Teaching Neuro*Images*: Brain air embolism due to YAG laser bronchoscopy

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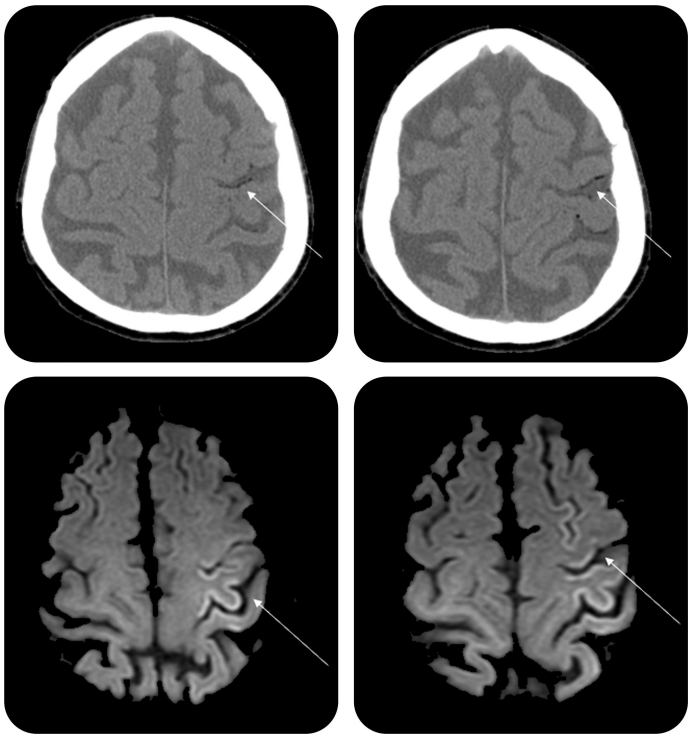
Figure CT showing air emboli and MRI showing acute infarct



An 83-year-old man with renal cell carcinoma with lung metastases was admitted with hemorrhage from an endobronchial tumor. He underwent bronchoscopy, and an Nd-YAG laser was used to debulk the tumor. Immediately after, the patient was unarousable with left eye deviation and right arm plegia. Head CT showed air embolism in distal branches of the left middle cerebral artery (figure). MRI showed diffusion-weighted changes consistent with acute infarction (figure).

Air embolism is a rare complication of bronchial laser ablation: it is thought to result from laser tip contact with bronchial tissue as cooling gas is forced into exposed and bleeding pulmonary vessels which have been eroded by the tumor.[1] Air bubbles then embolize to the brain. An alternative theory is that high local air pressure is created when the bronchoscope occludes a small distal bronchus, impeding the escape of cooling air, with resulting entrapment of air in pulmonary vessels.

Hyperbaric therapy can be an effective treatment for brain air embolism.[2] In the present case, this therapy was declined.

REFERENCES

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