Teaching NeuroImages: TIA from an air embolism

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Figure Noncontrast head CT

Noncontrast head CT demonstrates an air embolism (arrow) in the left cavernous sinus, suggestive of a paradoxical venous air embolism from injection of the portacath. This resulted in transient right-sided weakness prior to reaching the cavernous sinus.

A 39-year-old man undergoing chemotherapy for lymphoma presented emergently with right-sided weakness lasting 1 hour. The onset was seconds after his portacath was injected. A head CT was

obtained (figure) and diffusion-weighted imaging MRI was negative. Echocardiogram confirmed a transatrial shunt. He was treated with 100% oxygen and provided with portacath teaching. Iatrogenic air emboli occur when thoracic pressure is less than atmospheric pressure. Venous emboli may become paradoxical via transcardiac shunts, resulting in relative brain ischemia.¹ Administering 100% oxygen reduces bubble size by diffusion. Failing this, hyperbaric oxygen may help by increasing the solubility through raised pressure.²

AUTHOR CONTRIBUTIONS

Dr. Westwood: concept and design, acquisition of data, analysis and interpretation of data, drafting of the manuscript. Dr. Nguyen: concept and design, acquisition of data, analysis and interpretation of data, critical revision of the manuscript for important intellectual content, supervision.

REFERENCES

1. van Hulst RA, Klein J, Lachmann B. Gas embolism: pathophysiology and treatment. *Clin Physiol Funct Imaging* 2003;23:237–246.
2. Scruggs JE, Joffe A, Wood KE. Paradoxical air embolism successfully treated with hyperbaric oxygen. *J Intens Care Med* 2008;23:204–209.

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