Answer to Photo Quiz: Bacteremic Liver Abscess Due to *Lactobacillus paracasei*

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Following an overnight incubation at 37°C in aerobic and anaerobic atmospheres, the subcultures from the abscess aspirate and from the positive blood culture bottles demonstrated nonhemolytic gray colonies on blood, chocolate, and anaerobic blood agar plates. The Gram stain morphology of these colonies showed rod-shaped Gram-positive bacilli, regular, not filamentous. The isolate was catalase negative. Matrix-assisted laser desorption ionization–time of flight mass spectrometry (MALDI-TOF MS; Bruker Daltonics) identified the isolate as *Lactobacillus paracasei*, with scores of 2.14. Partial 5′-end 16S RNA gene sequencing was performed, and identification based on BLAST analysis by using the NCBI nucleotide database yielded 100% homology to *L. paracasei*. Susceptibility testing was performed by the Etest strip method in brucella agar supplemented with hemin, vitamin K, and laked sheep blood, and the results were interpreted according to CLSI-M45 criteria. The isolate was susceptible to penicillin (MIC, 0.5 µg/ml), amoxicillin-clavulanic acid (MIC, 1.5 µg/ml), and clindamycin (MIC, 0.25 µg/ml) and resistant to metronidazole (MIC, >256 µg/ml) and vancomycin (MIC, >16 µg/ml). Ceftriaxone and metronidazole were discontinued and amoxicillin-clavulanic acid was added when the results of the cultures identified the pathogen. Elective cholecystectomy was performed as the definitive surgical treatment, and the patient was discharged on the 10th hospital day without further antibiotic coverage.

Lactobacillus, a large and heterogeneous genus, comprises microaerobic, catalase-negative, non-spore-forming, Gram-positive rods, usually innocuous, which constitute the normal flora of the human vagina, oropharynx, and gastrointestinal tract (1). However, lactobacilli also cause some serious human diseases, such as bacteremia, endocarditis, pneumonia, and abscess (2), and have recently been identified as potential emerging pathogens in immunocompromised patients (3, 4). Few sporadic cases of bacteremic liver abscess caused by *Lactobacillus* spp. have been reported. In most of the patients examined, there was an underlying condition, which compromised the systemic or local immunity, the most common of which was impaired glucose metabolism (5). In our case, uncontrolled diabetes could have contributed to the pathogenesis of this uncommon disease. The filamentous morphology in the direct Gram stain could be associated with low-pH stress. Also, the present case has demonstrated that the biliary tract is an important source of *Lactobacillus* sp. infections in immunocompromised patients (6).

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REFERENCES

- Hall V, Copesey S. 2015. *Propionibacterium*, *Lactobacillus*, *Actinomyces*, and other non-spore-forming anaerobic Gram-positive rods, p 920–939. In Jorgensen J, Pfaller M, Carroll K, Funke G, Landry M, Richter S, Warnock D (ed), Manual of clinical microbiology, 11th ed. ASM Press, Washington, DC.
- Burns D, Hurst JR, Hopkins S, Patch D, Burroughs AK, Agarwal B. 2007. *Purpura fulminans* associated with *Lactobacillus paracasei* liver abscess. Anaesth Intensive Care 35:121–123.
- Cukovic-Cavka S, Likic R, Francetic I, Rustemovic N, Opacic M, Vucelic B. 2006. *Lactobacillus acidophilus* as a cause of liver abscess in a NOD2/CARD15-positive patient with Crohn's disease. Digestion 73:107–110. <https://doi.org/10.1159/000094041>.

4. Lee MR, Tsai CJ, Liang SK, Lin CK, Huang YT, Hsueh PR. 2015. Clinical characteristics of bacteremia caused by *Lactobacillus* spp. and antimicrobial susceptibilities of the isolates at a medical centre in Taiwan, 2000–2014. *Int J Antimicrob Agents* 46:439–445. <https://doi.org/10.1016/j.ijantimicag.2015.06.017>.
5. Chan JFW, Lau SKP, Woo PCY, Fan RYY, Ip JJK, Chan CF, Luk JKH, Yuen K-Y. 2010. *Lactobacillus rhamnosus* hepatic abscess associated with Mirizzi syndrome: a case report and review of the literature. *Diagn Microbiol Infect Dis* 66:94–97. <https://doi.org/10.1016/j.diagmicrobio.2009.08.009>.
6. Chery J, Dvoskin D, Morato FP, Fahoum B. 2013. *Lactobacillus fermentum*, a pathogen in documented cholecystitis. *Int J Surg Case Rep* 4:662–664. <https://doi.org/10.1016/j.ijscr.2013.04.034>.