

Effort rupture of the diaphragm

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Abstract

Effort rupture of the diaphragm is rare and accounts for only 1% of all diaphragmatic injuries. A 23 year old patient with bilateral rupture that followed sudden movement is described.

Effort or spontaneous diaphragmatic rupture is rare. We report such a rupture in a young and mildly obese woman because of its unusual presentation.

Case report

A mildly obese woman aged 23 years was admitted with violent pain that followed simultaneous traction on her arms to prevent her from falling into a mountain stream. Slight dyspnoea resulted from the lower thoracic pain, which decreased spontaneously. No abdominal or thoracic trauma was reported. Reduced breath sounds with bowel sounds were heard on auscultation at the base of the right chest. Results of routine blood tests, including arterial blood gas analysis, were normal.

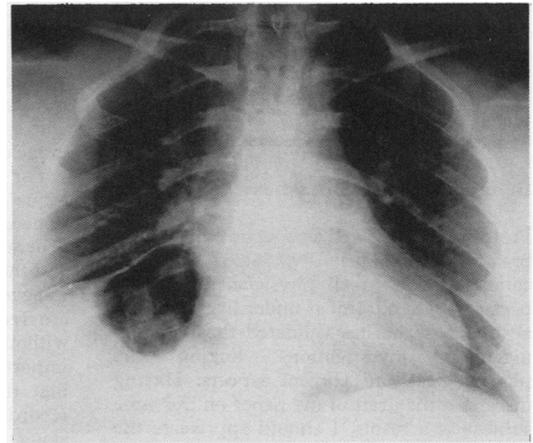
Chest radiography showed a right colothorax with the liver remaining in the abdomen (figs 1 and 2). A right thoracotomy was performed. The colon was replaced in the peritoneal cavity. A 10 cm anterior sagittal rupture of the right diaphragm was closed with slowly absorbable sutures. On opening the left pleural cavity we found a smaller sagittal rupture of the left diaphragm without visceral herniation. This was repaired also. There were no clinical or radiological signs of recurrence at review one year later.

Discussion

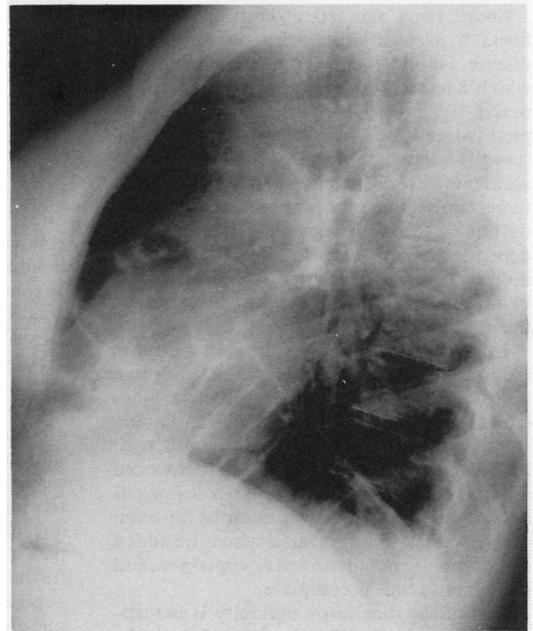
Diaphragmatic rupture is commonly traumatic and complicates 7% of all severe thoracic injuries and 22% of all thoraco-abdominal injuries.¹ One third of cases are diagnosed after a delay of three years or more.¹ The key to early diagnosis is a high index of suspicion in patients who have deceleration accidents or perforating injuries.¹⁻² Rupture is five times more frequent on the left side than the right (13-20% of all cases). Bilateral injuries occur in 1-3% of cases.¹⁻³

Effort or spontaneous rupture of the diaphragm represents 1% of all ruptures.¹ It is caused by a sudden and violent Valsalva manoeuvre. The most common mechanism is a lack of muscular coordination during intense activity such as athletics, weight lifting, or dancing. Isolated cases have been reported after parturition, violent vomiting, coughing, and efforts to defaecate. Spontaneous rupture may occur on both sides. It is especially difficult to diagnose on the right.

A right colothorax is often associated with a



(A)



(B)

(A) Posteroanterior and (B) lateral chest radiographs showing the right colothorax.

hepatothorax or with small bowel or stomach herniation.¹⁻³ It may exist on its own, however, when the mesocolon is particularly long.¹

As in traumatic rupture, primary repair is the treatment of choice; closure of the defect with non-absorbable suture material is recommended.¹⁻⁴ As a normal chest radiograph does not exclude diaphragmatic injury, tears to the other diaphragm must be searched for visually during laparotomy or thoracotomy for an apparently one sided rupture.³⁻⁴

The points of interest in this report are the very exceptional cause and the rare bilateral localisation of a diaphragmatic injury. Such a diagnosis should be kept in mind when thoracic pain occurs without thoraco-abdominal trauma.

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