中文題目：非大量肋膜放液後之復張性肺水腫

英文題目：Re-expansion pulmonary edema followed by non-large volume pleural effusion drainage

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Case Presentation

A 72-year-old man with a history of diabetes mellitus, congestive heart failure, and dementia was admitted to the medical intensive care unit for respiratory failure and septic shock related to left pleural empyema. Broad-spectrum antibiotic was given and the empyema was drained with chest tube. He recovered gradually and the chest tube was removed after ultrasonography confirmed the absence of remaining effusion. He was then transferred to the respiratory care center for weaning.

However, progressively increasing requirement of ventilator support developed in a period of few days, and the follow-up chest computed tomography (CT) scan showed development of massive right pleural effusion with passive atelectasis of the right lung. A pigtail draining catheter was inserted to the right pleural cavity and 800 ml of clear straw-colored effusion was drained initially. After another 500 ml of effusion was drained eight hours later, desaturation occurred within 1.5 hours. Much frothy sputum and diffuse crackles were noticed. The follow-up chest radiograph showed pulmonary edema. His oxygen saturation remained around 80% despite the ventilator support was increased (FiO_2: 100%, PEEP: +15 cmH_2O). After treatment with furosemide, the oxygen saturation improved gradually within 3 to 4 hours. He had an uneventful recovery within one week.

Discussion

Pleural effusion is a common problem in our clinical practice, which is usually managed with thoracentesis or tubal thoracostomy. Re-expansion pulmonary edema (REPE) is a well-recognized and potentially life-threatening complication while large amount of pleural fluid or air is drained rapidly. The clinical presentation of REPE varies, which may include persistent cough, dyspnea, tachypnea, tachycardia, respiratory failure and hemodynamic instability. The symptoms usually occur within several hours after the drainage. Treatment is generally supportive care with diuretics, inotropic agents for hemodynamic instability, and positive airway pressure support.

In general, the safe limits for the amount and speed of drainage are related to the chronicity and the amount of effusion, but no definite guideline is available. The measures to prevent REPE may include recognizing patients at high risk, leaving thoracostomy tubes initially off suction, limiting drainage to one liter at one time, and ensuring slow drainage. Although expert consensus recommends limiting the drainage to one liter at one time to avoid REPE, the occurrence of REPE cannot be totally avoided with this limitation. In our case with massive pleural effusion developed in few days, we split the drainage into few times of small-amount drainage via the pigtail catheter and the speed of drainage was controlled. However, REPE still developed rapidly after the drainage. This may be attributed to the chronicity and the amount of effusion.

In conclusion, we reported a case of REPE to highlight the need of special attention while draining massive pleural effusion.