Unresponsive patient after flexible bronchoscopy

A fatal case of cerebral air embolism

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BACKGROUND

Vascular air embolism (VAE) during bronchoscopy is a **rare but serious complication**. Even though considered a safe procedure, **bronchoscopy** implicates several risk factors for VAE:
Sitting position • Pressure gradient • Air inflation

Clinical **presentation** depends on the volume and rate of gas infusion, and can range from clinically undetectable to cardiovascular collapse.
Neurological manifestations may arise from **arterial or paroxysmal emboli**, or be secondary to hypoperfusion.

CASE REPORT

19 yo female, stage IV **Hodgkin lymphoma** with lung spread⁽¹⁾

Flexible bronchoscopy under sedation with propofol:

after lung biopsy, **air instillation** (120 mL) and lavage with saline
→ **desaturation and bradycardia**, treated with O₂ and atropine

end of procedure | **hemodynamically stable but unconscious patient**
isochoric and reactive pupils, decerebrate movements elicited by painful stimuli
spontaneous but irregular breathing, requiring intubation and assisted ventilation

Blood gas analysis: normal
Brain CT: **cortical air emboli and multiple infarctions**⁽²⁾

Hyperbaric oxygen therapy (HBOT) initiated 8h after the event, repeated the next day
Neurological deterioration with diffuse cerebral edema⁽³⁾, **death** at day 3

DISCUSSION

- **high level of suspicion** is crucial for early recognition and prevention of further air entry
- a **drop in ETCO₂** may be an early sign, but **precordial doppler** is more sensitive
- likely benefit for **HBOT** in the 1st few hours (high O₂ blood content reduces size of air emboli and ischaemia), however brain infarcts on 1st CT carried a poor prognosis

LEARNING POINTS

- VAE must be considered in patients who remain **unresponsive** or present **focal signs or seizures** following bronchoscopy
- risk assessment, monitoring and prevention strategies are needed