

PHILIPS

Ultrasound

A patient with acute cholecystitis

Philips Lumify case study



A case study by
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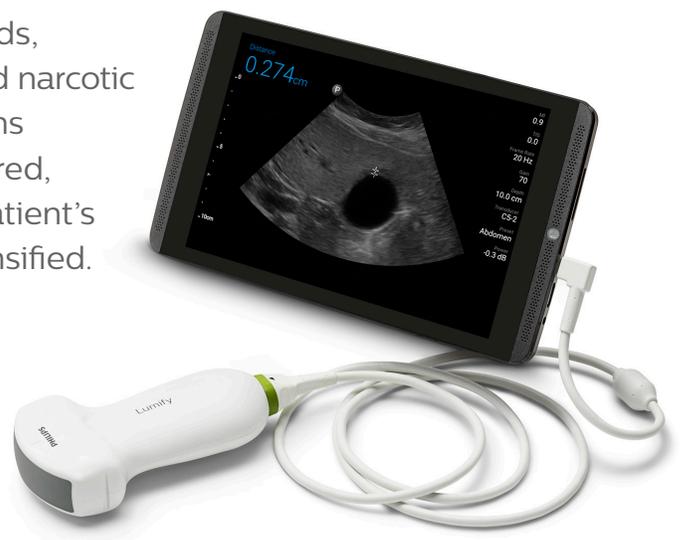
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At 3:00 AM, a 37-year-old female with a past medical history of diabetes and peptic ulcer disease was seen in our busy emergency department. The patient presented with two days of worsening diffuse abdominal pain, nausea, and vomiting. The initial abdominal exam revealed severe tenderness, mostly in the epigastrium but also in the upper abdomen bilaterally.

After a negative point-of-care pregnancy test and a normal creatinine, a CT scan was performed to evaluate for a potential perforated ulcer. The CT scan was normal.

Intravenous fluids, antiemetics, and narcotic pain medications were administered, however, the patient's symptoms intensified.





A patient with acute cholecystitis

Clinical case

Using a Philips Lumify ultrasound system, a point-of-care ultrasound (POCUS) examination was performed. The exam demonstrated normal kidneys, a normal aorta, and a non-pregnant uterus.

The POCUS exam of the gallbladder demonstrated a normal long-axis view. In the short-axis view, wall thickness was measured to be 0.274 cm and a suggestion of trace pericholecystic fluid was noted.

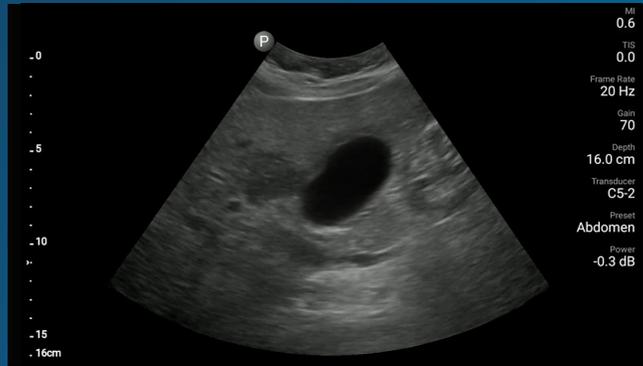
However, when scanning through the entire gallbladder, a large stone was identified in the neck. The patient was placed in the left lateral decubitus position. Repeated careful inspection confirmed that the large gallstone did not change position. Interestingly, the gallstone was not identified on the initial CT.

Results of subsequent lab studies were as follows:

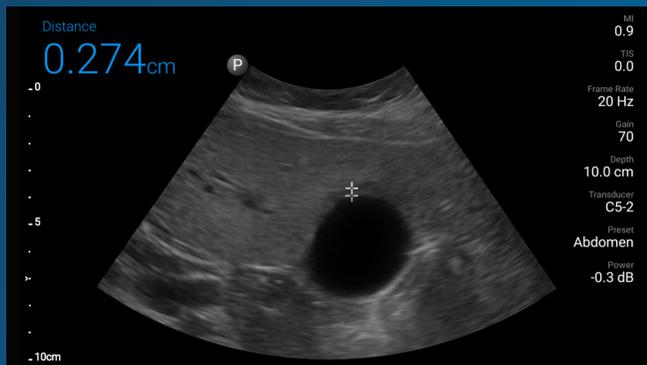
- Elevated WBC of 15,000
- Mild elevations in:
 - aspartate aminotransferase (AST),
 - alanine aminotransferase (ALT),
 - and alkaline phosphatase (ALP)
- Normal total and indirect bilirubin
- Glucose of 450
- Bicarbonate of 18
- Venous pH of 7.31
- Venous lactate of 3.5

The patient received additional intravenous fluids, insulin, and antibiotics. She was evaluated by general surgery and admitted for early acute cholecystitis with a large impacted stone in the neck of gallbladder.

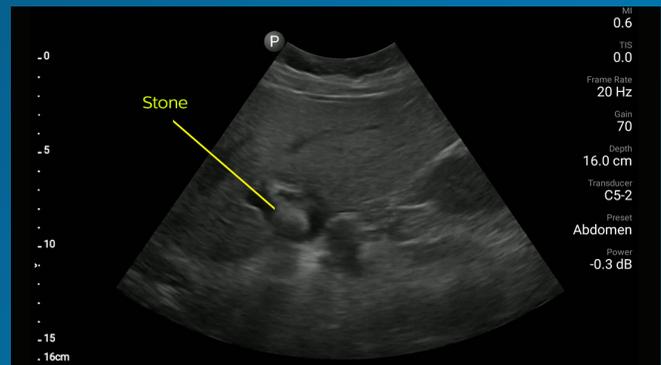
The patient was taken to the operating room later that morning and underwent an uncomplicated cholecystectomy. The patient was discharged two days later and recovered well.



Long-axis view of the gallbladder.



Short-axis view. A suggestion of trace pericholecystic fluid is noted.



Large stone in the neck of the gallbladder.



[Click here](#) to watch the video



Video demonstrates a large stone in the neck of the gallbladder.



A patient with an acute cholecystitis

Clinical impact

The POCUS exam was performed for the evaluation of persistent pain, despite a normal CT scan of the abdomen.

In this high-risk diabetic patient, the POCUS exam provided additional information that allowed the treating clinician to make the correct diagnosis, ensuring appropriate consultation, admission, and timely definitive management.

Conclusion

A POCUS exam of the gallbladder is indicated in any patient with suspected acute cholecystitis. Although patients classically present with right upper quadrant pain and a Murphy's sign on physical exam, atypical presentations are also common. The pain of biliary colic may be referred to the epigastrium and right shoulder.

For patients at higher risk of surgical pathology – such as the elderly, diabetic, or otherwise immunocompromised – the clinician should consider additional diagnostic imaging and continued observation when symptoms persist despite negative initial imaging.

Despite an atypical presentation and negative CT imaging, POCUS exam utilizing Philips Lumify quickly allowed the treating physician to make the correct diagnosis and provide the appropriate management for this high-risk patient.

