

中文題目：高壓氧再灌流介入於嚴重動脈氣體栓塞之時機：病例報告

英文題目：Timing for Hyperbaric Oxygen Recanalization of Severe Iatrogenic Arterial Gas Embolism: Case Reports

作者：姚重光^{1,3}，黃坤崙²

服務單位：¹國軍高雄總醫院左營分院重症暨胸腔內科部，²國防醫學院海底醫學研究所，³三軍總醫院海底暨高壓氧醫學部

Hyperbaric oxygen therapy (HBO) is administered as a recanalization treatment of arterial gas embolism (AGE), especially in vital cases with evidences of cardiopulmonary instability, neurological deficits or end-organ damage. Multiple retrospective trials had suggested early intervention of HBO in terms of prognosis, but no definite execution timing was concluded. We herein present two cases of severe AGE caused by imaging-guided lung biopsies, and the prognoses were quite different, in a matter of HBO timing.

Case 1: A 64 years-old female, who had history of bronchial carcinoma post chemo-radiotherapy, was admitted for CT-guided lung biopsy due to the findings of multiple pulmonary nodules. The patient presented hemoptysis, conscious loss and generalized seizure during the biopsy procedure, and emergent airway protection was established immediately. The real-time chest CT confirmed a large gas embolus at descending aorta, and the subsequent brain MRI revealed an acute lacunar infarction. HBO therapy was initiated 5 days later. After 1-year follow-up, the patient was maintained stupor consciousness, paraplegia and ventilator dependence.

Case 2: A 70 years-old male, who had history of sigmoid adenocarcinoma post operation and chemotherapy, was found a solitary pulmonary nodule over his right middle lung field during the hospitalization for influenza infection. During the CT-guided lung biopsy, the patient presented chest tightness, cold sweating, occult left side paralysis and bradycardia with shock, therefore, intravenous dopamine infusion and transcutaneous cardiac pacing were applied immediately. The real-time chest CT confirmed a large amount of gas emboli at ascending aorta and right side coronary arteries, and the ECG displayed acute inferior wall myocardial infarction. Subsequent brain MRI revealed an acute lacunar infarction. HBO therapy was executed after an hour. The chest CT follow-up right after therapy revealed absence of the initial gas emboli, and the patient was recovered with symmetrical muscle power and stable vital signs.

In conclusion, HBO intervention for AGE is a matter of timing. Symptoms may recover dramatically if early recanalization was made. In contrast, a delayed

recanalization may indicate a poor prognosis from end-organ damages. These cases suggest that the timing of HBO therapy for severe AGE should be executed as soon as possible.