Cerebral air embolism following blunt thoracic trauma has rarely been diagnosed, and intraarterial air has never been demonstrated in living patients by using computerized tomography (CT) scanning. Transesophageal echocardiography (TEE) is recognized as a very sensitive method of detecting intravascular air. We report the first case in which CT scans demonstrated the presence of intraarterial air and cerebral air embolism after lung contusion in a living patient.

This 75-year-old man suffered a left back injury during a motorcycle accident. At first the patient could speak, but later his condition deteriorated. At hospital admission, he was comatose and was intubated without respiratory assistance. He breathed spontaneously. Computerized tomography scans of the head and thorax revealed intracranial air as negative-density streaks that produced a cast of the cerebral cortical arteries (Fig. 1), left lung contusion, and air in the aorta (Fig. 2); confirming cerebral air embolism after lung contusion. A TEE examination performed later did not reveal any intravascular air. A repeated CT scan of the head demonstrated a massive cerebral infarct in the territory of the cerebral vasculature that contained the air. The patient died 3 days after admission.

A positive gradient caused by low pulmonary venous pressure might induce air embolism. In addition to TEE, meticulous analysis of thoracic CT scans may be useful to detect intraarterial air causing cerebral air embolism.

References

1. Glenski JA, Cucchiara RF, Michenfelder MD: Transesophageal echocardiography and transcutaneous O₂ and CO₂ monitoring for detection of venous air embolism. Anesthesiology 64: 541–545, 1986