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# Visual Diagnosis in Emergency Medicine

## PSEUDOPNEUMOPERITONEUM CAUSED BY *KLEBSIELLA PNEUMONIAE* PYOGENIC LIVER ABSCESS

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### CASE REPORT

A 39-year-old male patient without any medical history presented to the Emergency Department with a 1-week history of intermittent fever and chills. He denied having cough, sore throat, abdominal pain, nausea, vomiting, dysuria, or diarrhea. Physical examination revealed tachycardia (heart rate 110 beats/min) without fever (body temperature, 37°C) or hypotension (blood pressure, 113/67 mm Hg). Abdomen was soft-palpated without tenderness. Standing chest x-ray study (CXR) showed a heterogeneous radiodensity with air-fluid level lesion over the right upper abdomen (Figure 1, black arrow). Laboratory data revealed leukocytosis (white blood cells, 16,700/$\mu$L) with left shift (segmented neutrophils, 88%); his C-reactive protein level was markedly elevated (34.64 mg/dL), whereas creatinine level was within the normal range (1.2 mg/dL). Hyperglycemia (serum sugar level, 707 mg/dL) was noted without diabetic ketoacidosis or hyperosmolar hyperglycemic state. Urinalysis showed unremarkable results. Due to radiolucency on standing CXR, computed tomography (CT) was performed; we observed a large intrahepatic hypodense lesion sized about 8 × 6 cm containing gas and fluid in the S7 of the liver (Figure 2, white arrows). Thus, a pyogenic liver abscess was diagnosed. A radiologist was consulted for urgent percutaneous CT-guided drainage; we were able to successfully drain about 140 mL/day. We administered flomoxef 1 gm every 8 h. Two blood culture sets showed growth of *Klebsiella*

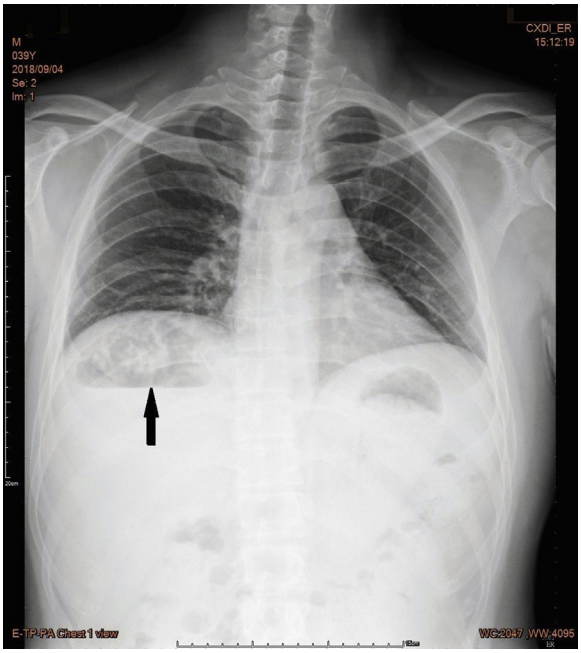


**Figure 1. Chest x-ray study showing a heterogeneous radiodensity with air-fluid level lesion over the right upper abdomen.**

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**Figure 2. Computed tomography scan showing an intrahepatic hypodense lesion sized about 8 × 6 cm containing gas and fluid in the S7 of the liver parenchyma.**

*pneumoniae,* which are gas-forming pathogens. Diabetes is one of the main risk factors for this condition. The patient was discharged after 27 days and had good recovery.

## DISCUSSION

Gram-negative *Klebsiella pneumoniae* is a notorious and life-threatening pathogen that generally causes pneumonia or urinary tract infection (1). Nevertheless, it has been found to be an invasive syndrome in Asia that causes liver abscesses (2). Fever, chills, and abdominal pain are the most commonly reported clinical presentations in patients with *Klebsiella pneumoniae* liver abscesses (KPLA). Nausea and vomiting have been observed in 25% of patients (3). However, no typical characteristics have been reported for KPLA. An elevated white blood cell count is widely observed in most KPLA cases. Thrombocytopenia, elevated C-reactive protein and serum glucose levels, and abnormal liver function are also common (4). CT has a higher sensitivity than sonography for diagnosing liver abscesses (5). In this case, radiolucency in the right subphrenic area on CXR indicated a diagnosis of liver abscess. Monotherapy with broad-spectrum penicillins, such as piperacillin-tazobactam or third-generation cephalosporins, is preferred in such cases. For a solitary abscess, antibiotic administration for around 2–4 weeks is recommended; for multiple abscesses, antibiotic administration is recommended for 6 weeks (6). Survival chances improve when appropriate antibiotics are selected for treatment and prompt percutaneous drainage of liver abscesses is performed (1).

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