EMERGENCY CASEBOOK

Traumatic diaphragmatic herniation presenting as a delayed tension faecopneumothorax

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This article reports an unusual case of delayed presentation of a tension faecopneumothorax after traumatic injury to the diaphragm 5 years previously. Three important clinical lessons are highlighted: (a) for suspected tension pneumothorax, if a considerable quantity of serous fluid is drained in addition to air, a communication with the peritoneal cavity should be considered; (b) spontaneous tension pneumothorax is an extremely rare condition and other causes should be kept in mind; and (c) in the presence of a tension pneumothorax and diaphragmatic hernia, the contents of the visceral sac may be completely reduced and the hernia may be masked.

A 20-year-old man presented to the accident and emergency department with a 1-week history of severe epigastric pain precipitated by weight lifting. He had become progressively short of breath associated with constipation and fever. He had a history of peptic ulcer disease treated on a proton pump inhibitor as well as a stab to the left upper quadrant 5 years previously, which had been managed conservatively and was uneventful at the time.

Examination showed that he was in respiratory distress but haemodynamically stable, with decreased air entry on the left side and vague epigastric discomfort. A plain chest radiograph showed a large left-sided tension pneumothorax with a mediastinal shift to the right.

A chest drain was inserted on the left side, resulting in clinical improvement of symptoms. Two observations were made: (a) at the time of insertion a large amount of air was drained, followed by about 500 ml of serous coloured fluid and (b) the chest radiograph showed suspicion of a loop of bowel in the chest with a raised left hemidiaphragm. The patient, however, was clinically improved and stable. After a few hours, frank faeces started draining from the chest drain spontaneously and a computed tomography scan showed a large amount of transverse colon in the left hemithorax with faeces and air, which was trapped in a left-sided diaphragmatic hernia (fig 1).

A thoracotomy was carried out and showed a strangulated, perforated loop of transverse colon, which had become entrapped in the diaphragmatic hernia due to the stabbing 5 years previously. The patient had extensive lavage of the left hemithorax, and later developed left-sided empyema, which was drained radiologically. Subsequently, the patient made a good recovery.

DISCUSSION

Diaphragmatic hernias are uncommon and may be congenital or acquired. The congenital type is referred to as a Bochdalek's hernia and is typically a left-sided posterolateral defect through the foramen of Bochdalek in the neonate. The congenital type of hernia may contain a considerable amount

of abdominal viscerae. Acquired hernias may be secondary to blunt or penetrating trauma as well as iatrogenic, as a result of surgery.

Tension pneumothorax is most commonly caused by penetrating trauma with a "sucking" chest wound. A diagnosis of tension pneumothorax is usually considered in the context of trauma, incorrect chest drain insertion or positive-pressure ventilation, with the emphasis being on tracheal deviation. However, this may not always be a constant finding, and patients may seem surprisingly clinically well, with no tracheal shift, until they decompensate.

Spontaneous tension pneumothorax on the other hand is an extreme rarity, with only a few sporadic cases reported in the literature. These are reported in divers, in patients with sarcoidosis with honeycomb lung, after anaesthesia, in the newborn infant and in those with Bochdalek's hernia.¹ In a patient with Bochdalek's hernia, it is reported that in the presence of a tension pneumothorax, a diaphragmatic hernia may be masked on a chest radiograph and is therefore difficult to diagnose. This is possibly due to a complete reduction of the viscera into the abdomen by the tension pneumothorax. This may explain why the hernia was not obvious on the initial chest radiograph in our patient.

Tension faecopneumothorax is quite unusual, and only 11 cases have been reported to date. It typically occurs with strangulated colon in the left hemithorax via a diaphragmatic hernia and may present acutely or late (months to years) after injury.

Diagnosis in the delayed phase is not easy, as the correlation with the trauma is not always clear.²⁻⁴ Such patients can present with several symptoms, including

Figure 1 A computed tomograph of the perforated transverse colon trapped in a left-sided diaphragmatic hernia.

chronic abdominal and chest problems or an acute crisis. Herniation of the abdominal viscera is the most common sequel, with strangulation and gangrene as the most serious complications.

We report an unusual case of delayed presentation of a tension faecopneumothorax after traumatic injury to the diaphragm 5 years previously. This article highlights several important clinical lessons: (a) if, on insertion of a chest drain for suspected tension pneumothorax, a considerable quantity of serous fluid is drained after air, a communication with the peritoneal cavity should be considered, as the presence of fluid is not typical in a spontaneous or traumatic tension pneumothorax; (b) spontaneous tension pneumothorax is an extremely rare condition, as stated earlier, and is seen in divers, neonates and after anaesthesia, and the possibility of perforated bowel in a chronic diaphragmatic hernia should be kept in mind; and (c) in the presence of a tension pneumothorax and diaphragmatic hernia, the visceral contents of the sac may be completely reduced by the tension pneumothorax and may mask the hernia at presentation.

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