

## Answer

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The answer is B: hemothorax and chest tube placement. A right decubitus chest x-ray was ordered (Fig. 1). What initially looked like an elevated right hemidiaphragm on the upright portable chest x-ray, was found to be a large subpulmonic hemothorax. A 32 French chest tube was inserted on the right side. A bedside 2D echocardiogram revealed a small amount of pericardial fluid and thrombus.

The patient was transferred to a regional trauma centre. After intra-abdominal injury was excluded by focused bedside ultrasonography and diagnostic peritoneal lavage, the patient was taken to the operating suite. Through a median sternotomy, the stab wound just medial to the right nipple was found to track behind the sternum, through the pericardium and into the anterior aspect of the right ventricle. The cardiac laceration was repaired, and the patient had an uncomplicated postoperative period.

### Teaching points

A subpulmonic effusion occurs when fluid accumulates beneath the lung instead of escaping into the general pleural cavity. Attempts to attribute the location of these effusions to underlying abnormalities in the lower lobe or pleural adhesions have not been convincing. These effusions are usually mobile, and are therefore eas-

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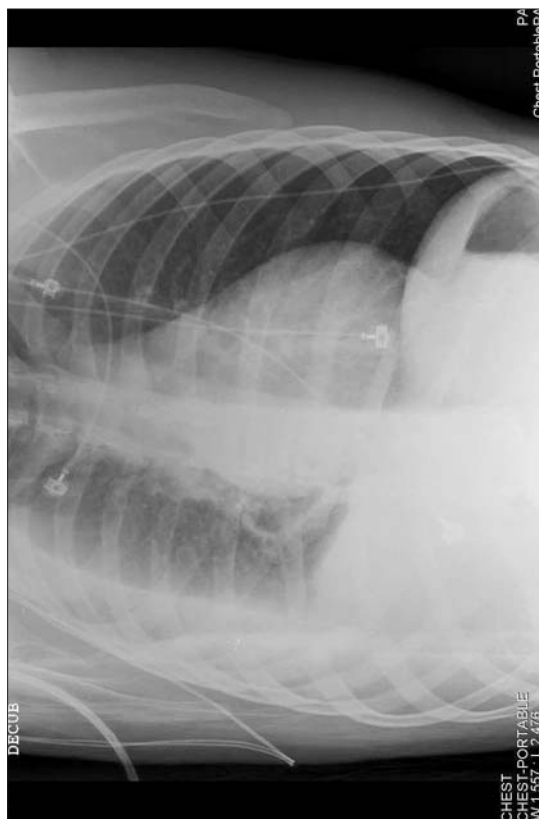


Fig. 1. Right lateral decubitus x-ray

ily confirmed by decubitus views. The upper edge of the fluid mimics the contour of the diaphragm, so that the principal sign is that of an elevated hemidiaphragm. Differentiating a subpulmonic effusion from an elevated hemidiaphragm is difficult without decubitus views. However, careful inspection of the “elevated hemidiaphragm” may reveal lateral peaking, or slight blunting of the costophrenic angle.<sup>1</sup>

Penetrating injuries to the chest, especially in the area of the “cardiac box,” can affect the heart and great vessels, so the patient should be transferred to a regional trauma cen-

tre for assessment. Penetrating chest injuries at or below nipple level can violate the peritoneum. As such, appropriate work-up involves excluding intra-abdominal injury.

### Reference

1. Armstrong P, Wilson AG, Dee P. Imaging of diseases of the chest. Chicago: Year Book Medical Publishers; 1990. p. 642-3.

**For the Challenge, see page 233.**

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