapid treatment. The condition may be missed initially. We describe the clinical course of a patient who sustained abdominal trauma in a car accident. His diaphragmatic injury passed unnoticed, to present twelve years later with incarcerated and perforated colon.

Keywords

trauma; hernia; diaphragm; perforated colon

Introduction

Diaphragmatic hernia is a rare consequence of thoraco-abdominal trauma. The high morbidity and mortality of this condition require early diagnosis and rapid treatment [1]. The resulting hernia may be initially small and easily missed, to enlarge later as more viscera are sucked into the thorax. One of the most severe complications of diaphragmatic rupture is strangulation and colon perforation [2].

Case Presentation

A 57-year-old man was referred to our Emergency Department with chest tightness, shortness of breath, epigastric pain. Twelve years earlier he had been involved in a car accident. Radiological evaluation at that time, including Computed Tomography (CT), was reported as normal. On present examination, the patient was unable to lie flat, and looked anxious and distressed. His pulse was 125 beats/min, blood pressure 110/70mm Hg, respiration rate 25 breaths/min. His oxygen saturation was 85% on room. Abdominal examination showed mild epigastric tenderness, and chest examination decreased chest movement with audible bowel sounds in the left side. His blood picture and biochemistry results were within the normal range. A chest x-ray showed a collapsed left lung with gas fluid level niveau and with marked mediastinal shift to the right (Figure 1). A Computed Tomography (CT) objective a massive left diaphragmatic hernia with elevation of transverse and left colon filling the quasi-uniformity of the left hemithorax with left lung collapse (figure 2,3,4). A decision was made for emergency laparotomy that confirmed the radiological finding of inveterate left diaphragmatic hernia with an 5,5 cm defect and 2

perforation of the transverse colon and left hemicolon colon. The herniated viscerae were reduced into the abdomen and sutured, the diaphragmatic tear was repaired with interrupted polypropylene sutures reinforced with polypropylene mesh. The patient was then transferred to the intensive care unit in a stable condition. The postoperative recovery was smooth and chest x-ray was satisfactory (Figure 5).

Discussion

Traumatic diaphragmatic rupture is uncommon with left-sided injuries more frequently reported than the right due to the protective nature of the liver [3]. These can be congenital or acquired [4]. Victims of road traffic accidents may sustain diaphragmatic rupture when there is a sudden increase in the intra-abdominal pressure, caused by the impact [5]. Herniation of the abdominal organs may be completely asymptomatic; due to this reason, ~66% of diaphragmatic rupture are not recognized at the time of trauma. The chest negative pressure causes the gradual migration of abdominal contents leading to the onset of symptoms [6]. We can classify this clinical condition in two types: Type I (early) and Type II (delayed). Dislocation of abdominal organs is more common in Type II hernia [7]. Owing to the continuous motion of the diaphragm, which hinders healing, and aided by the negative intrathoracic pressure, the tear enlarges and more abdominal viscera protrude into the thorax, where they may get obstructed or strangulated [5]. This explains why the injury initially passed unnoticed in our patient, who presented later with tension viscerothorax. Clinical presentation includes gastrointestinal symptoms (abdominal pain, nausea, vomiting and sub-occlusion), respiratory (dyspnea, orthopnea and chest pain) or cardiocirculatory (hemodynamic compromise) [6–7]. The initial diagnostic tool is chest or abdominal X-ray but CT scan is the best modality to assess the extent of dislocation, the size of diaphragmatic defect and the belt-like constriction of abdominal contents, referred to as the 'collar sign' [8]. Definitive surgical repair is warranted in all cases of traumatic diaphragmatic rupture even in small defects due to lack of spontaneous healing [9,10,11]. While one could argue the possibility of repair via laparoscopy and thoracoscopy, the clinical condition of this patient made it indispensable for open repair.

Conclusion

Despite advances in diagnostic radiology, traumatic diaphragmatic hernia continues to defy early detection in a subset of patients. To avoid this, a high index of suspicion should be maintained while evaluating trauma victims. Diagnosis of diaphragmatic hernia should always be considered in patient with chest or abdominal trauma because the mortality rate can reach 31% in the first 24 hours following the trauma [1]. Follow-up radiology a few months after the injury may recognise those who escaped early detection and, consequently, facilitates timely repair. Tension viscerothorax, which bears many of the features of tension pneumothorax, is a complication of delayed diagnosis. It should also be considered many years after trauma in case of onset of typical symptoms [11].

Figures

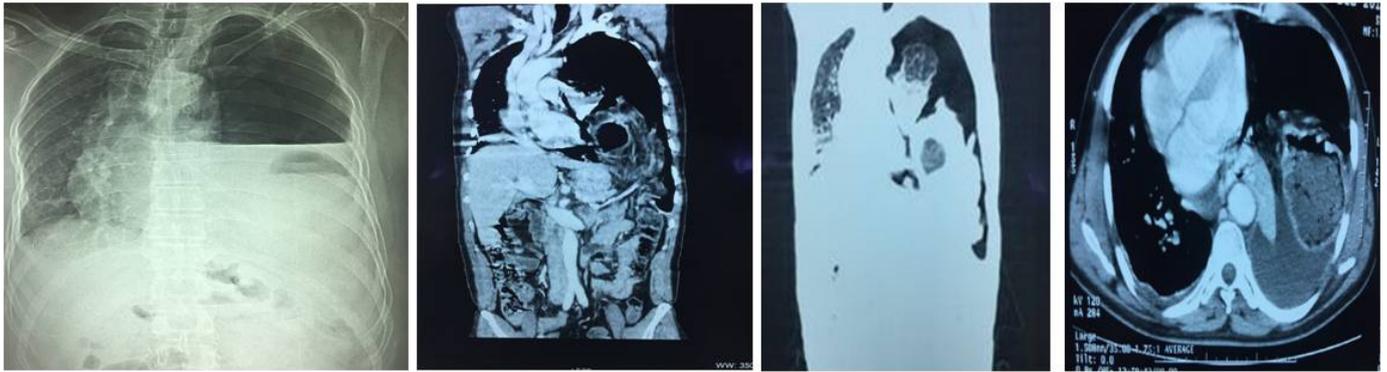


Figure 1: Chest x ray: Collapsed left lung with with gas fluid level and with marked mediastinal shift to the right.

Figure (2,3,4): CT scan: Massive left diaphragmatic hernia with elevation of transverse and left colon filling the quasi-uniformity of the left hemithorax with left lung collapse.



Figure 5: Postoperative chest x-ray showing expansion of the previously collapsed left lung

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