Case	(187) Rupture of a gas-containing hepatic abscess causing secondary pneumoperitoneum
Authors	A. Framis, E. Ballesteros, A. González, C. Cano, E. Casanovas, M. Costilla.
Centre	Corporació Sanitària Parc Taulí.

CASE PRESENTATION

A 80-year-old woman presented with a 12–hour history of severe abdominal pain, vomiting, and fever. Blood tests showed leukocytosis (14.42x10^9/L), lactic acidosis (48.6mg/dL), and elevated liver enzymes: AST 2078U/L, ALT 758U/L, total bilirubin 9.7mg/dL, and conjugated bilirubin 3.5mg/dL.

The initial diagnosis was sepsis of biliary origin and antibiotic treatment was initiated. However, her clinical condition clearly worsened over the next few hours, so an abdominal CT was performed.

The main CT findings were multiple small confluent gas abscesses in the right hepatic lobe (predominantly subcapsular in segment VII-VIII), gas inside the gallbladder, pneumobilia, and pneumoperitoneum (mainly perihepatic, and slight in epigastric and periumbilical regions).

The patient's poor condition precluded surgery, and the absence of well-defined collections precluded puncture-drainage of the abscess. A few hours later, she died of fulminant hepatic failure and septic shock.

DISCUSSION

Basing our discussion on the CT findings, we orient the case as an intraparenchymal hepatic infection with small confluent gas-containing abscesses in the right hepatic lobe with secondary involvement of the bile duct (pneumobilia) and peritoneal cavity (pneumoperitoneum).

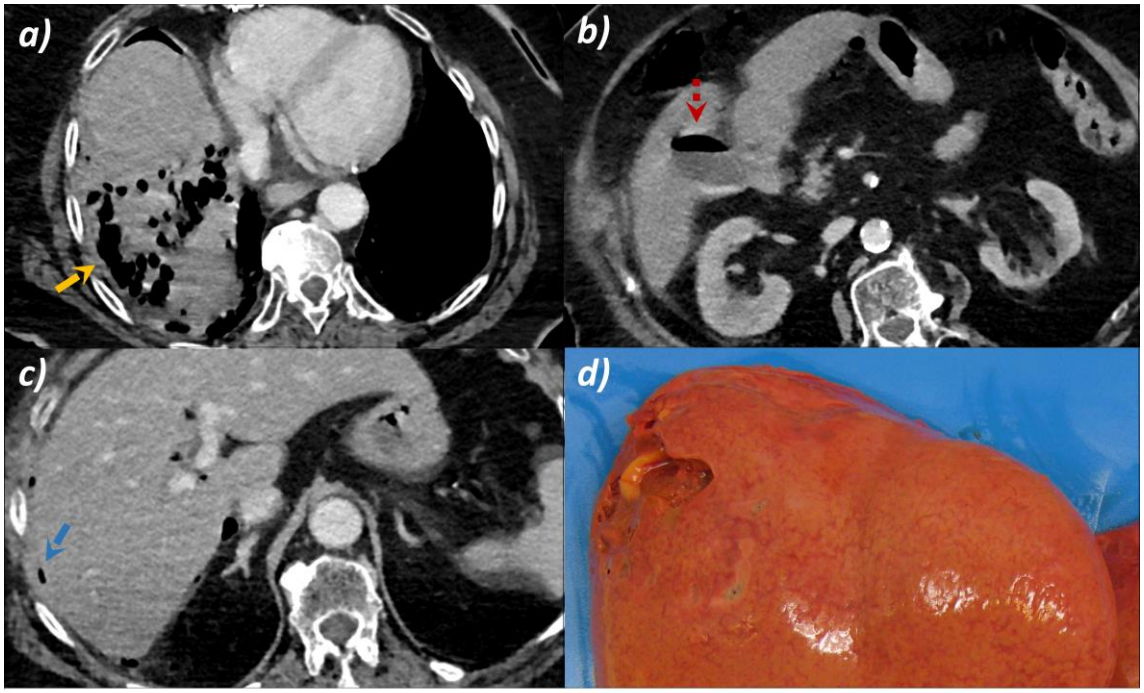
Autopsy revealed a large subcapsular abscess located in segment VII-VIII consisting of multiple small (1 cm–2 cm) cystic lesions, with a solution of continuity in the hepatic capsule that explained the pneumoperitoneum, and marked necrosis of the liver parenchyma. Blood cultures were positive for Escherichia coli and Clostridium perfringens.

The etiology of the liver abscess has not been determined. About 17% of liver abscesses contain gas, which is usually produced by anaerobic bacteria; the genera most frequently implicated are Clostridium and Klebsiella. Hepatic abscesses spontaneously rupture in 6.1% of cases; this complication is associated with increased mortality.

Main risk factors for rupture are cirrhosis, abscesses > 6 cm, gascontaining abscesses, and, probably, subcapsular distribution; our patient had three of these conditions.

CONCLUSION

Pneumoperitoneum is not always due to hollow-organ perforation; we present a case of pneumoperitoneum due to the rupture of a gas-containing hepatic abscess caused by C. perfringens, a gas-producing anaerobic bacterium.



a), b) and c) CT imatges: multiple confluent cystic lesions / small gas-containing abscesses in s. VII of the liver (➡), gas in gallbladder (➡), and pneumoperitoneum (➡).
d) Autopsy specimen: hepatic necrosis and a fibropurulent cavity with a solution of continuity in the hepatic capsule of s. VII of the liver, representing the ruptured gas abscess.

BIBLIOGRAPHY

- Mavilia MG, Molina M, Wu GY. The Evolving Nature of Hepatic Abscess: A Review. J Clin Transl Hepatol. 2016; 4: 158–168.

- Mann CM, Bhati CS, Gemmell D, Doyle P, Gupta V, Gorman DF. Spontaneous pneumoperitoneum: Diagnostic and management difficulties. Emerg Med Australas. 2010; 22: 568-570.