Pneumobilia in chest radiograph

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Case report

A 64-year-old woman with a history of cholelithiasis and pneumobilia presented to our emergent department (ED) because of a 3-day history of abdominal pain. The pain was dull and in the right upper quadrant (RUQ) without migration or radiation. She also complained of fever, nausea, and vomiting.

She had a history of community-acquired pneumonia 18 months previously, and pneumobilia was found incidentally on chest radiography. The chest radiography at that time revealed pneumonia in the right lower lobe and air in the RUQ of the abdomen (Fig. 1). Abdominal computed tomography (CT) showed air in the biliary tree and intrahepatic duct (IHD) stones, which confirmed that the pneumobilia was due to IHD stones (Fig. 2). Because pneumobilia was asymptomatic, the surgeon suggested no surgical intervention was necessary. After treatment for pneumonia, she was discharged without intervention for the pneumobilia.

In the ED, she appeared acutely ill with no alterations of consciousness. Physical examination revealed a body temperature 38°C, heart rate 110 beats/min, respiratory rate 30 breaths/min, and blood pressure 80/60 mmHg. The bowel sounds were hypoactive, and the abdomen was tender over the RUQ without guarding or rebound tenderness. Laboratory studies revealed a white blood cell

count of 8.78×10^9 cells/L (87.5% neutrophils); hemoglobin, 14.0 g/dL; platelet count, 130×10^9 /L; C-reactive protein, 26.45 mg/dL; aspartate aminotransferase, 108 IU/L; alanine aminotransferase (ALT), 178 IU/L; total bilirubin, 3.62 mg/dL; blood urea nitrogen, 55 mg/dL; and creatinine, 3.4 mg/dL. Abdominal computed tomography (CT scan) demonstrated cholelithiasis, IHD stones, and common bile duct (CBD) dilatation. Under the impression of CBD stones with acute cholangitis and septic shock, emergent choledocholithotomy with T-tube insertion and stone removal were performed. Postoperatively, she was treated with broad-spectrum antibiotics, and was discharged uneventfully on postoperative day 10.

Fig. 1 Chest radiography showed right lower lobe pneumonia and air with a tree-like distribution in the right upper quadrant (arrows)

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Fig. 2 Abdominal computed tomography. Air in the biliary tract (*arrows*), dilated intrahepatic ducts (*black arrows*) and intrahepatic duct stones (*white arrow*)

Pneumobilia, or the gas in the biliary tract, is suggestive of an abnormal communication between the intestines and

the biliary ducts, or an infection by gas-producing organisms. It is usually a relatively benign condition, such as when it is recognized postoperatively; however, it can be a life-threatening condition, such as when due to an emphysematous infectious process [1]. Pneumobilia is more readily recognized on CT images than magnetic resonance imaging [2]. With careful attention, it can be seen on plain abdominal radiography or even on chest radiography. Prompt diagnosis and early surgical intervention are needed to minimize the significant morbidity and mortality associated with causes requiring surgical management [3]. While we can see delay in elective surgery until the pneumonia has cleared, it would have been more prudent to operate electively rather than emergently upon someone with pneumobilia from common duct stones. The elective gall bladder and common duct surgery should have been performed as soon as her condition was stable, because elective gall bladder and common duct surgery have a much lower morbidity and mortality by about 30% than when the patient needs the surgery on an emergency basis [4].

Conflict of interest None.

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