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Letter to the Editor

## Emphysematous Cholecystitis – A Life-Threatening Condition Needs Prompt Awareness

Zong-Sian Cai<sup>a,b,c</sup>, Cheng-Hsin Chu<sup>a,b,c</sup>, Chih-Jen Chen<sup>a,b,c</sup>, Ming-Jen Chen<sup>a,b,c,\*</sup>

<sup>a</sup> Division of Gastroenterology and Hepatology, Department of Internal Medicine, MacKay Memorial Hospital, Taipei, Taiwan, <sup>b</sup> MacKay Junior College of Medicine, Nursing and Management, Taipei, Taiwan, <sup>c</sup> MacKay Medical College, New Taipei, Taiwan.

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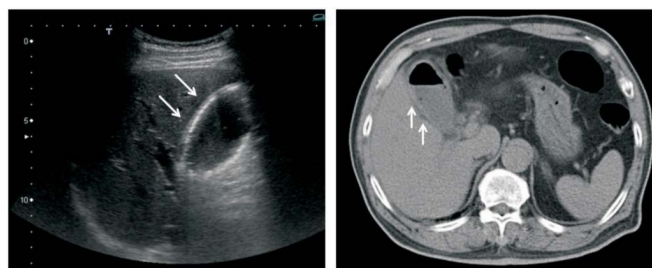
To the editor:

We have previously read a review article entitled “emergency sonography for the elderly” published in this journal.<sup>1</sup> Acute cholecystitis is one of the most common etiologies of acute abdominal pain in the elderly. Typical ultrasound finding include distended gallbladder, wall thickening with sonolucent layers, massive debris, and the stone impaction in gallbladder lumen or the cystic duct. We present a rare sonographic finding of emphysematous cholecystitis which needs prompt awareness.

A 79-year-old man with medical history of diabetics, hypertension, and coronary arterial disease was admitted due to right upper quarter abdominal pain for one day. Associated symptoms including nausea, fever up to 38.1 °C and chills were also noted. Physical examination revealed right hypochondriac tenderness and muscle guarding. Laboratory data showed leukocytosis with increased neutrophils and elevated aspartate aminotransferase and alanine transaminase levels (AST: 180 IU/L and ALT: 240 IU/L) and hyperbilirubinemia (total bilirubin: 4.9 mg/dL). Abdominal sonography in the longitudinal gallbladder axis showed distended gallbladder but with no wall thickening and edematous change. Curvilinear echogenic foci in anti-dependent part with reverberation artifact which raised the suspicion of emphysematous change of gallbladder wall (Fig. 1A). Abdominal computed tomography showed air forming within gallbladder and confirmed the diagnosis of acute emphysematous cholecystitis (Fig. 1B). Pneumobilia and cystic duct stones were also found. The patient received percutaneous transhepatic gallbladder drainage firstly and then cholecystectomy subsequently. He was recovered well after operation.

Firstly described in 1931, emphysematous cholecystitis is a rare form of acute cholecystitis but life threatening. Mortality rate could be as high as 15–20% when progressed to gangrene change and perforation of gallbladder if without prompt intervention.<sup>2</sup> According to case series reported by Chuang et al. in,<sup>3</sup> PTGBD showed

promising result for urgent intervention especially those aged people and with severe comorbidity. Preoperative PTGBD followed by cholecystectomy and broad-spectrum antibiotics may be considered when patient with several comorbidities and too ill to accept emergent operation. Diagnosis involves showing gas within lumen or wall of gallbladder by plain abdominal radiography, computed tomography or ultrasound.<sup>4</sup> Possible pathophysiology included ischemic change of the gallbladder wall because of increased intra-luminal pressure and infection of gas-forming bacteria, such as clostridium perfringens, *Klebsiella* species, and *Escherichia coli*.<sup>5</sup> Elderly people with diabetics and peripheral arterial disease may be susceptible group.<sup>5</sup> Typical ultrasound findings showed echogenic foci of gallbladder with reverberation artifact.<sup>4</sup> Changing position of patient could be helpful because of the mobility of air.<sup>4</sup> Air could be accumulated only in the anti-dependent part of gallbladder without obvious wall thickening. Familiar with pathognomonic ultrasound findings could help us to differentiate emphysematous cholecystitis from other disease. The reverberation artifact that occurs with emphysematous cholecystitis has a dirty appearance of the shadow given the presence of air, as opposed to a clean shadow that will be seen in porcelain gallbladder. Besides, gallbladder may be poorly visualized if in cases of porcelain gallbladder owing to the presence of calcifications.<sup>4</sup> Finally, emphysematous cholecystitis could occasionally present with real-time ultrasound punctate echogenic foci without acoustic shadowing in the gallbladder, as they move from the dependent wall to the top, mimicking the bubbles in a glass of cham-



**Fig. 1.** (A) Abdominal echography showed curvilinear echogenic foci in anti-dependent part with reverberation artifact (arrow). (B) Air density in distended gallbladder (arrow).

\* Corresponding author. Division of Gastroenterology and Hepatology, Department of Internal Medicine, MacKay Memorial Hospital, No. 92, Sec. 2, Chung-Shan North Road, Taipei, Taiwan.

E-mail address: [mingjen.ch@msa.hinet.net](mailto:mingjen.ch@msa.hinet.net) (M.-J. Chen)

pagne. Emphysematous cholecystitis is a life-threatening condition needs prompt awareness earlier.

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