

Pneumatocele and mediastinal emphysema preceding bilateral pneumothorax during airway pressure release ventilation

Takuro Nakashima, Katsuyuki Sagishima, Tatsuo Yamamoto

Department of Intensive Care Medicine, Kumamoto University Hospital, Kumamoto, Japan

Correspondence to: Takuro Nakashima. Department of Intensive Care Medicine, Kumamoto University Hospital, 1-1-1 Honjo, Chuo-ku, Kumamoto 860-8556, Japan. Email: nakashima.takuro@gmail.com.

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A 63-year-old man was admitted to intensive care unit due to acute respiratory distress syndrome (ARDS). During treatment of lymphoma, he developed bacterial pneumonia. Several days later, severe ARDS was developed; his PaO₂/FiO₂ (P/F) ratio was about 80. He was intubated and managed with airway pressure release ventilation (APRV) of 27 cmH₂O high positive end expiratory pressure (PEEP). CT scan was performed to evaluate lung lesions, 5 days later. In this CT, new pneumatocele and mediastinal emphysema were identified incidentally (*Figures 1,2*).

APRV of 27 cmH₂O high PEEP was continued for poor oxygenation, even though there were signs indicating barotrauma. Right pneumothorax emerged in the next day (*Figure 3*) and half-day later, left pneumothorax followed (*Figure 4*).

Pneumothorax is one of the most concerned complications of APRV. Newly identified pneumatocele or mediastinum emphysema during APRV management may imply to occurrence of pneumothorax. It would be better to decrease airway pressure or patient's inspiratory pressure in case.



Figure 1 Mediastinal emphysema (6 days after start of MV).

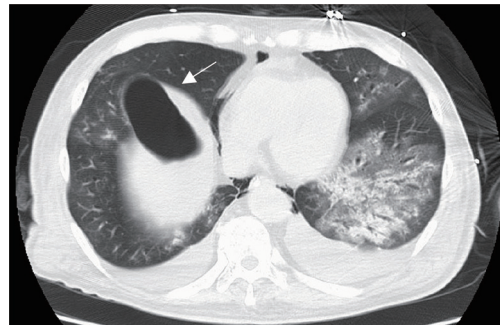


Figure 2 Pneumatocele (6 days after start of MV).

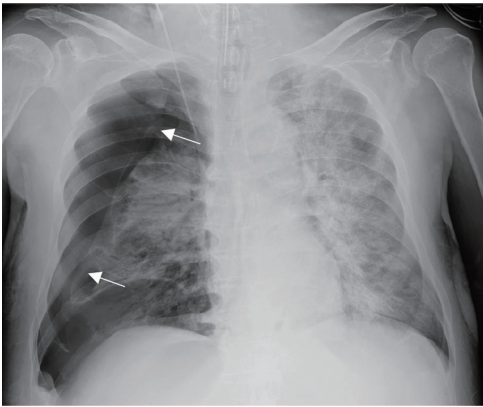


Figure 3 Right pneumothorax (7 days after start of MV).

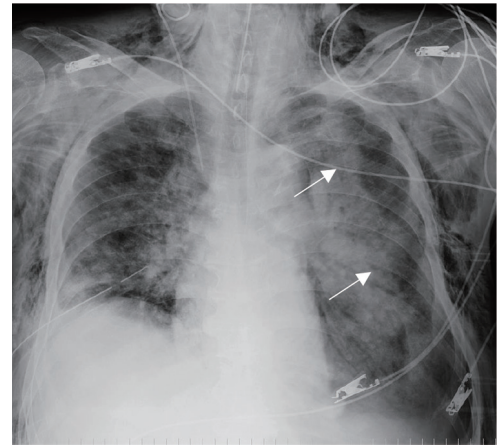


Figure 4 Left pneumothorax (7 days after start of MV).

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Informed consent

was obtained from the patient's family for publication of this case report and any accompanying images.

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