

Quiz: 56M with left hemiplegia

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Case

A 56 year old man was admitted to the Burn Unit for treatment of 3rd degree burns. A few minutes after a central internal jugular vein triple lumen catheter was removed, he developed a dense left hemiplegia, left hemihyposthesia, left neglect, conjugate right gaze deviation and left homonymous hemianopsia – National Institute of Health Stroke Scale score (NIHSSS) 18. Emergent non contrast head computed tomography (CT) scan is shown in Figure 1-A.

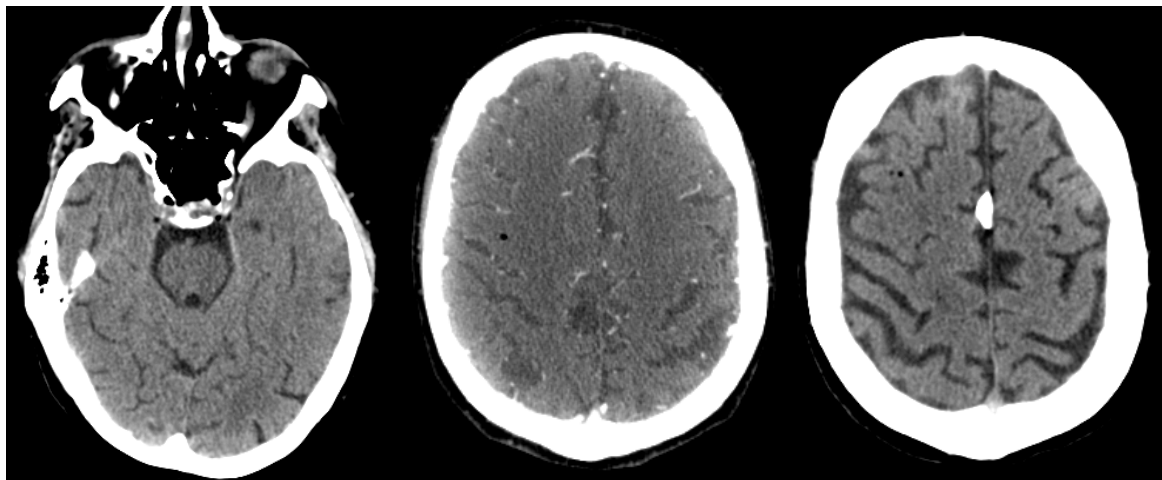


Figure 1-A: Can you identify any abnormality?

What is your diagnosis?

- A. Left MCA infarction
- B. Superior sagittal sinus occlusion
- C. Air embolism
- D. Right PCA infarction
- E. Primary intracerebral hemorrhage – right temporal lobe

The correct answer is C

CT shows several tiny foci of air within the sulci of the right frontal lobe, as well as air within the cavernous sinuses (Figure 1-B).

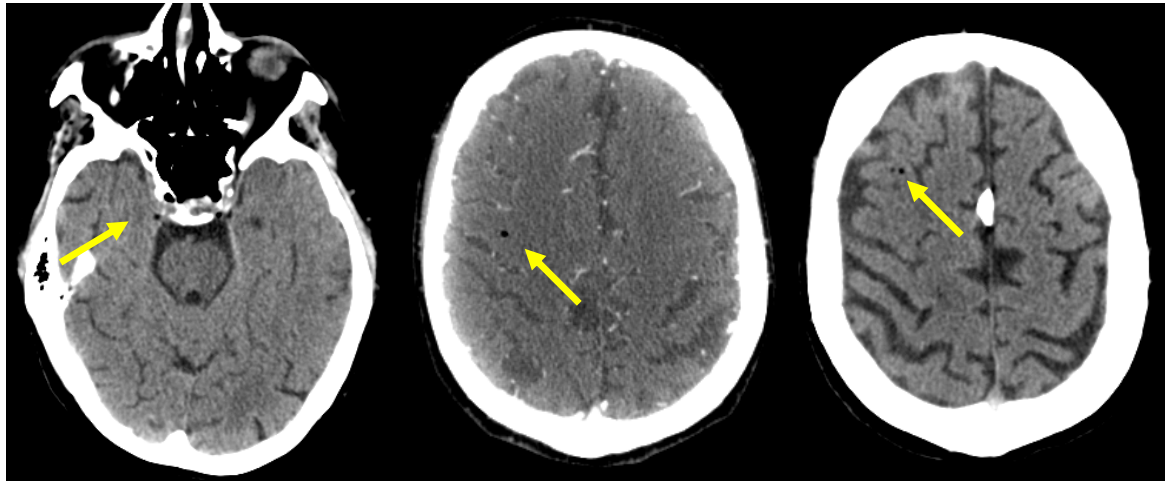


Figure 1-B: Head CT scan showing air Embolism. Note the discrete air embolism patterns in the cavernous sinus, corona radiata and frontal lobe.

Back to the case

The patient was taken for hyperbaric therapy and had three scheduled treatments. His neurological status gradually improved over the course of his hospitalization. His one-month NIHSS was 8 with persistent left hemiparesis and gaze preference. Follow up head CT, 24 hours after the onset, showed abnormal hypodensity of the right frontoparietal parenchyma which was presumed to be evolving infarction (Figure 2).

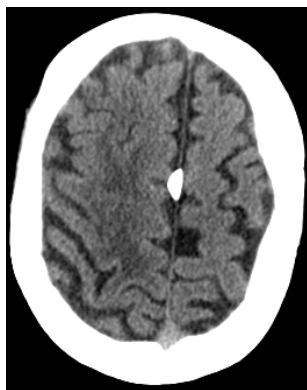


Figure 2: 24-hour follow up head CT showing hypodensity in the right frontal lobe, indicating evolving infarction

Discussion

Cerebral air embolism is a known complication of venous triple lumen catheter removal. The air enters the arterial circulation in one of two ways – via a patent foramen oval (30% of population) or a large amount of embolized air which overwhelms the filtering capacity of the lungs (usually > 1.5-3mL/kg of air is needed for this to happen). Treatment is with multiple hyperbaric oxygen treatments which can lead to resolution of the symptoms, although unfortunately this did not happen in this case.

Reference

Cerebral air embolism resulting from invasive medical procedures. Treatment with hyperbaric oxygen. Ann Surg. 1985 Feb;201(2):242-5. Murphy BP, Harford FJ, Cramer FS.

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