Images in Thorax

Pulmonary infarction from central venous air embolism mimicking round pneumonia

A 49-year-old man was diagnosed with dilated cardiomyopathy after presenting with congestive heart failure since 1995. He experienced a flare-up of symptoms after an upper respiratory tract infection 1 week before admission to the coronary care unit (CCU). His dyspnoea improved after treatment with diuretics and inotropes. On day 4 in the CCU he developed a urinary tract infection complicated by septic shock. A central venous catheter (CVC) was inserted over the right internal jugular vein. There was difficulty in performing the catheterisation, and the procedure was prolonged due to an extremely low intravascular volume. Soon after the procedure a round opacity was noted on the chest radiograph (fig 1). At that time there was no purulent sputum, airway symptoms or physical examination compatible with pneumonia. A chest CT scan revealed air emboli in the superior vena cava (arrow, fig 2A) and wedge-shaped pulmonary infarcts with central necrosis at the bilateral lower lobes (fig 2B). Owing to lack of evidence for pulmonary infection, the necrosis was believed to be sterile. The patient died 1 week later from cardiogenic shock with multi-organ failure.

Venous air embolism can be observed during CVC insertion, after CVC removal, and during other medical procedures or interventions.¹⁻³ In acute care settings, patients with hypovolaemia are at a higher risk of gas embolism during central venous cannulation because of the subatmospheric pressure in these vessels.¹ To our knowledge, there has been no previous report of venous air pulmonary infarction mimicking round pneumonia in the English literature.

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Figure 1 Chest radiograph after central venous cannulation showing a round opacity of homogenous density but without air bronchogram in the right lower lung field.

Learning points

- Patients with a low intravascular volume are at a higher risk of developing venous gas embolism during CVC insertion.
- Pulmonary infarction from gas embolism can mimic round pneumonia on the chest radiograph.

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REFERENCES

- 1 Muth CM, Shank ES. Gas embolism. *N Engl J Med* 2000;**342**:476–82.
- 2 Mennim P, Coyle CF, Taylor JD. Venous air embolism associated with removal of central venous catheter. *BMJ* 1992;**305**:171–2.
- 3 Vesely TM. Air embolism during insertion of central venous catheters. *J Vasc Intervent Radiol* 2001;**12**:1291–5.

Figure 2 (A) Contrast-enhanced chest CT scan showing air bubble trapped around the central venous catheter in the superior vena cava (arrow). (B) Bilateral pleural-based, wedge-shaped, mass-like consolidations with central necrosis in both lower lobes.