We retrospectively characterized our experience with air embolism during medical procedures at a tertiary medical center" McCarthy et al (2017).

Abstract:

Air embolism is a rare but potentially fatal complication of surgical procedures. Rapid recognition and intervention is critical for reducing morbidity and mortality. We retrospectively characterized our experience with air embolism during medical procedures at a tertiary medical center. Electronic medical records were searched for all cases of air embolism over a 25-year period; relevant medical and imaging records were reviewed. Sixty-seven air embolism cases were identified; the mean age was 59 years (range, 3-89 years). Ninety-four percent occurred in-hospital, of which 77.8% were during an operation/invasive procedure. Vascular access-related procedures (33%) were the most commonly associated with air embolism.

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Clinical signs and symptoms were related to the location the air embolus; 36 cases to the right heart/pulmonary artery, 21 to the cerebrum, and 10 were attributed to patent foramen ovale (PFO). Twenty-one percent of patients underwent hyperbaric oxygen therapy (HBOT), 7.5% aspiration of the air, and 63% had no sequelae. Mortality rate was 21%; 69% died within 48 hours. Thirteen patients had immediate cardiac arrest where mortality rate was 53.8%, compared to 13.5% ($p = 0.0035$) in those without. Air emboli were mainly iatrogenic, primarily associated with endovascular procedures. High clinical suspicion and early treatment are critical for survival.

Reference:

McCarthy, C.J., Behravesh, S., Naidu, S.G. and Oklu, R. (2017) Air Embolism: Diagnosis, Clinical Management and Outcomes. Diagnostics. 7(1).

doi: 10.3390/diagnostics7010005.

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