

Point of Care Ultrasound: Use it to its Full Potential in COVID-19 Pandemic

Sir,

Point of care ultrasound (POCUS) is a critical tool, yet still new technology for emergency and critical care physicians to evaluate early lung changes in suspected COVID-19 patients. POCUS findings can be non-specific; hence, microbiological confirmation is needed. Its unique feasibility, where computed tomography (CT) chest is not available or in restricted use for infection control measures, makes it an alternative cost-effective intervention. It can reduce the spread of infection by limiting the movement of COVID-19 patients to the radiology departments.

In COVID-19 infection, lung POCUS findings are mostly in the posterior and lateral lung zones. We suggest rapid, easily reproduced and focused six zones scanning protocol, which emphasises on image acquisition from defined lung fields to ensure clinical utility and provider safety for risk minimisation. This includes scanning landmarks of inferior thorax at diaphragm level, the spine, the scapula and the posterior axillary line. Lung zones are right posterior, left posterior, right lateral superior, right lateral inferior, left lateral superior, and left lateral inferior identified by demarcation lines given in the literature.¹ Common POCUS lung features reported are pleural line thickening with irregularities; B lines viewed as focal, multifocal and confluent, and consolidations appearing as multifocal, translobar with mobile bronchograms.¹

Nature of B lines, if three or more per acoustic window, qualifies for interstitial or alveolar-interstitial pattern. The homogeneous and heterogeneous interstitial patterns favour cardiogenic edema, heterogeneous pattern with subpleural consolidation; and pleural thickening is in favour of pneumonia or acute respiratory distress syndrome.²

Literature of lung POCUS is promising. Huang *et al.* showed that COVID-19 patients have infiltrations in bilateral lower lobes of the lungs.² This study showed characteristic features such as bilateral B lines and subpleural consolidations consistent with CT chest. B lines are more fused and fixed as compared to pulmonary edema. Poggiali *et al.* showed B lines and ground glass opacities.³

Knowing the pearls and pitfalls for POCUS, it would help its user to use its full potential. It is optimal to use one ultrasound

machine to avoid cross-contamination. Wireless models are easier to work with in COVID units.

We believe that POCUS being ergonomically favourable with fewer infection control implications, there is a utility for rapid dynamic assessment of patients in the emergency department. POCUS is crucial in managing undifferentiated shock, intravascular fluid assessment, diagnosing pneumothorax, assessment of ventricular function, position of endotracheal tube, and central venous line insertion and placement.

Documentation of images is another aspect to consider for its users. Images should be stored for further reviews. There is a need to develop scanning protocols by the departments to get the most of its benefits without jeopardising the standard of care.

Limitation of lung POCUS includes its inability to detect well characterised deep lung lesions.

CONFLICT OF INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

Both the authors equally contributed in the development and completion of this manuscript.

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