



IMAGES IN INTENSIVE MEDICINE

Electrical impedance tomography for the detection and management optimization of pulmonary embolism

Tomografía de impedancia eléctrica para la detección y optimización del manejo del tromboembolismo pulmonar

Isabel Magaña Bru*, Alicia Delgado Arroyo, Fernando Suarez Sipmann

Servicio de Medicina Intensiva, Hospital Universitario de la Princesa, Madrid, Spain

Available online 15 January 2025

A 76-year-old man was admitted to the emergency department after suffering a syncope. Computed tomography revealed acute bilateral pulmonary embolism (PE), predominantly on the right side (Fig. 1). In the ICU, electrical impedance tomography (EIT) monitoring was started. A ventilation-perfusion (VQ) study revealed a perfusion defect in the right upper lung with preserved ventilation visible as a corresponding high VQ (blue colored) area in the VQ map and a ventilation deficit with preserved perfusion in the dorsal lung appearing as a low VQ (red colored) area (Fig. 2). After conventional clinical management including anticoagulation and PEEP optimization and clinical improvement, both hemodynamic parameters and a new VQ study revealed recovery of the perfusion defect and normalization of VQ matching in all lung regions (Fig. 3). This case illustrates the usefulness of EIT to detect and follow clinical management of severe PE.

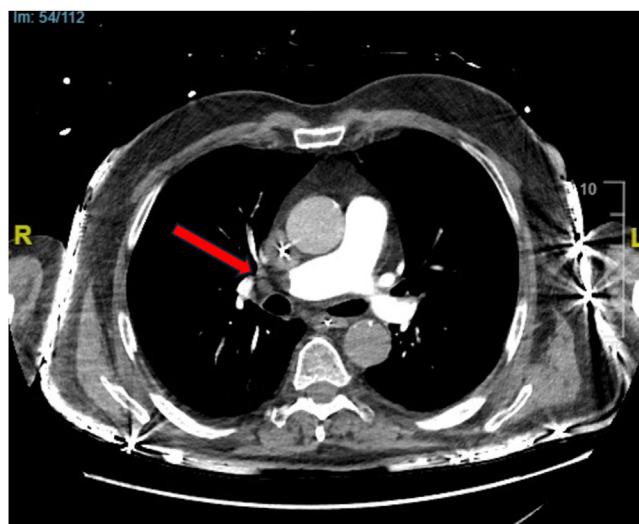


Figure 1

DOI of original article: <https://doi.org/10.1016/j.medin.2024.502134>

* Corresponding author.

E-mail address: isabelmaria.magana@salud.madrid.org (I. Magaña Bru).

<https://doi.org/10.1016/j.medicine.2025.502134>

2173-5727/© 2024 Sociedad Española de Anestesiología, Reanimación y Terapéutica del Dolor. Published by Elsevier España, S.L.U. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

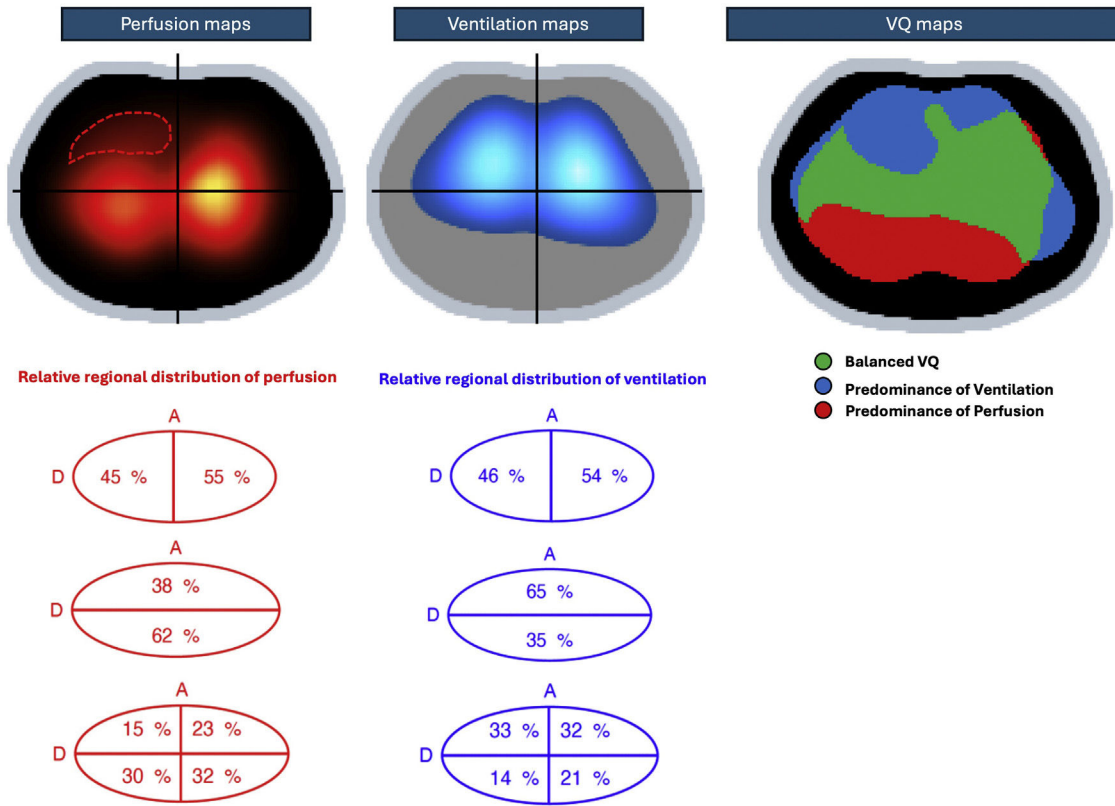


Figure 2

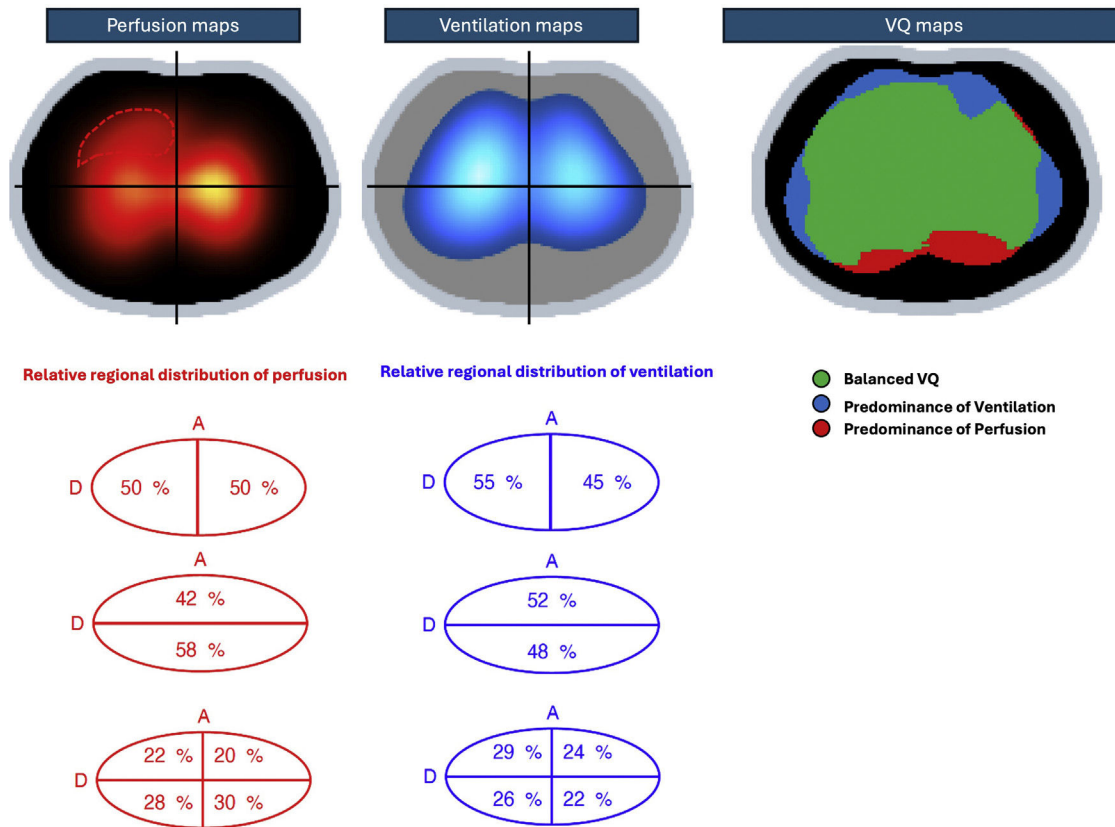


Figure 3

Declaration of Generative AI and AI-assisted technologies in the writing process

No artificial intelligence was used in the preparation of the manuscript.

Declaration of competing interest

Fernando Suárez Sipmann is the president of the scientific committee of the Spanish Society of Intensive Care. He receives grants from Timpel Medical and Maquet.