



# Case Report: The Pseudoliver Sign on Ultrasound

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## Introduction

Empyema thoracic is characterized by the accumulation of pus in the phrenic space, often resulting from the extension of an infection from the abdomen or thorax. This report presents a case of empyema demonstrating the pseudoliver sign.

## Case presentation

A 76-year-old man with a medical history of hypertension presented to the emergency department with a 2 week history of shortness of breath.

Upon examination, the patient was stable but exhibited diminished breath sounds and dullness in the right hemithorax. Laboratory tests revealed leukocytosis,

thrombocytosis, normocytic normochromic anemia, and elevated C-reactive protein levels. Imaging studies, including chest radiography and abdominal ultrasound, indicated a left-sided pleural effusion and a complex collection.

Ultrasound of the abdomen revealed right perinephric fluid and a thick pleural effusion demonstrating the pseudo liver sign.

## Diagnosis and management

Diagnostic thoracentesis yielded purulent fluid with a high white blood cell count, low pH, low glucose concentration, and elevated lactate dehydrogenase levels.

Microbiological cultures identified *Escherichia coli* with specific resistance patterns in both pleural fluid and urine samples.

The patient was treated with broad-spectrum antibiotics, and pleural and percutaneous abdominal drains were placed.

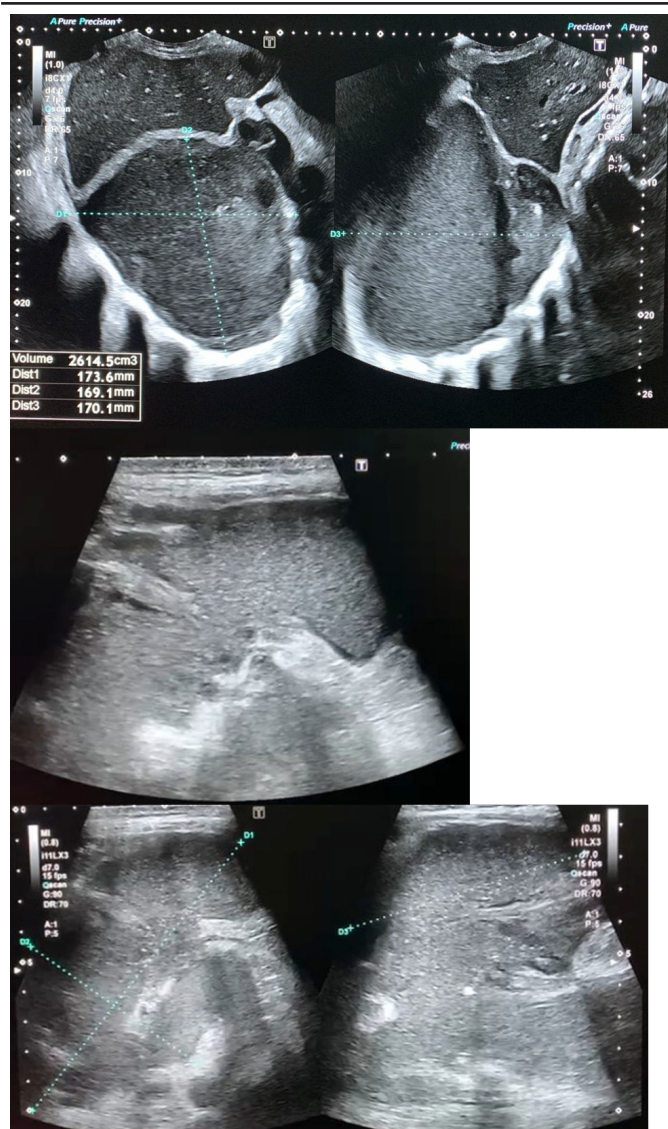
Ultrasound findings: Homogenous echogenicity mimicking the liver parenchyma, hyperechoic effusion with hyperechoic septation, pleural thickening and split pleura.

## Discussion

This case underscores the importance of the pseudo liver sign and importance of ultrasound in diagnosis of empyema.

The presence of gram-negative bacilli in pleural fluid should prompt investigation for abdominal sources. Effective management involves prompt drainage of pyogenic collections and appropriate antibiotic therapy.





The pseudo liver sign in ultrasound is demonstrated when non liver tissue exhibit echogenicity commonly expected from liver tissue.

### Conclusion

Empyema thoracis is a challenging condition requiring a high index of suspicion and comprehensive management. This case highlights the importance of ultrasound in diagnosis of empyema.

### Learning points

The presence of gram-negative bacilli in pleural fluid necessitates investigation for abdominal sources.

Prompt drainage and appropriate antibiotic therapy are crucial for managing subphrenic empyema effectively.

Ultrasound is invaluable in diagnosis of empyema thoracis.

It is important for radiologists to be aware of the pseudo liver sign of empyema thoracis.