Novel use of pleural ultrasound can identify malignant entrapped lung prior to effusion drainage

Study Author(s)

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Study Design

Prospective, multicentre cohort study

Study Location

Australia

Study Length

March 2012 to October 2013

Study Objective

To develop, and examine the diagnostic accuracy of, a method to diagnose entrapped lung using motion (M) mode and speckle tracking imaging (STI) strain analysis with pleural ultrasound, prior to pleural effusion drainage and compare it to pleural elastance (PEL)

Patient Population

Patients with suspected malignant pleural effusion

Treatment

Participants were randomly divided into development (N = 34) and validation sets (N = 47). M mode and strain analysis (speckle tracking) were performed by an experienced, blinded cardiologist. During drainage, manometry was performed and PEL calculated

Key Findings

- Sensitivity/specificity for diagnosis of entrapped lung was:
  - 71%/85% speckle tracking
  - 50%/85% M mode
  - 40%/100% PEL

Study Conclusions

- Entrapped lung was successfully identified via the novel ultrasound technique ahead of effusion drainage. In practice, this could allow selection of appropriate intervention for management, resulting in fewer interventions required to treat malignant pleural effusions