



Unusual Cause of Liver Abscess: *Clostridium perfringens*



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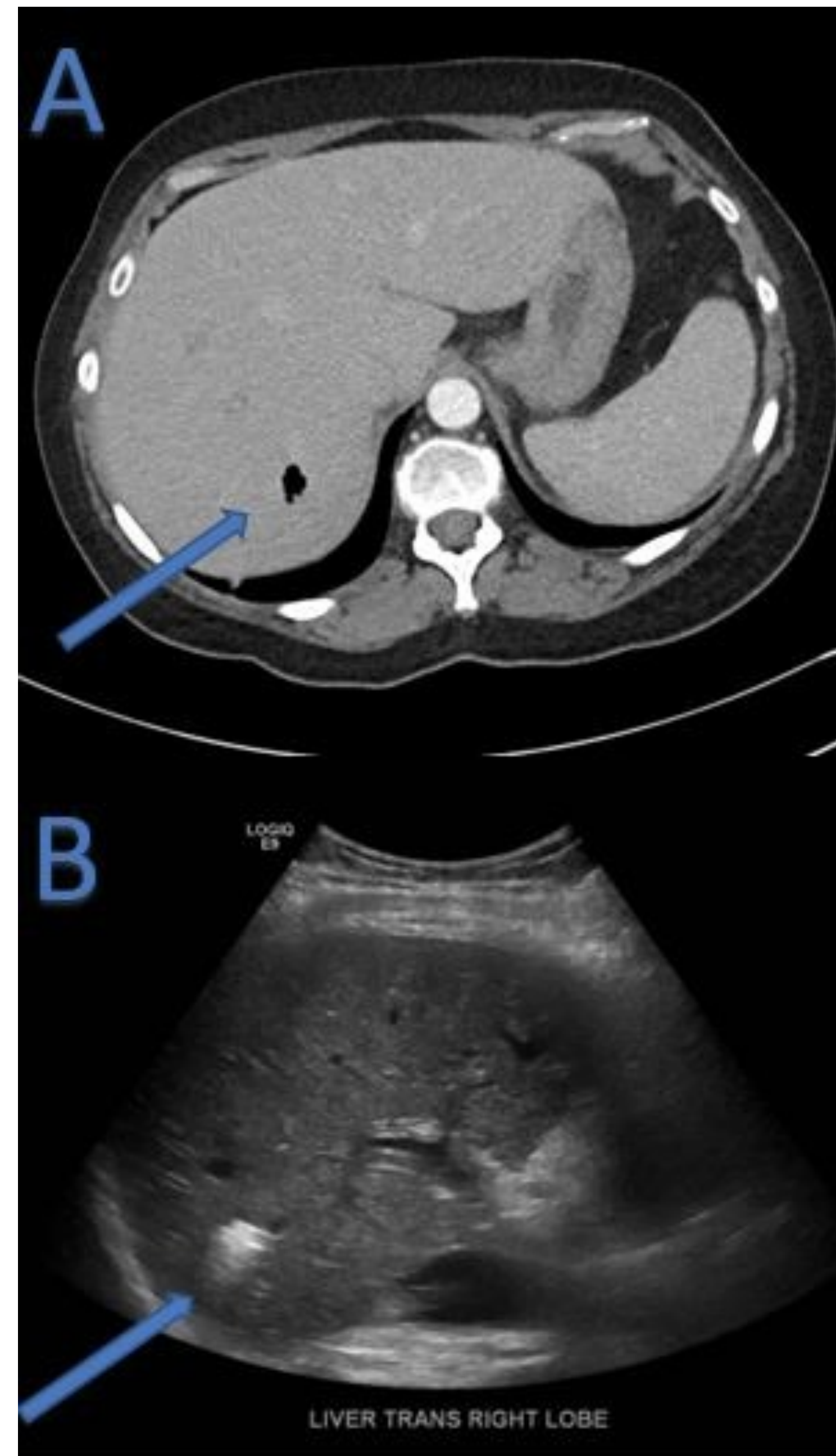
Background

- Clostridium perfringens* is a gas-forming, spore-forming, gram-positive bacillus that is typically found in soil or fresh water sources. Bacteremia due to *C. perfringens* is rare.
- Our case is a 52-year-old woman with *C. perfringens* bacteremia resulting in gas-forming liver abscess.

Case

- Our patient is a 52-year-old female with history of acute myelogenous leukemia who presented to the hospital with neutropenic fever. She was currently on consolidation chemotherapy with high dose cytarabine and her last treatment was four weeks prior to admission.
- Vitals signs show temperature of 103.0 Fahrenheit. She has pancytopenia with hemoglobin 4.0 g/dL, white blood cell count of $0.6 \times 10^3/\mu\text{L}$, and platelets are $7 \times 10^3/\mu\text{L}$. Her hepatic function testing on admission was abnormal with peak values of ALT 407 U/L, AST 474 U/L and total bilirubin 4.1 mg/dL (2.7 mg/dL was direct). Alkaline phosphatase was normal. Blood cultures were positive for *C. perfringens*.
- Computed tomography (CT) was obtained and showed gas within the right hepatic lobe (Figure 1A). An abdominal ultrasound showed a hyperechoic focus in the right hepatic lobe corresponding to the findings on CT (Figure 1B).

Figures



A) A CT scan of the abdomen showing a focus of gas in the right hepatic lobe (arrow). B) An ultrasound of the right upper quadrant showing focus of gas in the right hepatic lobe (arrow).

Clinical Course

- Ultimately, the patient was treated with two weeks of cefepime and metronidazole for her *C. perfringens* bacteremia with hepatic focus.
- Her clinical course improved with antimicrobial therapy. Hepatic function tests were within normal limits by the time of discharge.

Discussion/Conclusions

- C. perfringens* causes cytotoxic infection due to its alpha toxin, a lecithinase which breaks down cell membranes leading to cell lysis. Thus, our patient's severe acute anemia is explained in part by hemolysis due to clostridial infection. This organism is an uncommon cause of gas-forming liver abscess. A prior review of 119 cases of patients with gas-forming pyogenic liver abscess found only 8 to be infected with clostridia species. Malignancy and immunosuppression are both risk factors for *C. perfringens* infection and septicemia, both of which are present in our patient and thus made her more susceptible to clostridial infection. The etiology of her infection was potentially a bacterial translocation from the gastrointestinal tract.
- Mortality rate in patients with sepsis due to *C. perfringens* has been previously estimated at 70-100%. Thus, prompt recognition of this clinical syndrome is paramount so that early treatment can be initiated. Early appropriate antimicrobial therapy was essential to this patient's good outcome.