

Emphysematous Cholecystitis: The Usefulness of Computed Tomography

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Abstract

A 67-year-old diabetic hypertensive man with hemiparesis and dysarthria due to previous cerebral contusion presented with right abdominal pain, a fever and shock. Computed tomography revealed air encircling the gallbladder. Emphysematous cholecystitis was correctly diagnosed, and emergency cholecystectomy was performed. The postoperative course was uneventful, and he was transferred to another medical facility for rehabilitation. Emphysematous cholecystitis is difficult to distinguish clinically from uncomplicated cholecystitis, so the diagnosis relies on imaging. The outcome of this high-mortality condition depends on its immediate diagnosis and treatment. The present case underwent emergent removal of emphysematous cholecystitis after a prompt diagnosis and obtained a survival outcome.

Publication History:

Received: April 20, 2018

Accepted: June 09, 2018

Published: June 11, 2018

Keywords:

Emphysematous cholecystitis;
Operation; Diagnosis

Introduction

Emphysematous cholecystitis is a fulminant variety of acute cholecystitis that differs in its pathology and epidemiology from cholecystitis induced by gall stones [1]. Emphysematous cholecystitis

linear echogenic focus with a reverberation artifact that had previously been seen in five patients (Figure 2), but it was difficult to discern whether the linear echogenic focus was the wall of the gall bladder or the liver edge. CT easily revealed air encircling the gallbladder (Figure 3). Emphysematous cholecystitis was diagnosed, and emergency



Figure 1: An abdominal radiograph obtained on arrival. The abdominal radiograph shows slight gas within the gallbladder wall (arrow).

is an uncommon and life-threatening condition, predominantly occurring in those ≥ 50 years of age and in male diabetics [1]. We herein report a rare case of emphysematous cholecystitis diagnosed by computed tomography (CT).

Case Presentation

A 67-year-old diabetic hypertensive man with hemiparesis and dysarthria due to previous cerebral contusion presented with right abdominal pain, a fever and shock. Abdominal radiography (Figure 1) showed slight gas within the gallbladder wall. Ultrasound depicted a

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Citation: Yanagawa Y, Omori K, Gushiken S, Tasaki K, Sugamoto Y, et al. (2018) Emphysematous Cholecystitis: The Usefulness of Computed Tomography. Int J Clin Case Stud 4: 133. doi: <https://doi.org/10.15344/2455-2356/2018/133>

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Figure 2: Ultrasound on arrival. Ultrasound depicts a linear echogenic focus with a reverberation artifact in the wall of the gall bladder (arrow). It is difficult to discern on ultrasound whether the linear echogenic focus is the wall of the gall bladder or the liver edge.

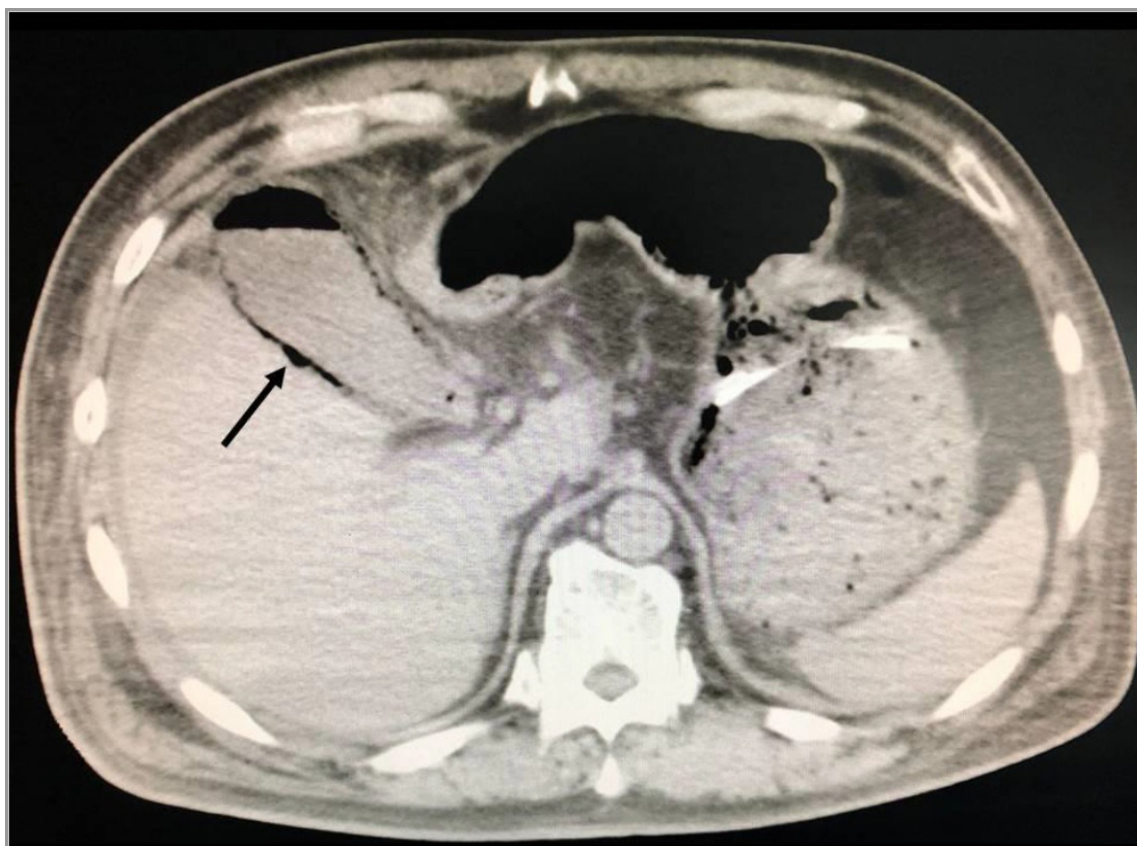


Figure 3: Computed tomography (CT) findings obtained on arrival. CT easily reveals air encircling the gallbladder (arrow).

cholecystectomy was performed. A pathological study revealed infected necrotic cholecystitis with colony formation by rod-type bacteria, findings compatible with emphysematous cholecystitis. A culture study for all specimens (blood, urine and ascites) was negative. The postoperative course was uneventful, and he was transferred to another medical facility for rehabilitation.

Discussion

Emphysematous cholecystitis is difficult to distinguish clinically from uncomplicated cholecystitis, so the diagnosis relies on imaging [2]. The careful examination of plain film might result in diagnosing this severe and rare entity. Ultrasound may show a linear echogenic focus with a reverberation artifact, suggesting emphysematous cholecystitis; however, an accurate diagnosis requires experience and familiarity. CT is believed to be the imaging modality that most frequently detects emphysematous cholecystitis, as its high spatial resolution allows for the detection of even small amounts of gas, similar to the present case [3-6].

Two factors may have induced the development of emphysematous cholecystitis in this patient: cystic artery compromise (in the setting of diabetes and renal failure) and immunosuppression [2]. Gas-forming organisms (as primary or secondary infection) are frequently observed, especially anaerobes, such as *Escherichia coli*, *Aerobacter aerogens*, *Klebsiella* spp., *Clostridium* spp., and *Salmonella* spp [7].

The outcome of this high-mortality condition depends on its immediate diagnosis and treatment. The present case underwent emergent removal of emphysematous cholecystitis after a prompt diagnosis and obtained a survival outcome.

Competing Interests

The authors have declared that no competing interests exist.

Author contribution

YY is the first author of this manuscript and the corresponding author. KO, SG, KT, YS, and FT participated in perioperative management of the patient, and data analysis or interpretation. All authors read and approved the final manuscript.

Funding

This work received funds from the Ministry of Education, Culture, Sports, Science and Technology (MEXT)-Supported Program for the Strategic Research Foundation at Private Universities, 2015-2019. Title is [The constitution of total researching system for comprehensive disaster, medical management, corresponding to wide-scale disaster].

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