CASE REPORT

Delayed presentation of gastrothorax masquerading as pneumothorax

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KEYWORDS

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Abstract: We report a case of traumatic diaphragmatic rupture (TDR) following an unusual blunt trauma. The history and initial chest radiograph prompted an insertion of a nasogastric tube which confirmed our diagnosis and decompressed the intra-thoracic gastric contents. We discuss briefly the diagnostic approach to the clinical management of TDR.

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Case Report

A 35-year-old Chinese female, with no medical history of note, presented to the emergency department with fever, cough, dyspnoea, and left pleuritic chest pain of three days duration. These symptoms were sudden in onset and no immediate precipitant event could be identified.

Examination revealed a fever of 39.6 degrees Celsius, a tachycardia of 119 beats/min and a blood pressure of 112/73 mmHg. Chest examination revealed a central trachea and reduced breath sounds over the left hemithorax with no crepitations or rhonchi noted. The initial chest radiograph (Figure 1) revealed a large radiolucent area occupying almost the whole of the left lung

field with the absence of any sign of a collapsed lung at the left hilum. The diaphragmatic margins remained defined with minimal right shift of the mediastinum. The patient was admitted immediately onto our medical ward with a working diagnosis of a left pneumothorax and a differential diagnosis of large left lung bullae.

A detailed history was taken on the ward. It was noted that a recent pre-employment chest radiograph of our patient had been reported as normal. Other relevant previous events included blunt trauma to the left lower chest sustained whilst "wrestling" for the last chair in a friendly game of "Musical chairs" at a Christmas party eighteen days prior to admission. There had been no pain or any ill effects felt over the intervening days.

With this added information, the suspicion of a herniated hollow viscus led to the insertion of a nasogastric tube and a repeat chest radiograph (Figure 2) which confirmed our diagnosis of a

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Figure 1 Tension pneumothorax?

Figure 2 Nasogastric tube decompression of gastrothorax.

traumatic diaphragmatic rupture with herniation of the stomach into the thoracic space.

Surgical repair of the left hemidiaphragm was performed, together with a partial gastrectomy (Bilroth II). Operative findings included: a 15cm defect in the posterior aspect of left hemidiaphragm; a 5cm necrotic perforation of the stomach along the greater curve with macerated tissue margins; and herniation of the spleen into the left hemithorax with a splenic capsular tear requiring haemostasis secured with surgical clips. Our patient was discharged well.

Discussion

Traumatic diaphragmatic rupture (TDR) occurs in 0.8-8% of cases after thoraco-abdominal blunt injuries.^{1,2} There is no satisfactory diagnostic tool for TDR other than having a high index of clinical suspicion.³ It usually occurs on the left side, typically following a road traffic accident. As symptoms may not be perceived immediately after the event, delayed herniation of abdominal contents makes its diagnosis even more challenging.

An initial chest radiograph (CXR) or computed tomography (CT) of the chest remain the first diagnostic imaging tests for most institutions.³ Several radiology review papers have concluded that there is no statistical difference between the two choices.^{2,3} Even with the formulation of TDR as a diagnosis prior to interpretation of helical CT films, reviewing radiologists can overlook the diagnosis in 12.5 – 43.8% of patients. The inclusion of oral contrast can be considered to improve imaging yield.⁴ The best imaging modality suggested for TDR is magnetic resonance (MR) imaging with breath-hold acquisition, but it is not usually performed in emergency situations.²

Gastrothorax can present clinically as a pneumothorax, especially when the clinical suspicion of a TDR is not present. A dangerous scenario is when a “tension” gastrothorax masquerades clinically as a tension pneumothorax. This warrants an immediate decompression and no prior imaging is indicated. Disastrous spillage of stomach contents into the thoracic cavity will result in severe morbidity.⁵ In this case, we have successfully demonstrated that insertion of a nasogastric tube, followed by a repeat physical examination and chest radiograph,

was both confirmatory and therapeutic (decompression). The use of a decubitus (lying on the side) film may also demonstrate layering of gastric or intestinal contents in a diaphragmatic hernia. With basic radiological services in our primary care facilities in Singapore, we suggest that this should be considered by all clinicians when TDR is suspected and the initial imaging presents a diagnostic dilemma similar to this case.

Conflict of interest

None.

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