

Introduction

Compared to the conventional ARDS, severe monolateral pneumonia has not been as closely studied. Trials however have shown that monolateral pneumonia confers a lower mortality rate¹, and has significantly higher healthy lung volume for physicians to intervene and ventilate.

Case Description

A 24-year-old male with a history of young-onset hypertension and end-stage renal failure presented with fever, cough, massive hemoptysis, left-sided pleuritic chest pain, and vomiting. He was in respiratory distress with an initial SpO₂ of 77%. Examination revealed reduced air entry and crepitations over the left lung.

Patient was eventually intubated for impending respiratory collapse and ventilated with PC-SIMV mode. He was found to have a PaO₂/FiO₂ ratio of 60. Despite lung-protective ventilation, arterial blood gases showed decompensated metabolic and respiratory acidosis. The patient deteriorated into septic shock, requiring triple inotropic support, and succumbed to illness a day later.

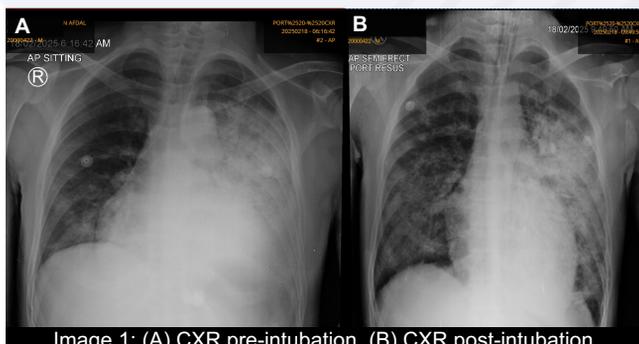


Image 1: (A) CXR pre-intubation. (B) CXR post-intubation

References

1. Liapikou, A., et al. (2016). Multilobar bilateral and unilateral chest radiograph involvement: Implications for prognosis in hospitalised community-acquired pneumonia. *European Respiratory Journal*, 48(1), 257–261. <https://doi.org/10.1183/13993003.00191-2016>
2. Weiskopf, R. B., & Campos, J. H. (2002). Current techniques for perioperative lung isolation in adults. *Anesthesiology*, 97(5), 1295–1301. <https://doi.org/10.1097/0000542-200211000-00036>

Discussion

Ventilation was optimized using multiple strategies. The patient was positioned right-lateral with the healthy lung down to improve ventilation-perfusion mismatch. Inline suctioning enabled aggressive pulmonary toileting. A lung-protective approach using low tidal volumes and permissive hypercapnia was applied.

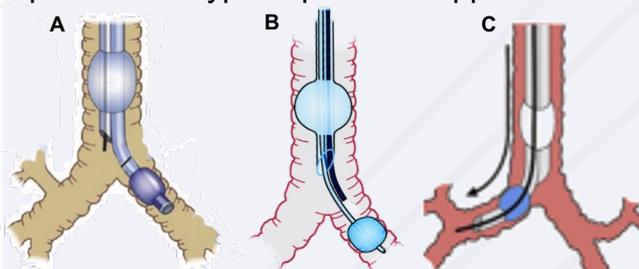


Image 2: (A) double-lumen endotracheal tube. (B) Bronchial blocker. (C) Endobronchial tube.

In specialized centers, independent lung ventilation with a double-lumen tube allows tailored ventilation of lungs with differing compliance, minimizing contamination and ventilator-induced injury. Alternatively, one-lung ventilation using a bronchial blocker or endobronchial tube can collapse the diseased lung. Despite theoretical benefits, these complex techniques are rarely used due to limited expertise and bronchoscopy requirements.

Conclusion

Mechanical ventilation in patients with severe monolateral pneumonia is complex and associated with high mortality. However, there is hope of effectively ventilating the patient with sufficient healthy lung tissue by employing a holistic and multidisciplinary approach.