中文題目：同時以產氣性肝炎與化膿性肝膿瘍表現案例報告

英文題目：Co-occurrence of emphysematous hepatitis and pyogenic liver abscess: A case report

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Introduction:

Infections with gas collection in the liver parenchyma are seen in gas-forming pyogenic liver abscesses and emphysematous hepatitis. The symptoms are non-specific, such as fever, altered mental status, and abdominal pain initially, but progress rapidly to septic shock. Treatment includes broad-spectrum antibiotics, percutaneous catheter drainage, and intensive care. However, early mortality occurs despite aggressive treatment. The diagnosis is based on radiography, preferably contrast-enhanced computed tomography. Clinicians may get initial clinical suspicion via plain-film X-ray examination. While pyogenic liver abscesses are widely reported, only a few cases with emphysematous hepatitis are published in the literature and were almost fulminant and fatal in the early days after admission. All survivors received surgical treatment. We report a case of emphysematous hepatitis and pyogenic liver abscess co-occurrence successfully treated by prompt percutaneous drainage, broad-spectrum antibiotics, and supportive care.

Case presentation:

A 58-year-old woman without known systemic disease presented to our hospital with a chief complaint of consciousness disturbance for days. There was no fever, headache, dizziness, muscle weakness, trauma, and drug use.

On physical examination, the patient had a Glasgow coma scale of 15 but was disoriented. She had right upper quadrant abdominal tenderness without muscle guarding. Her tympanic temperature was 37.3°C, and her other vitals were stable. Initial laboratory examination showed leukocytosis of 20,070 cells/mm3 with 91.6% neutrophils; lactate, 28.1 mg/dL; high-sensitivity C-reactive protein, 18.70 mg/dL; procalcitonin, 112.73 ng/mL; glucose, 684 mg/dL; blood osmolarity, 284 mOsm/kgH2O; sodium, 114 mmol/L; potassium, 2.7 mmol/L; calcium, 7.7 mg/dL; and magnesium, 2.2 mg/dL. Liver function tests showed aspartate aminotransferase levels of 558 IU/L; alanine aminotransferase, 324 IU/L; alkaline phosphatase, 640 IU/L; gamma-glutamyl transferase, 265 IU/L; total bilirubin, 2.01 mg/dL; and direct bilirubin, 1.05 mg/dL.

Abdominal computed tomography (CT) revealed a 10-cm gas collection replacing the hepatic parenchyma (Fig. 1), clustered fluid collection containing air and debris in segment VII, and multiple nodular lesions in both lungs, compatible with pulmonary septic emboli. Percutaneous drainage with an 8-Fr catheter was performed at 4 h of presentation. Ceftriaxone, an empiric broad-spectrum cephalosporin antibiotic, was prescribed with supportive and intensive care. Post-drainage chest radiography showed right subphrenic abnormal entrapped air with heterogenous radiodensity and raised right hemidiaphragm (Fig. 2).

During hospitalization, diabetes mellitus was diagnosed based on a high level of glucose and hemoglobin A1c of 14.1%. The pus and blood culture yielded Klebsiella pneumonia with no evidence of endophthalmitis or lesion of the gastrointestinal tract on esophagogastroduodenoscopy and colonoscopy.

She was transferred to the ordinary ward on day 3 of admission and discharged 32 days later. She had an uneventful recovery and remained asymptomatic and without recurrence on follow-up imaging.

Discussion:

Emphysematous infections are widely recognized in abdominal organs, including the urinary tract, gallbladder, uterus, stomach, and pancreas. They are potentially life-threatening conditions despite aggressive medical and surgical management [1, 2].

Infections with gas collection in the liver parenchyma are detected in gas-forming pyogenic liver abscesses and emphysematous hepatitis. Patients with both conditions have similar risk factors such as diabetes mellitus, liver diseases, cancer, or a recent abdominal surgery [2]. Initial clinical manifestations are usually non-specific (fever, altered mental status, and abdominal pain) and progress rapidly to septic shock [2].

Emphysematous hepatitis is diagnosed based on radiographic findings, preferably contrast-enhanced CT, which shows the replacement of the hepatic parenchyma with air in the absence of fluid collections or mass effect [3]. By contrast, clustered or multi-septated lesions with pus and fluid collections with mass effect are usually seen in the gas-forming pyogenic liver [2-4]. In our patient, abdominal CT revealed extensive gas formation replacing the hepatic parenchyma and fluid collection with air–fluid level in the liver parenchyma, compatible with the co-occurrence of emphysematous hepatitis and pyogenic liver abscess.

Organisms such as gas-forming bacteria, such as Klebsiella pneumoniae, Clostridium perfringens, Escherichia coli, Enterobacter cloacae, Streptococcus mutans, and Enterococcus faecalis, cause emphysematous changes with mixed acid fermentation from tissue necrosis [1, 2, 4, 5]. Patients with diabetes mellitus especially bear a high risk of emphysematous infections because of the high tissue levels of glucose facilitating fermentation with impaired transportation of gas by diabetic microangiopathy [4, 6].

In most reported cases, emphysematous hepatitis worsened fatally and can lead to early mortality within the first few days of admission [2, 7]. While the initial presentations could be subtle, a high clinical and radiological suspicion is important for early diagnosis, resuscitation, and appropriate infection control to obtain better outcomes [5, 6]. Despite the high convenience and availability of abdominal CT, clinicians should recognize this life-threatening condition on plain-film X-ray examination, which could offer initial clinical suspicion (Fig. 2).

Of the 12 documented cases of emphysematous hepatitis worldwide, only two patients survived, and both were treated by surgical debridement [2, 7]. Herein, we present a case of emphysematous hepatitis and pyogenic liver abscess co-occurrence that was successfully treated by prompt percutaneous drainage, broad-spectrum antibiotics, and supportive care.

Conclusion:

Infections with gas collection in the liver parenchyma are seen in gas-forming pyogenic liver abscesses and emphysematous hepatitis; both are potentially rapidly progressive and fatal diseases. The diagnosis is typically based on the presence of gas collection replacing the hepatic parenchyma on computed tomography; however, differentiating gas-forming pyogenic liver abscesses from

emphysematous hepatitis remained a radiologic diagnostic dilemma. Although rare, clinicians may get initial clinical suspicion via plain-film X-ray examination. For successful treatment of emphysematous parenchymal infections, early diagnosis, aggressive resuscitation, and appropriate infection control with medical and surgical therapy are necessary.

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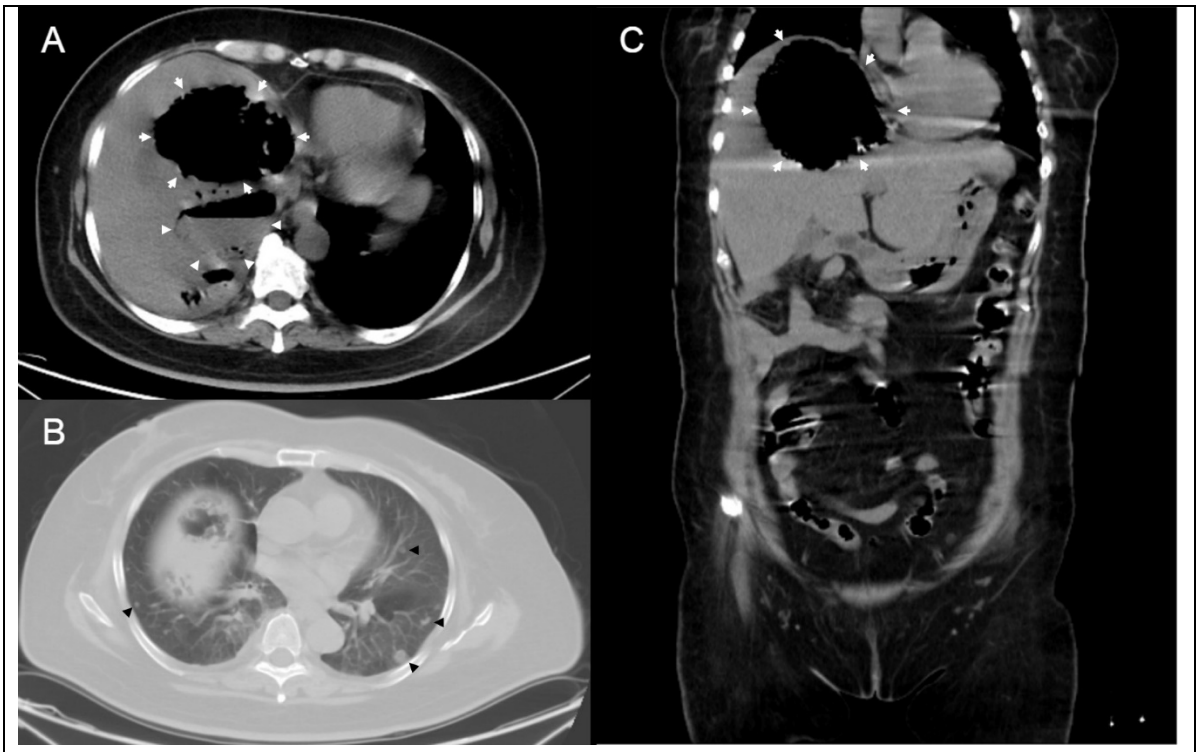
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