An Overview of Delayed Presentation of Traumatic Diaphragmatic Hernia

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ABSTRACT

The first traumatic diaphragmatic hernia was reported by Sennertus in 1541. The first two deaths were described by Ambrose Paré in 1578, one from strangulated bowel. The diaphragm is the major muscle of respiration. Diaphragmatic excursion and chest wall expansion increase the negative intrathoracic pressure required for inhalation. The sequelae from diaphragmatic rupture and subsequent herniation of intra-abdominal contents are associated with significant morbidity and mortality. Diaphragmatic hernias can be divided into the following two categories: Congenital defects, Acquired defects.

INTRODUCTION

Traumatic diaphragmatic hernias usually result from severe external blunt injury or penetrating injuries such as a knife or bullet wound. The hernias may be recognized during the period of hospitalization immediately following the trauma, the immediate type of hernia described by Carter et al.[4] The mortality in this group is usually due to associated injuries which often mask the symptoms and signs of the hernia and delay diagnosis.

If the diaphragmatic injury is not recognized during the immediate posttraumatic period the patient may: 1) recover and remain symptom free, 2) suffer from chronic abdominal and/or chest symptoms, or 3) present with an acute crisis, often with signs of intestinal obstruction or strangulation. These were respectively described as the interval phase, the phase of obstruction and strangulation and more recently were grouped together as delayed presentation. With delayed presentation, the trauma which had occurred years previously may have been forgotten and the injury to the diaphragm may not be suspected. Thus, a delay in diagnosis may occur which, in the presence of obstruction and/or strangulation, is associated with a high mortality and morbidity.

A careful history, examination, and awareness of the possibility of the condition and its complications are essential if these patients are to be managed successfully.

CASE REPORT

A 70 year old male patient presented with 1 month history of shortness of breath and non-productive cough. He met with blunt abdominal trauma 20 years ago. He is a chronic smoker and diabetic. On examination chest is barrel shaped, decreased breath sounds over left hemithorax, peristaltic sounds heard over left lower zone and trachea shifted to right side. Chest radiograph showed eventration of left hemidiaphragm with herniation of bowel loops. Peak expiratory flow rate was found to be 100 Lt/min.

After preoperative workup patient has been subjected to surgical management under general anaesthesia.
Abdomen opened by using left subcostal incision with midline extension medially. Intraoperatively herniation of small bowel loops noted through defect of approx. size 7x5cm in the left hemidiaphragm. Reduction of herniated contents done. Intercostal drain was kept in situ. Repair of the defect carried out with 2/0 proline (interrupted sutures). Intraperitoneal mesh was placed in situ and secured in.

DISCUSSION

Injuries to the diaphragm may be followed by immediate herniation of abdominal viscera into the chest. However, it is widely accepted that herniation may be delayed. Desforges et al.[3] record a patient found to have stomach within the chest six years after an accident. A barium study done four years previously had shown the stomach to be in its normal intra-abdominal position.
Recognition of a traumatic diaphragmatic hernia in the immediate post traumatic period is difficult, due to associated injuries and to the fact that several radiological features suggestive of hernia may mimic those of chest injuries. These hernias may present months or even many years after apparent recovery from the traumatic incident. Occasionally, such patients are symptom free and their hernias are found on a routine chest film. The majority, however, have symptoms which vary according to the organ present within the chest[3] and whether or not that organ is strangulated or obstructed.[2]

There remain a significant number of patients with abdominal wounds who do not require surgery, and the majority of patients with stabbed A chests require only observation and/or simple under water drainage.” Jackson et al.[6] suggested that patients with penetrating injuries below the fourth intercostal space on the left side should have routine thoracoscopy to identify those with diaphragmatic injury. More interesting is the suggestion that patients with chest wounds in that situation should have routine intra-abdominal lavage, when the diaphragmatic injury would be demonstrated by blood in the returning fluid.

Most patients with delayed presentation of traumatic diaphragmatic hernias have acute symptoms. These may be those of classic intestinal obstruction with abdominal pain and distention, vomiting, and fluid levels on abdominal films or upper abdominal and/or chest pain with vomiting and dyspnoea. The differential diagnosis includes cholecystitis, pancreatitis, exacerbation of a peptic ulcer, myocardial infarction, pneumonia or even pneumothorax, which may result in the patient having the "pneumothorax" drained into underwater drainage bottles.

Physical signs are of little aid unless the diagnosis is already suspected, and usually only in retrospect can the signs and the physical findings be related.[9] Gravier and Freeark[9] state that diaphragmatic hernia should be considered if any one of the following four criteria is present. 1) Intestinal obstruction and a history of past trauma. 2) Intestinal obstruction associated with radiological changes at the left base. 3) Small bowel obstruction in patients having no abdominal hernias or scars. 4) Large bowel obstruction in young patients.

Thoracentesis for diagnosis should be avoided because of the risk of fistula between the alimentary tract and the pleural space. However, Bernatz et al.[1] I have suggested that thoracentesis may occasionally be helpful in the management of these patients, and it is likely that the life of one patient was saved by insertion of a chest tube into a hugely distended incarcerated stomach, which acted as a tension pneumothorax, with removal of 300 ml of fluid and a large amount of air.

**CONFLICT OF INTEREST**

The authors declare no conflict of interest.

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**REFERENCES**