

Fatal air embolism after upper endoscopy in a 48-year-old man

Air embolism is a rare complication of upper gastrointestinal endoscopy, but potentially catastrophic. It can be clinically irrelevant, or may lead to pulmonary or even systemic embolism. Air embolism occurs mainly when low-pressure vessels are in contact with high-pressure air. Fewer than ten cases after upper gastrointestinal endoscopy have been reported [1, 2].

A 48-year-old man with clinical hematemesis was admitted for upper gastrointestinal endoscopy. He was suffering from chronic liver disease, portal hypertension, esophageal varices, and hepatocellular carcinoma with space-occupying lesions. At the end of endoscopy the patient presented saturations lower than 90%, despite being manually ventilated with 100% O₂. One hour after that, he showed a Glasgow Coma Scale score of 4/15, bilateral mydriasis, decerebrate posturing, myoclonus, and bilateral Babinski sign. Urgent chest radiography and cranial CT scan were performed, both of which were normal (● Fig. 1). A CT scan 24 hours later showed multiple strokes in temporal areas (● Fig. 2). The echocardiogram confirmed the presence of a patent foramen ovale. The patient died 2 weeks later.

This is the first case of air embolism after upper gastrointestinal endoscopy with fatal outcome described in a patient under 50. Age is one of the determinants of brain damage from emboli. Young patients are more resistant to brain damage because of their better cerebral collateral circulation.

The pathophysiological sequence was as follows: the high-pressure air at endoscopy was in contact with the patient's open bleeding esophageal varices, was thus introduced in the veins, and due to the open foramen ovale the air passed into the systemic circulation. The right-to-left shunt explains the lack of response to ventilation, with Fio₂ of 1.

When air embolism occurs, rapid diagnosis is essential for successful treatment. The best diagnostic procedures are CT and echocardiography [2]. Treatment is mainly based on maintaining high inspired O₂, hyperbaric oxygen (especially

during the first 24 hours) [3,4], and sucking out the air through the central venous catheter. The prognosis is catastrophic [5].

Endoscopy_UCTN_Code_CPL_1AH_2AK

Competing interests: None

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DOI <http://dx.doi.org/10.1055/s-0032-1310024>
Endoscopy 2012; 44: E282
 © Georg Thieme Verlag KG
 Stuttgart · New York
 ISSN 0013-726X

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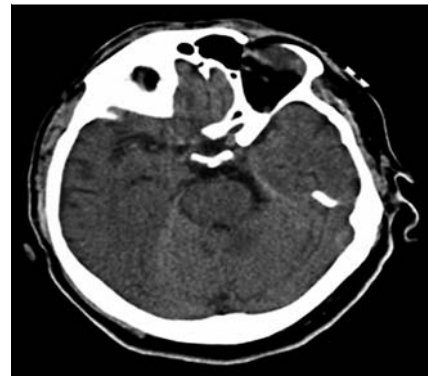


Fig. 1 Normal appearance of a CT scan performed urgently in a patient with a Glasgow Coma Scale score of 4/15, bilateral mydriasis, decerebrate posturing, myoclonus, and bilateral Babinski sign one hour after the end of upper gastrointestinal endoscopy.

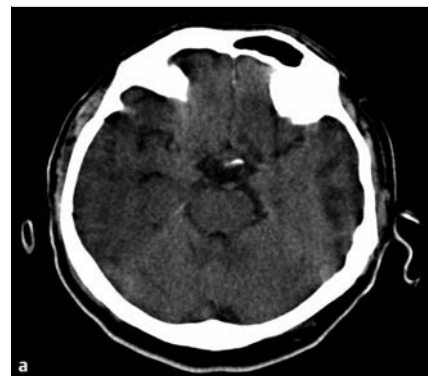


Fig. 2 The CT scan performed 24 hours later shows **a** parietal damage and **b** ischemic embolism.