Late diagnosis of post-traumatic ruptured pericardium with cardiac herniation

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A 52-yr-old woman was found wandering in the lobby of a hotel with an apparently isolated head trauma. Because of rapid deterioration of her neurologic status (Glasgow Coma Scale, 4; unilateral dilated pupil), the patient was intubated, sedated, and transferred to our trauma centre. Computed tomography (CT) examination of her head revealed an isolated acute subdural hematoma. Urgent surgical evacuation was performed uneventfully. Clinical examination revealed no other obvious traumatic lesions though chest radiography showed a small, left-sided pleural effusion.

On postoperative day 2, the patient exhibited complete neurologic recovery and was weaned from mechanical ventilation. No arrhythmia, hemodynamic, or respiratory compromise was noted, although diffusely inverted T waves subsequently became apparent on the bedside cardiac monitor and were confirmed by 12-lead electrocardiography. The inverted T waves prompted performance of a high sensitivity troponin T assay which was significantly elevated ($1807 \text{ ng}\cdot\text{L}^{-1}$; normal $< 14 \text{ ng}\cdot\text{L}^{-1}$). Post-extubation chest radiography showed new left apical pneumothorax and leftward shift of the cardiac silhouette (panel A). Chest CT examination showed left hemopneumothorax, left lung consolidation, and deviation of the heart into the left hemithorax with clockwise rotation of the cardiac apex (panel B). As rupture of the pericardium with cardiac herniation was suspected, she underwent sternotomy, which confirming a vertical pericardial tear extending from the left pulmonary hilum to the left hemi-diaphragm. The heart was relocated and the pericardium repaired. The patient was discharged from the intensive care unit on postoperative day 6. Subsequent investigation by the police revealed that the patient had indeed fallen from the third floor of the hotel but had stood up and walked into the hotel lobby before being discovered. The patient had no recollection of the event.

Traumatic rupture of the pericardium is a difficult diagnosis because pericardial defects, even with cardiac herniation, are not always associated with clinical symptoms.¹ Radiologic investigations (including CT scans) in the absence of cardiac herniation are most often not specific enough to confirm the diagnosis.² In our patient, the diagnosis was likely further delayed because of the positive-pressure mechanical ventilation, which

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Figure Chest radiograph (A) of a 52-yr-old woman who had fallen from a third floor height shows apical pneumothorax and left lower lobe consolidation. There was also traumatic rupture of the pericardium with cardiac herniation that was not diagnosed until

after extubation when conversion from positive-pressure ventilation to spontaneous ventilation accentuated the herniation. Chest computed tomography scan (B) shows the cardiac herniation with clockwise rotation of the apex of the heart into the left thorax

probably prevented cardiac herniation until spontaneous ventilation was resumed. Surgical repair is necessary to prevent possible subsequent hemodynamic compromise.

Conflicts of interest None declared.

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