

Image 1

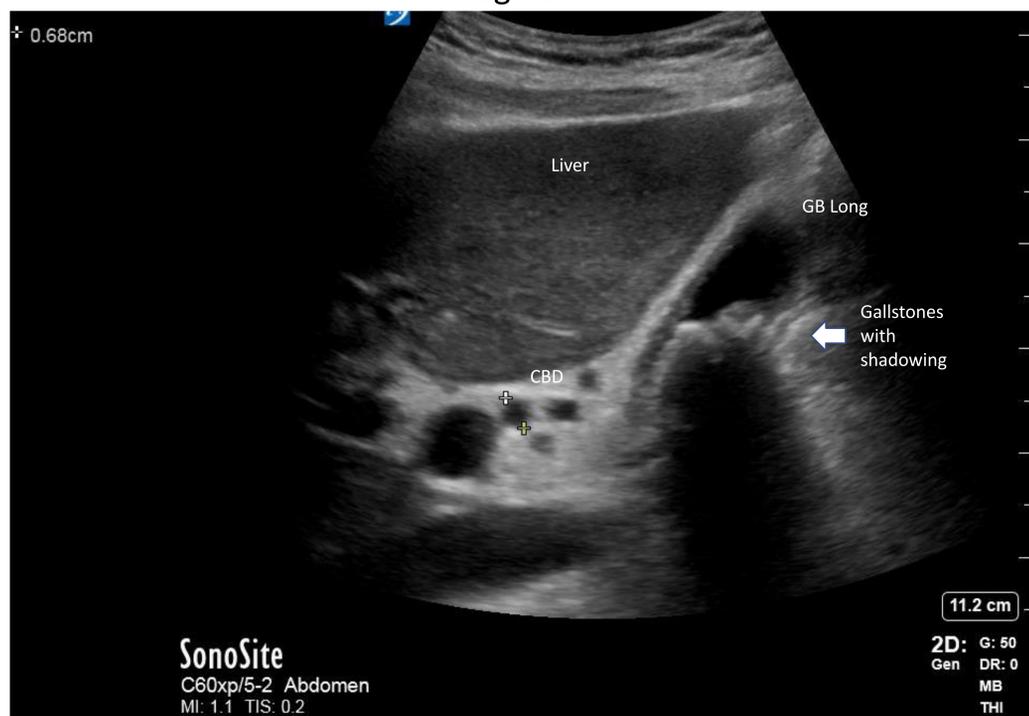


Image 2



## Chief Complaint

Persistent, progressively worsening, epigastric pain for one week

## HPI

50yo F with PMH HTN, ESRD on HD, HIV presents to the ED with persistent, progressively worsening, epigastric pain for one week. Her abdominal pain began as post-prandial, colicky and localized to the RUQ and has since progressed to a sharp, constant, generalized abdominal pain over the past day. Concurrently, she is experiencing fevers, chills, fatigue, nausea and endorsed one episode of non-bloody, non-biliary emesis earlier today.

## Physical Exam, Pertinent Labs, POCUS Findings

BP 196/102 Pulse 127 T 100.4F (oral) Resp 22 100% O2 RA  
 Constitutional: Ill-appearing, clearly in acute distress, answering questions appropriately

CV: Tachycardic, regular rate and rhythm, 2+ distal pulses  
 Pulm: Normal Respiratory effort, equal chest rise without accessory muscle usage, no respiratory distress  
 Abdominal Exam: Soft, mild distension, generalized TTP most pronounced in RUQ. + Murphy's sign on POCUS Biliary. + Guarding in RUQ. No CVA TTP bl

POCUS Biliary : +sonographic murphy 's, +gallstones with shadowing, +CBD dilation- .68cm, No FF seen at Liver tip or morrison's pouch

WBC 12.8 H/H 9.0/29.7  
 ALK Phos 324  
 Lytes/ Liver Enzymes WNL

## Flow of Case

The above point-of-care biliary ultrasound images were taken by the same resident 30 minutes apart, on reassessment of the patient, after the patient began complaining of increasing pain despite Morphine and Tylenol administration. Given the significant change in appearance of the gallbladder, the resident questions- did I "pop" the gallbladder?

## Questions

1. What is the arrow pointing to in the 2<sup>nd</sup> POCUS image?
2. What is the most sensitive imaging modality for acute cholecystitis?

## Answers

1. Duodenum- A common cause of false positive biliary scans is an air filled duodenum<sup>1</sup>. It is imperative that a biliary scan includes multiple views to avoid such false positives. In the hands of ER providers, POCUS has been proven to shorten ER visits due to shorter time to diagnosis and treatment.<sup>3</sup>
2. HIDA Scan- Although HIDA has a higher sensitivity and specificity than ultrasound, it is not first-line and is reserved for cases when ultrasound results are negative or equivocal. CT scans are another possible imaging modality with a sensitivity of 92% and specificity of 99%.

## Case Discussion

Acute cholecystitis is a common Emergency Department diagnosis, representing 3-10% of the pathology of those patients presenting with abdominal pain.<sup>2</sup> Point of care ultrasound (POCUS) evaluation of the biliary system has emerged as a popular method of assessing biliary disease and greatly expedites the evaluation of patients. Common findings on POCUS suggestive of acute cholecystitis include distension of the gallbladder lumen, anterior gallbladder wall thickening, common bile duct dilation, a positive ultrasonographic Murphy sign, and the presence of pericholecystic fluid.<sup>2</sup> As is the case with many diagnostic tools, errors can occur secondary to the clinician, the ultrasound machine, or anatomical variance. To avoid confusion and possible erroneous diagnoses, it is important, especially for the learner, to be aware of common causes of false positive findings. This case highlights one such finding in the setting of acute abdominal pain.

## References

1. Walas MK, Skoczylas K, Gierbliński I. Errors and mistakes in the ultrasound diagnostics of the liver, gallbladder and bile ducts. *J Ultrason*. 2012;12(51):446-462. doi:10.15557/JoU.2012.0032
2. Pinto, A., Reginelli, A., Cagini, L. *et al*. Accuracy of ultrasonography in the diagnosis of acute calculous cholecystitis: review of the literature. *Crit Ultrasound J* 5, S11 (2013). <https://doi.org/10.1186/2036-7902-5-S11>
3. Hilsden R, Leeper R, Koichopolos J, *et al*. Point-of-care biliary ultrasound in the emergency department (BUSED): implications for surgical referral and emergency department wait times. *Trauma Surg Acute Care Open*. 2018;3(1):e000164. Published 2018 Jul 30. doi:10.1136/tsaco-2018-000164