

Diffuse alveolar hemorrhage

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Dear Editor,

Diffuse alveolar hemorrhage (DAH) is a pathology that occurs following the accumulation of intraalveolar erythrocytes originating from the vascular structure of the alveoli. In the pathogenesis of DAH, there is an injury in the alveolar microcirculation. Common clinical signs and symptoms include hemoptysis, anemia, widespread radiographic pulmonary infiltrates, and severe hypoxemic respiratory failure. Etiologies of DAH include immune causes (such as ANCA-associated vasculitis, isolated pulmonary capillaritis, connective tissue diseases, anti-glomerular basement membrane disease, anti-phospholipid antibody syndrome, Behçet's disease) as well as non-immune causes like cardiac diseases, coagulation disorders, infections, and opioid use. Studies suggest that sevoflurane, commonly used by anaesthesiologists during surgical procedures, may also play a role in the etiology of DAH.

Sevoflurane is an inhaled anaesthetic agent used for the induction of general anesthesia. Inhaled agents during general anesthesia cause high mechanical stress, leading to DAH under certain conditions. Consequently, gas exposure can increase alveolar permeability, and oxidative stress, and enhance inflammatory response. It is also thought that sevoflurane activates these pathways through a similar mechanism, and there are limited reported cases in the literature regarding the development of DAH associated with the use of this matter.¹ In a case of acute appendicitis diagnosed during adolescence, we performed a surgical intervention, and the patient developed hemoptysis, dyspnea, and tachycardia within the second hour post-operation. After evaluation by a pulmonologist and an anaesthesiologist, the patient underwent necessary tests and was diagnosed with DAH based on clinical presentation. The patient denied any tobacco or recreational drug use and had no known medical conditions. Following admission to the intensive care unit of the department of anaesthesiology and reanimation, the patient received non-invasive mechanical ventilator support, high-dose corticosteroids, and antibiotic therapy. Symptoms improved by the third day of hospitalization, and the patient was discharged after two days of follow-up in the pediatric surgery service.

We believe that sevoflurane is implicated in the development of DAH. Additionally, considering the increasing prevalence of recreational substance use such as tobacco and marijuana during adolescence, we recommend a detailed preoperative assessment of etiological factors for DAH.

ETHICAL DECLARATIONS

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Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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