

LUNG ULTRASOUND

RURAL AND REMOTE 2019

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DISCLOSURES

- ▶ I have no actual or potential conflict of interest in relation to this program/presentation
- ▶ I am not an expert in lung ultrasound, but I do a lot of them

OBJECTIVES

- ▶ 1. Review the indications for PoCUS of the lung
- ▶ 2. Demonstrate appropriate lung ultrasound technique
- ▶ 3. Develop PoCUS skill in chest indications

INDICATIONS FOR POCUS OF THE LUNG

- ▶ Look for normal lung
- ▶ Identify pleural fluid
- ▶ Identify interstitial edema
- ▶ Identify consolidation
- ▶ Rule in/out pneumothorax
- ▶ Visualize fractured ribs

CHOOSING THE PROBE AND PRESET

- ▶ Linear
 - ▶ Higher frequency
- ▶ Curvilinear
 - ▶ Lower frequency

POSITIONING THE PATIENT

- ▶ Sitting vs Supine
- ▶ Exposure of the patient
- ▶ Keeping the patient clean

NORMAL LUNG

- ▶ Long path reverberation artefact (A-lines)
- ▶ Comet tail artifact
- ▶ Mirror artifact

PLEURAL FLUID = BLACK

- ▶ Identify and center the diaphragm
- ▶ Fan/sweep
- ▶ Dependent vs loculated
- ▶ Easiest seen with patient erect

INTERSTITIAL EDEMA (HEART FAILURE & PNEUMONIA)

- ▶ Short path reverberation artefact
 - ▶ B-lines -> Rockets -> Whiteout
- ▶ Positive scan
 - ▶ 3 or more B-lines in one rib space
 - ▶ 2 contiguous spaces or zones
 - ▶ Bilateral effusions can be more compelling (heart failure)
- ▶ Pitfalls = ARDS, pulmonary fibrosis

CONSOLIDATION (PNEUMONIA & OTHER)

- ▶ “Hepatization” of the lung
- ▶ Air bronchograms

PNEUMOTHORAX

- ▶ Patient supine vs erect
- ▶ High frequency probe
- ▶ 3 rib spaces for 3 breath cycles
- ▶ Lung sliding (ants crawling)
- ▶ M-mode (Seashore and Barcode signs)
- ▶ False Positives: Adult Respiratory Distress Syndrome (ARDS), pulmonary contusions, pulmonary fibrosis, bullous disease (e.g., emphysema) (41), and pleural adhesions (e.g., post-pleurodesis, post thoracic surgery)

FRACTURED RIB

- ▶ Linear transducer
- ▶ Track along the rib
- ▶ Look for disruption of the bony cortex

SCANNING OBJECTIVES (USING BOTH PROBES)

- ▶ Identify normal lung
- ▶ Identify diaphragm
- ▶ Identify lung sliding
 - ▶ Use M-mode
- ▶ Visualize a rib

REFERENCES

- ▶ Steve Socransky. "Essentials of Point-of-Care Ultrasound." The EDE 2 Course, 2014. Apple Books. <https://itunes.apple.com/WebObjects/MZStore.woa/wa/viewBook?id=841572764>
- ▶ Life in the FASTLANE (<https://litfl.com>)