



**Figure 1:** (A) Chest radiograph of a man with a mediastinal germ cell tumour (white arrowheads), a subtle pneumoperitoneum (black arrowheads), a pneumothorax (black arrows) and a pneumopericardium (white arrows). (B) Radiograph taken 2 hours later showing resolution of the pneumothorax and pneumopericardium.

## Pneumopericardium

A previously healthy 21-year-old man received his first cycle of standard chemotherapy for a poorly differentiated seminoma. Because of respiratory distress secondary to the large mediastinal tumour, he also received palliative radiation to the mediastinum (4 Grays). After a week of high positive-pressure ventilation in the intensive care unit, he experienced hypotension, severe hypoxemia and sudden onset of subcutaneous emphysema in the right chest wall. A right pneumothorax was suspected, and a chest tube was placed. The pneumothorax was confirmed on a chest radiograph and an unexpected pneumopericardium was identified (Figure 1A). A chest radiograph taken 2 hours later showed a resolved pneumothorax and pneumopericardium (Figure 1B). We concluded that the tension pneumopericardium, and not only the residual air in the right pleural space, accounted for the hemodynamic compromise.<sup>1,2</sup> In the absence of cardiac herniation, the patient received conservative treatment with air drainage via the chest tube. The tamponade resolved within 2 hours.

Pneumopericardium is encountered mainly in the context of chest trauma and mechanical ventilation. When it occurs in connection with mediastinal tumours and their treatment, the mechanism is likely a direct weakening of the airway wall. Other less common causes include pulmonary aspergillosis, tuberculosis and gastropericardial fistula, which operate via direct erosion of tissue. A number of procedures have been associated with pneumopericardium, including esophagectomy, endomyocardial biopsy, lung transplantation, pericardiocentesis, pacemaker placement, sigmoidoscopy and even dental surgery. Spontaneous cases have been reported in neonates and during asthma attacks.

Mortality due to tension pneumopericardium can be as high as 50%. Conservative treatment is successful in certain cases, such as concomitant pneumothorax, in which chest tube drainage may suffice.<sup>3</sup>

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