POCUS - Beyond Touch: A case report

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Abstract

Background: Patients with multi-system trauma who are admitted to intensive care units (ICUs) often require prolonged mechanical ventilation and complex respiratory rehabilitation. In recent years, physiotherapists have increasingly incorporated Point of Care Ultrasound (POCUS) into bedside assessment, allowing real-time visualization of pulmonary and diaphragmatic function. This tool enhances clinical decision-making, helps identify barriers to weaning, and enables immediate treatment adjustments.

Objectives: To present a clinical case that demonstrates the added value of POCUS performed by physiotherapists in an ICU setting, emphasizing its contribution to diagnosis, treatment decisions, and the respiratory weaning process.

Methods: A 21-year-old male combat soldier sustained severe blast injuries and was admitted to the general ICU following multiple surgeries and a prolonged period of mechanical ventilation. During the weaning phase, physiotherapy assessment included bedside POCUS evaluation of the lungs and diaphragm to identify physiological limitations and optimize therapeutic interventions.

Results: POCUS revealed a large left pleural effusion and markedly reduced right diaphragmatic movement. Following a multidisciplinary discussion, 1.2 liters of pleural fluid were drained, leading to a significant improvement in spontaneous breathing. The patient was successfully weaned from mechanical ventilation and later from the tracheostomy. Targeted respiratory physiotherapy using Intrapulmonary Percussive Ventilation (IPV) and Inspiratory Muscle Training (IMT) contributed to recovery and functional improvement, allowing transfer to an orthopedic rehabilitation ward.

Conclusions: Integrating POCUS into physiotherapy practice in the ICU enables accurate real-time assessment of respiratory function, supports timely and evidence-based decision-making, and may improve clinical outcomes. The case highlights the potential of physiotherapist-performed POCUS as a practical, accessible, and impactful bedside tool that strengthens multidisciplinary collaboration and enhances the quality of care in critical care settings.

Keywords: Respiratory physical therapy, intensive care, POCUS, diaphragm, mechanical ventilation weaning, respiratory assessment, critical care, ultrasound