Secondary diaphragmatic rupture as a cause of worsening dyspnoea after blunt thorax trauma and consecutive pulmonary embolism

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A 67-year-old woman had been wearing a seat-belt during a car accident. She was transferred to the trauma centre. During whole-body computed tomography (CT), bone fractures and relevant injuries of internal organs were ruled out.

Three days after the accident, the patient suffered from acute respiratory distress. A CT angiography revealed pulmonary embolism. The patient was transferred to the Medical Department. Transthoracic echocardiography revealed low-grade pulmonary hypertension and right ventricular enlargement and hypokinesia. Treatment consisted of oxygen supplementation, weight-adapted low molecular weight heparin (tinzaparine), and antibiotics because of suspected pneumonia. The patient’s condition improved subsequently. Eleven days after the accident, the patient again suffered from acute dyspnoea; arterial oxygen saturation without oxygen supplementation was 80%. Repeat echocardiography revealed normal left and right ventricular function and normal pulmonary artery pressure. Because of dullness to percussion and diminished breath sounds of the caudal right hemithorax, a chest radiograph was performed.

The findings were suspicious of diaphragmatic rupture (Panel A). The suspected herniation of the colon was confirmed by CT. The patient underwent laparotomy, at which time the diaphragm was repaired. Except for a subcapsular liver haematoma which was managed conservatively, the post-operative course was uneventful. The patient subsequently improved and was discharged 30 days after the accident with ongoing anticoagulation.

In the present case, clinical suspicion favoured repeat pulmonary embolism. Diaphragmatic rupture was suspected by chest radiograph and confirmed by CT. Secondary post-traumatic rupture is a rare complication of thoracic or abdominal trauma.