

Bacteroides fragilis Causing Liver Abscess and Pyelonephritis

Dear Editor,

Bacteroides fragilis is an obligate anaerobe and Gram-negative rod found in the oral cavity, gastrointestinal tract, genitourinary system, and skin.^[1,2] Infections with *B. fragilis* have been reported in the intra-abdominal, intestinal, hepatobiliary, skin and soft tissue, blood, lung, urinary, gynecologic organs, brain, cerebrospinal fluid, oral, heart valve, and bone. The risk factors for *B. fragilis* infection include rheumatoid arthritis, sickle cell disease, cancer, and ischemic heart disease.^[1]

A 68-year-old man presented with low-grade fever and poor appetite, followed by a 3-day history of watery diarrhea. The physical examination revealed no organomegaly or signs of peritonism. Abdominal ultrasonography revealed a multiloculated liver abscess in segment IV measuring 1.6 cm × 1.5 cm × 1.6 cm and features of the left pyelonephritis [Figure 1a]. *B. fragilis* was identified by matrix-assisted laser desorption ionization-time-of-flight mass spectrometry (Bruker) from an anaerobic blood culture sample after 2 days of incubation. The isolate was susceptible to metronidazole, with a minimum inhibitory concentration of 0.5 µg/mL [Figure 1b]. Further antimicrobial susceptibility testing showed

that the isolate was susceptible to amoxicillin-clavulanate and meropenem but resistant to penicillin and vancomycin. Surgical drainage was deferred due to the small size of the liver abscess. He responded to a week of parenteral followed by 3 weeks of oral metronidazole. A follow-up abdominal ultrasound revealed that the liver abscess and pyelonephritis had resolved.

B. fragilis is an obligate anaerobic gram-negative bacillus that forms part of the normal microbiota of the human colon. It is the most common causative organism in anaerobic bacteremia with intra-abdominal infection as the primary source.^[2] Patients with pyogenic liver abscess typically present with fever, chills, and right upper quadrant abdominal pain. Pyogenic liver abscesses are frequently associated with enteric Gram-negative bacilli (*Escherichia coli* and *Klebsiella pneumoniae*), Gram-positive cocci (streptococci, enterococci), and anaerobes (primarily *Bacteroides*).^[3] In addition, *B. fragilis* is a very uncommon cause of urinary tract infection. Liao *et al.* reported a case of emphysematous pyelonephritis caused by *B. fragilis* in which *B. fragilis* was isolated from the purulent fluid following percutaneous nephrostomy. The patient eventually had a left nephrectomy after failure of stone removal.^[4] Prompt pathogen identification, culture, and antimicrobial susceptibility are critical in the treatment of pyogenic liver abscess. Metronidazole is the antibiotic of choice for the treatment of *B. fragilis* infections, with resistance rates ranging from 0.5% to 7.8%.^[5]

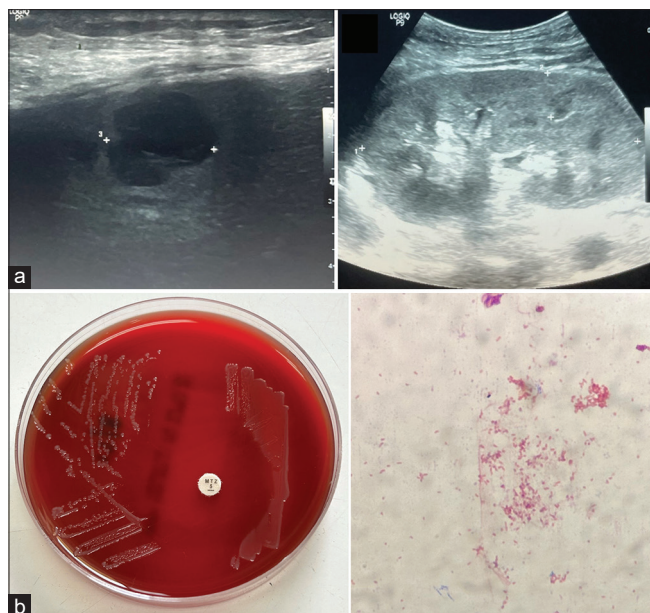


Figure 1: (a) Abdominal ultrasound showing liver abscess in segment IV and edematous left kidney. (b) After 48 h of anaerobic incubation, there were gray, round, smooth, glistening, and nonhemolytic colonies on the blood agar. The colonies were sensitive to metronidazole disc. The gram stain from the anaerobic blood culture bottle showed Gram-negative rods

Research quality and ethics statement

The authors followed applicable EQUATOR Network (<https://www.equator-network.org/>) guidelines, notably the CARE guideline, during the conduct of this report.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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