

Emphysematous liver abscess in a 58-year-old woman

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A 58-year-old woman with hypertension and type 2 diabetes mellitus presented to the emergency department after five days of fever, malaise, cough and epigastric pain. On examination, the patient's temperature was 40.8°C, pulse rate 133 beats/min and blood pressure 159/73 mm Hg. Laboratory investigations showed no leukocytosis (white blood cell count 6.2 [normal range 3.2–9.2] $\times 10^9/L$), but an excess of immature white blood cells of 21% (0%–3%), random serum glucose level of 22.2 (normal range 3.9–5.6) mmol/L, glycosylated hemoglobin (HbA_{1c}) of 11.2% (< 5.7%), alanine transaminase of 144 (normal range 2–40) U/L and serum creatinine level of 75.1 (normal range 50.4–98.1) $\mu\text{mol/L}$. A chest radiograph showed an air-fluid level lesion over the right subphrenic region (Appendix 1, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.180267/-/DC1). Based on the radiograph finding, the differential diagnoses were pneumoperitoneum, emphysematous cholecystitis, right emphysematous pyelonephritis, subphrenic abscess or interposition of the colon (Chilaiditi syndrome). Computed tomography of the abdomen confirmed the diagnosis of gas-forming pyogenic liver abscess (Figure 1, arrow). We drained the abscess using an ultrasound-guided pigtail catheter, and the patient was discharged after two weeks of treatment with a third-generation cephalosporin. Both blood cultures and the culture of the pus from the abscess grew *Klebsiella pneumoniae*. The patient was well on follow-up one month after discharge. Two months later, ultrasound showed no liver abscess.

Emphysematous liver abscesses were described by Smith¹ in 1944. Responsible for 6%–24% of bacterial liver abscesses, the most common pathogen is *K. pneumoniae*. Emphysematous liver abscesses are closely associated with poorly controlled diabetes (HbA_{1c} > 8%), as hyperglycemia may promote gas production by enhancing the glucose metabolism of the microorganism.² Such abscesses can usually be diagnosed using ultrasonography, abdominal radiography or computed tomography. They may be fatal if not promptly treated. Treatment is by antibiotics, transcutaneous drainage and intensive glucose control in diabetes, with surgery considered in those who develop peritonitis after abscess rupture.³



Figure 1: Computed tomography of abdomen of a 58-year-old woman, showing a huge cystic mass measuring 10 × 8 cm, with gas forming in the liver segments of IV, VII and VIII (arrow).

References

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